

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE
AND
REPORT FORMAT AND CONTENT REQUIREMENTS

CLIMATE CHANGE



LAND USE AND ENVIRONMENT GROUP

Planning & Development Services
Department of Public Works

November 7, 2013

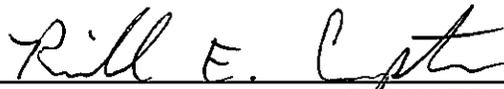
APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Climate Change** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning & Development Services, in coordination with the Director of Public Works on the 7th day of November, 2013.



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I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Climate Change** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the 7th day of November, 2013. The Director of Planning & Development Services is authorized to approve revisions to these Guidelines for Determining Significance and Report Format and Content Requirements for Climate Change, except revisions to the Guidelines for Determining Significance presented in Chapter 4.0 must be approved by the Deputy CAO.

Approved, November 7, 2013



SARAH E. AGHASSI

Deputy Chief Administrative Officer

COUNTY OF SAN DIEGO
GUIDELINES FOR DETERMINING SIGNIFICANCE
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EXPLANATION

These Guidelines for Determining Significance for Climate Change (Significance Guidelines) and the information presented herein shall be used by County staff for the review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Significance Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. Normally (in the absence of substantial evidence to the contrary), an affirmative response will mean the project will result in a significant effect, whereas effects that do not meet any of the Significance Guidelines will normally be determined to be “less than significant.” Section 15064(b) of the State CEQA Guidelines states:

“The determination whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on factual and scientific data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

The purpose of these Significance Guidelines is to provide for a consistent and objective evaluation of significant effects. These Significance Guidelines are not binding on any decision-maker and do not substitute for the use of independent judgment to determine significance or the evaluation of evidence in the record. The County reserves the right to modify these Significance Guidelines in the event of scientific discovery or new factual data that may alter the common application of a significance threshold.

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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
INTRODUCTION	1
1.0 GENERAL PRINCIPLES AND EXISTING CONDITIONS.....	2
1.1 Sources of GHG Emissions	3
2.0 EXISTING REGULATIONS AND POLICIES	6
2.1 Federal and International Efforts.....	6
2.2 State Regulations and Standards.....	6
2.3 Local Policy.....	8
3.0 ADVERSE EFFECTS.....	8
3.1 Public Health.....	8
3.2 Water.....	9
3.3 Sea Level Rise.....	9
3.4 Agriculture.....	10
3.5 Ecosystems and Habitats	10
3.6 Wildfire.....	10
4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE	11
4.1 Purpose and Intent	12
4.2 Use of the Guidelines for Determining Significance.....	14
4.3 Thresholds for Determining Significance.....	23
4.3.1 Efficiency Threshold	24
4.3.2 Bright Line Threshold	28
4.3.3 Stationary Source Threshold.....	30
4.3.4 Performance Threshold	32
5.0 MITIGATION AND PROJECT DESIGN CONSIDERATIONS.....	35
6.0 MONITORING AND UPDATE MECHANISMS	39
7.0 REFERENCES.....	41

LIST OF TABLES

Table 1	State of California GHG Emissions by Sector in 2008	5
Table 2	San Diego County GHG Inventory (2005).....	5
Table 3	Screening Criteria	18
Table 4	Implementing Threshold by Project Type.....	21

LIST OF EXHIBITS

Exhibit 1	Steps in Applying Guidelines for Determining Significance.....	16
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List of Acronyms

APCD	Air Pollution Control District
AB 32	Assembly Bill 32, The Global Warming Solutions Act of 2006
APS	Alternative Planning Strategy
ARB	Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BACM	Best Available Control Measure
BOS	County of San Diego Board of Supervisors
CalEEMod	California Emissions Estimator Model
CAP	Climate action plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
EIR	Environmental Impact Report
EPIC	Univ. of San Diego School of Law Energy Policy Initiative Center
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
MPO	Metropolitan Planning Organization
MT	Metric tons
MMT	Million metric tons
N ₂ O	Nitrous Oxide
NF ₃	Nitrogen trifluoride
OPR	Governor's Office of Planning and Research
PFC	Perfluorocarbon
RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SCS	Sustainable Communities Strategy
S-3-05	Executive Order S-3-05
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SF ₆	Sulfur hexafluoride
UNFCCC	United Nations Framework Convention on Climate Change
URBEMIS	Urban Emissions Model
VMT	Vehicle miles traveled
VOC	Volatile organic compound

INTRODUCTION

Based on the serious risk that climate change poses to the economic well-being, public health, natural resources, and the environment of California, the State of California enacted legislation intended to reduce greenhouse gas (GHG) emissions. The Global Warming Solutions Act of 2006, also known as Assembly Bill 32 (AB 32) establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions.

AB 32 requires reduction of statewide GHG emissions to 1990 levels by 2020. The Air Resources Board (ARB) adopted its Climate Change Scoping Plan to identify the main strategies California will implement to achieve GHG emissions reductions from each emissions sector of the state's GHG inventory, consistent with the provisions of AB 32.

The California Environmental Quality Act (CEQA) requires public agencies to review the environmental impacts of proposed projects and consider feasible alternatives and mitigation measures to reduce significant adverse environmental effects. The California Natural Resources Agency adopted amendments to the CEQA Guidelines to address GHG emissions, consistent with Legislature's directive in Public Resources Code section 21083.05 (enacted as part of SB97 [Chapter 185, Statutes 2007]).^{1,2} These changes took effect in 2010.

Local governments throughout California have enacted plans, programs, policies, and standards intended to reduce GHG emissions, including the County of San Diego (the County) and cities within San Diego County. Local governments throughout California are taking advantage of the various co-benefits of GHG-efficient planning. Even if reducing GHG emissions is not a priority, there are many local co-benefits of GHG-efficient planning.³ Land use and transportation policies that reduce vehicle miles traveled (VMT) and promote alternatives to automobile travel also can reduce household and business transportation costs, reduce harmful air pollution (other than GHGs), enhance mobility, and reduce time spent commuting. Compact development (which reduces GHGs) can also be more efficient to serve with public infrastructure and services. GHG-reducing measures and policies that promote energy efficiency reduce GHGs and can also save on household and business utility costs. Encouraging reinvestment and revitalization of existing developed areas can reduce VMT and GHGs, but also helps to conserve important open space functions elsewhere, such as agriculture, recreation, watershed protection, and others, by accommodating population and employment growth in already developed areas.⁴

Local lead agencies have taken a variety of approaches to addressing GHG emissions impacts in the context of local CEQA documents. This document provides a viable and substantiated approach to assessing significance for use by the County. The foundation of

¹ The CEQA Guidelines are found in the California Code of Regulations, title 14, sections 15000-15387.

² The Natural Resources Agency, in consultation with the Office of Planning and Research (OPR), is required to certify, adopt, and amend the Guidelines at least once every two years.

³ Bollen, J. et al. "Co-Benefits of Climate Change Mitigation Policies: Literature Review and New Results", OECD Economics Department Working Papers, No. 693, OECD Publishing, 2009.

⁴ A sampling of co-benefits was outlined in Governor Schwarzenegger's Executive Order S-3-05.

this document is regional data – inclusive of San Diego County cities, as well as the unincorporated areas. While this document was created for use by the County, it offers an approach that may be used by other lead agencies in the San Diego region, which have substantial discretion in analytical approaches and assessing significance under CEQA.

This report summarizes the County’s approach for developing Significance Guidelines to address GHG emissions impacts; guidance in determining the appropriate threshold for projects, assessing significance, and mitigating impacts; and updating the Significance Guidelines over time. An Appendix includes additional information related to analysis methods, assumptions, and background documentation related to the development of these Significance Guidelines. In addition, the County’s “*Report Format and Content Requirements*” document, under separate cover, provides instructions for analyzing and reporting GHG emissions for projects and plans.

In addition to GHG emissions, another important component of climate change for local governments is adapting to the future effects of a changing climate. Changing climate conditions are expected to have serious repercussions for public health, biodiversity, water supply and flooding, agriculture and forestry, wildfire risk, public infrastructure and facilities, and other issues. Communities prone to these effects will need to analyze and mitigate the impacts of climate change on projects, identify areas most vulnerable to these impacts, and develop risk reduction strategies. The State of California intends to work collaboratively to address these impacts, as noted in the 2009 California Climate Adaptation Strategy.⁵

Climate change analysis should include a discussion of the potential impacts of climate change on a project. Due to the specific nature of these potential effects on proposed projects, such impacts would typically be addressed in the other associated CEQA issue areas (water supply, water quality, habitat, wildfire risk, etc.), and only cross-referenced in the GHG section of the CEQA document.

1.0 GENERAL PRINCIPLES AND EXISTING CONDITIONS

GHGs play a critical role in determining the earth’s surface temperature. Outgoing infrared radiation is absorbed by GHGs, resulting in a warming of the atmosphere. This phenomenon, known as the “greenhouse effect,” is responsible for maintaining a habitable climate on Earth. Some human activities have increased atmospheric GHG levels in excess of natural ambient concentrations. This has led to a trend of unnatural warming of the earth’s atmosphere and oceans, with corresponding effects on global circulation patterns and climate.⁶

Although there are dozens of GHGs, State law defines GHG as being any of the following compounds: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons

⁵ California Natural Resources Agency. (2009). California Climate Adaptation Strategy. Available online at: <http://www.climatechange.ca.gov/adaptation/>. Accessed July 16, 2011.

⁶ Intergovernmental Panel on Climate Change. 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC. Geneva, Switzerland. Available: <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>.

(HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).^{7,8} CO₂ equivalent (CO₂e) is a measurement used to account for the fact that different GHGs have different global warming potentials based on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, 1 ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂ on a 100-year timescale, making CH₄ a much more potent GHG than CO₂.⁹

1.1 Sources of GHG Emissions

It is important to consider the main sources of GHG emissions when lead agencies conduct analysis and assess GHG emissions related impacts attributable to discretionary projects.

ARB maintains a statewide GHG emissions inventory. The ARB inventory includes estimates of the amount of GHGs emitted to and removed from the atmosphere. ARB's current inventory covers the seven compounds defined as GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃) for the years 2000 through 2008 (Table 1). Emissions estimates are presented by "Scoping Plan categories" which represent the major sectors identified for emissions reductions strategies in the ARB Scoping Plan. These include: transportation, electric power, commercial and residential, industrial, recycling and waste, high global warming potential, agriculture, and forestry.¹⁰ ARB's GHG inventory and forecast 2020 emissions are used as important metrics in implementing AB 32. The Scoping Plan identifies the main GHG emission sectors that account for the majority of GHG emissions generated within California. A brief description of each of the GHG emission sectors is provided below:

- **Transportation:** This sector represents the GHG emissions associated with motor vehicles, recreational vehicles, aviation, ships, and rail.
- **Electric Power:** This sector represents the GHG emissions associated with use and production of electrical energy. GHG emissions associated with out-of-state electricity production are also included as part of this sector.
- **Commercial and Residential:** Commercial and residential GHG emission sources include area sources, such as landscape maintenance equipment, fireplaces, and natural gas consumption for space and water heating.

⁷ California Health and Safety Code Section 38505(g).

⁸ The first six compounds listed here were also highlighted in the 2009 U.S. EPA Proposed Endangerment and Cause or Contribute Findings for GHGs under the Clean Air Act (Endangerment Finding) in the Federal Register. The Endangerment Finding is based on Section 202(a) of the CAA, which states that the EPA Administrator should regulate and develop standards for "emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare."

⁹ California Climate Action Registry. 2009 (January). California Climate Action Registry General Reporting Protocol, Version 3.1. Los Angeles, CA. Available: http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf. Last updated January 2009. Accessed July 12, 2011. See Appendix C, "Calculation References."

¹⁰ California Air Resources Board. Greenhouse Gas Inventory Data - 2000 to 2008. Available: <http://www.arb.ca.gov/cc/inventory/data/data.htm>. Accessed July 12, 2011.

- **Industrial:** This sector represents the GHG emissions associated with industrial land uses (e.g., manufacturing plants, refineries). Industrial sources are predominately comprised of stationary sources (e.g., boilers, engines) associated with process emissions.
- **Recycling and Waste:** This sector represents the GHG emissions associated with waste management facilities and landfills.
- **High Global Warming Potential:** This sector represents the generation of high global warming potential GHGs. Examples of high global warming potential GHG sources include refrigerants (e.g., HFCs), industrial gases (i.e. PFCs and NF₃), and electrical insulation (e.g., SF₆). Although these GHGs are typically generated in much smaller quantities than CO₂, their high global warming potential results in considerable CO₂e.
- **Agriculture:** This sector represents the GHG emissions associated with agricultural processes. Agricultural sources of GHG emissions include off-road farm equipment, irrigation pumps, residue burning, livestock, and fertilizer volatilization.
- **Forestry:** This sector includes emissions from forest and rangeland fires; disturbances, such as pest damage; development of rangelands; timber harvest slash; fuel wood; wood waste; and other sources. ARB also tracks sinks, or sequestration, associated with forestry.

The University of San Diego School of Law Energy Policy Initiative Center (EPIC) prepared a regional GHG inventory to examine specific emissions sources and levels in San Diego County, inclusive of the cities (Table 2).¹¹

Transportation is the most important emissions sector for the state and for the San Diego region. Transportation accounts for a higher proportion of GHG emissions in San Diego compared to the state, while electricity-related emissions represent the same proportion relative to the state as a whole. Industrial and agricultural emissions are substantially less represented in San Diego County compared to the state.

¹¹ The document is titled, “San Diego County Greenhouse Gas Inventory: An Analysis of Regional Emissions and Strategies to Achieve AB 32 Targets” and is available online at <http://www.sandiego.edu/epic/ghginventory/>.

Table 1 – State of California GHG Emissions by Sector in 2008

Sector	Total Emissions (MMT CO₂e)	Percent of Total Emissions
Transportation	174.99	37%
Electric Power	116.35	24%
Commercial and Residential	43.13	9%
Industrial	92.66	19%
Recycling and Waste	6.71	1%
High Global Warming Potential	15.65	3%
Agriculture	28.06	6%
Forestry	0.19	0%
Total	477.74	100%

Note: Table above does not include estimated carbon sinks from forestry of 3.98 million metric tons.
Source: ARB 2011.

Table 2 – San Diego County GHG Inventory (2005)

Sector	Total Emissions (MMT CO₂e)	Percent of Total Emissions
Transportation	19.7	58%
Electricity	8.3	24%
Natural Gas End Uses	2.9	9%
Industrial Processes and Products	1.6	5%
Waste	0.4	1%
Other/Other Fuels	1.3	4%
Agriculture (Livestock)	0.1	0%
Wildfires	0.3	1%
Development (Loss of Vegetation)	0.2	1%
Sequestration from Land Cover	-0.7	-2%
Total	34	100%

Source: EPIC 2011.

2.0 EXISTING REGULATIONS AND POLICIES

International, federal, state, regional, local, and governmental efforts have addressed GHG emissions and climate change. The following is a brief summary of these efforts.

2.1 Federal and International Efforts

A variety of international and federal actions have sought to address climate change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change (IPCC). IPCC reports provide scientific consensus on measurable changes to the climate; establish that these changes are caused by human activity; and identify that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.¹² In October 1993, President Clinton introduced the Climate Change Action Plan, with the goal of returning GHG emissions to 1990 levels by the year 2000.¹³ In 1994, the United States joined countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). The U.S Supreme Court ruled on April 2nd, 2007 that CO₂ is an air pollutant as defined under the CAA, and that the Environmental Protection Agency (EPA) has the authority to regulate GHG emissions.¹⁴

2.2 State Regulations and Standards

Assembly Bill 32, The California Global Warming Solutions Act of 2006¹⁵

The California Global Warming Solutions Act of 2006 (AB 32) enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires reduction of statewide GHG emissions to 1990 levels by 2020. In 2008, ARB adopted the Climate Change Scoping Plan, which identifies the main strategies California will implement to achieve the required reductions. The Scoping Plan states that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions.

Senate Bill 97

SB 97 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097) acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. The California Natural Resources Agency adopted amendments to the CEQA Guidelines (California Code of Regulations, title 14, sections 15000-15387) to address

¹² Intergovernmental Panel on Climate Change. Available: <http://www.ipcc.ch/>. Accessed: July 13, 2011.

¹³ President William J. Clinton and Vice President Albert Gore, Jr. 1993 (October). The Climate Change Action Plan.

¹⁴ United States Environmental Protection Agency (U.S. EPA). 2011. Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act. Available: <http://www.epa.gov/climatechange/endangerment.html>. Accessed: July 21, 2011.

¹⁵ Health and Safety Code Section 38500 *et seq.*

GHG emissions, consistent with Legislature's directive in Public Resources Code section 21083.05 (enacted as part of SB97 (Chapter 185, Statutes 2007)). These changes took effect in 2010.

Senate Bill 375

SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan (RTP).¹⁶ City or County land use policies (including General Plans) are not required to be consistent with the RTP (and associated SCS or APS).¹⁷ The ARB targets for the San Diego Association of Governments (SANDAG) region call for a 7% reduction in GHG emissions per capita from automobiles and light duty trucks compared to 2005 levels by 2020, and a 13% reduction by 2035.¹⁸

Executive Order S-3-05

Executive Order S-3-05 proclaims that California is vulnerable to the impacts of climate change, including increased temperatures that could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established targets for emissions reductions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Executive Order S-13-08

Executive Order S-13-08 directs state agencies to address sea level rise in assessment, coordination, and planning based on scenarios for the years 2050 and 2100.

¹⁶ This bill also extends the minimum time period for the Regional Housing Needs Allocation (RHNA) cycle to create a closer match with the timelines for revising RTPs (for the Metropolitan Planning Organizations affected by the bill). The RHNA is used to guide the amount of housing to be accommodated for the full range of household incomes in mandatory local housing plans (Housing Elements).

¹⁷ Provisions of CEQA directed under this legislation create streamlining for certain projects that are consistent with an approved SCS or APS. Residential or mixed-use projects that are consistent with the SCS/APS and incorporate mitigation measures from relevant prior CEQA document/s are not required to reference, describe, or discuss growth-inducing impacts or impacts of cars and light-duty truck trips on climate change or on the regional transportation network. "Transit priority projects," as defined in this legislation and future RTPs, are exempt from CEQA review.

¹⁸ California Air Resources Board (ARB). News Release: California Takes the First Step Toward More Livable, Sustainable Communities. Release #: 10-50. September 23, 2010. Available: <http://www.arb.ca.gov/newsrel/newsrelease.php?id=154>. Accessed September 19, 2011. California Air Resources Board (ARB). Staff Report. Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375. Date of Release: August 9th, 2010. Available: http://arb.ca.gov/cc/sb375/staffreport_sb375080910.pdf. Accessed September 19, 2011.

2.3 Local Policy

Legislation and executive orders related to climate change in California have established a statewide context and process for evaluating GHG emissions. Different GHG emission sectors would experience varying degrees of state regulation and would be reduced overall on a statewide level. Legislation already in effect will achieve statewide reductions of GHG emissions associated with electricity production, industry, vehicle miles traveled (VMT), and motor vehicle emission rates. Certain GHG emission sectors regulated by statewide or federal measures are beyond the control of local government (e.g., vehicle emissions standards, renewable energy portfolio standards). However, other sources of GHG emissions are strongly influenced by local policy.

Local land use authorities guide development patterns, community design, transportation facilities planning, and other factors known to influence VMT, which, in turn, influence GHG emissions associated with the transportation sector. Application of the Guidelines for Determining Significance to discretionary projects will identify projects that have cumulatively considerable contributions to climate change effects and that require feasible mitigation under the requirements of CEQA.

In addition, the County's General Plan incorporates smart growth and land planning principles intended to reduce VMT, and thus result in a reduction of GHGs. This will be accomplished by locating future development within and near existing infrastructure. The General Plan also directs preparation of a Climate Action Plan with reduction targets; development of regulations to encourage energy efficient building design and construction; and development of regulations that encourage energy recovery and renewable energy facilities, among other actions.¹⁹ These planning and regulatory efforts, in combination with application of the Significance Guidelines, will ensure that actions of the County of San Diego do not impede AB 32 and SB 375 mandates.

3.0. ADVERSE EFFECTS

California should anticipate hotter and drier conditions, reduced winter snow, increased winter rain, and accelerating sea level rise. Extreme weather events, such as heat waves, wildfires, droughts, and floods are expected to become more common. By 2050, temperatures are projected to increase by 1.8 to 5.4 °F.²⁰ Associated effects of climate change are briefly summarized in the material that follows.

3.1 Public Health

Climate change can trigger a range of public health effects. Extreme heat waves, increases in pollen, more frequent wildfires, and changes in the spread of vector-borne diseases represent threats to the public health. Climate change can also impact public health through changes to food supply, water systems, and shelter.²¹

¹⁹ San Diego County. General Plan Update – News. Available: <http://www.sdcountry.ca.gov/dplu/gpupdate/>. Accessed July 13, 2011.

²⁰ California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

²¹ California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

Health effects of increased temperature include heat exhaustion; heat stroke; and exacerbating existing cardiovascular and respiratory diseases, diabetes, nervous system disorders, emphysema, and epilepsy.²² Climate change can promote the formation of ground-level pollutants, such as ozone and particulate matter, which have been shown to have adverse health effects, particularly among sensitive populations.²³

3.2 Water

California can expect a 12 to 35% decrease in precipitation levels by mid-century, along with increased evaporation from higher temperatures. Snowpack serves a critical role in California's water supply. With increased temperatures, decreases in winter snow, and increases in winter rain, storage and conveyance of water supply will become more of a challenge.²⁴

The average early spring snowpack runoff has decreased by about 10% over the last century. The Sierra Nevada snowpack is projected to decrease by 25 to 40% by 2050 compared to its mid-20th century average.²⁵ The loss of snowpack would also hamper hydropower generation and snow-related recreational activities.

3.3 Sea Level Rise

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Recent estimates suggest sea level rise of up to 55 inches by the end of this century.²⁶ Sea level rise of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt natural habitats. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers.

Saltwater intrusion caused by rising sea levels is a major threat to water quality within the southern edge of the Sacramento/San Joaquin River Delta. Salt water intrusion will reduce water supply for plants, wildlife, agriculture, and metropolitan use.²⁷ The Delta accounts for a portion of San Diego County's water supply and is important to the state as a whole.

²² McGeehin, Michael A. and Mirabelli, Maria. (2001). The potential impacts of climate variability and change on temperature-related morbidity and mortality in the United States. Environmental Health Perspectives. Available: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240665/pdf/ehp109s-000185.pdf>. Accessed: July 13, 2011.

²³ California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

²⁴ California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

²⁵ California Department of Water Resources (2008). California Drought, An Update.

²⁶ California Ocean Protection Council. 2011. Resolution of the California Ocean Protection Council on Sea-Level Rise. Available: <http://www.opc.ca.gov/webmaster/ftp/pdf/docs/OPC_SeaLevelRise_Resolution_Adopted031111.pdf>. Accessed September 21, 2011. California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

²⁷ California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

3.4 Agriculture

Increased GHG emissions are expected to cause widespread changes to agriculture, reducing the quantity and quality of agricultural products statewide. Reductions in available water supply to support agriculture will impact production. Although higher CO₂ levels can stimulate plant production and increase plant water-use efficiency, farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks.

Rising temperatures promote ozone formation, which will, in turn, make plants more susceptible to disease and pests and interfere with plant growth. Plant growth tends to be slow at low temperatures and increase up to a certain point with rising temperatures. Faster growth, however, can result in less-than-optimal development for many crops, thus decreasing the quantity and quality of yield for a number of agricultural products.

3.5 Ecosystems and Habitats

Climate change is anticipated to adversely affect biological resources in a number of ways. Various temperature-sensitive plant and animal species would have to adapt to warmer temperatures or shift their geographic range, which may not be feasible in certain instances. Species migration and invasions will alter species interactions. Longer fire seasons will affect vegetation and help to spread invasive species. Sea level rise may wipe out critical habitat for coastal species.²⁸

The timing and amounts of water released from reservoirs and diverted from streams are constrained by their effects on various native fish, including rare species. Several potential hydrological changes associated with global climate change could influence the ecology of aquatic life and have several negative effects on cold-water fish. If climate change raises air temperature by just a few degrees, this could raise the water temperatures above the tolerance of salmon and trout in many streams, favoring non-native fish, such as sunfish and carp. Unsuitable summer temperatures would be particularly problematic for many of the threatened and endangered fish that spend summers in cold-water streams, either as adults, juveniles, or both.

3.6 Wildfire

Climate change is predicted to increase the number of wildfires and the acreage affected. Wildfire occurrence statewide could increase from 57% to 169% by 2085, depending on the emissions scenario, and events are predicted to be more severe.²⁹ The wildfire season is apparently already increasing in intensity, starting sooner, and lasting longer.³⁰

²⁸ California Natural Resources Agency. (2009). California Climate Adaptation Strategy.

²⁹ Westerling, A.L., B. P. Bryant, H. K. Preisler, H. G. Hidalgo, T. Holmes, T.P. Das, S. R. Shrestha. 2009 (August). Climate Change, Growth and California Wildfire. California Energy Commission, Climate Change Center.

³⁰ Keithley, Chris and Bleier, Cathy. 2008 (December). An adaptation plan for California's forest sector and rangelands. Sacramento, CA: California Department of Forestry and Fire Protection.

Increased fire activity can threaten life and property and can have harmful effects on air quality, watersheds and water quality, natural habitats, recreation, and forestry resources.

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

GHG emissions have the potential to adversely affect the environment since such emissions contribute, on a cumulative basis, to the significant cumulative impact of global climate change. Cumulative impacts are those that result from the combination of past, present, and probable future projects, producing related effects.³¹ The proper context for addressing GHG emissions is within an assessment of cumulative impacts because, although it is unlikely that a single project will contribute significantly to climate change, cumulative emissions from many projects could impact global GHG concentrations and the global climate system. State law has established that global climate change is a significant impact. This document is to be used to determine whether projects would have a cumulatively considerable incremental contribution to the significant impact of global climate change.

The County's Climate Action Plan (CAP) demonstrates a range of feasible reduction measures that will be implemented in order to achieve an overall communitywide reduction target. A set of project-specific implementing thresholds (4.3.1 through 4.3.4) will be used to ensure consistency of new projects with the County's CAP and the County's GHG emission reduction target. Please refer to Section 4.2 of this document, which provides a detailed, step-by-step guide to selecting the correct implementing threshold and use of the thresholds. Please refer to Section 4.3 and the Appendix for details on the approach embodied in each implementing threshold.

The overall framework for assessing consistency with AB 32 is provided by the CAP. The CAP includes GHG reduction measures that, if fully implemented, would achieve an emissions reduction target that is consistent with, and supports the state-mandated reduction target embodied in AB 32. For some project types, many of these CAP reduction measures would be relevant and should be incorporated as a part of project design or mitigation. For other project types, fewer CAP reduction measures would apply. To further ensure that the County's overall reduction target is achieved, considering the wide range of project types the County may approve during buildout of the General Plan, the County has prepared a companion set of quantified GHG emissions thresholds, as a supplement to the measures outlined in the CAP. The "dual approach" of using the County's CAP with quantified implementing significance thresholds provides the flexibility in addressing GHG emissions that will be needed for the diverse range of projects considered by the County, while also maintaining certainty that the County's reduction targets will actually be met, and that new development in the County will achieve its "fair share" of emissions reductions needed to reach the AB 32 mandate statewide.

The development of GHG Significance Guidelines involved both efficiency-based threshold development (i.e., how GHG efficient is the project at hand relative to reduction targets per resident + employee?), as well as a "bright line" for assessing significance. Conceptually, both the Efficiency-Based and the Bright Line Thresholds rely on determining the proportional

³¹ CEQA Guidelines Section 15130.

or fair-share of emission reductions required to meet the legislative mandate established in AB 32 that would be required within San Diego County. The Performance Threshold permits the application of project-specific mitigation measures that demonstrate a fair share of emissions reductions necessary statewide to achieve AB 32 targets. As mentioned previously, AB 32 requires that statewide GHG emissions must be reduced to 1990 levels by 2020.

This guidance document focuses on a 2020 timeline, consistent with the legislative mandate embodied in AB 32. Although it is possible that some projects and plans considered under the threshold guidance provided herein would be built out after 2020, there is not a comprehensive regulatory or legislative framework for addressing GHG emissions beyond 2020. Advances in science, new models for analysis, new mitigation, new state regulatory programs, technological advancement, and other new information will require the County to periodically consider whether revisions to this document are necessary. Please refer to Section 6.0 for more details on monitoring and updating of this document.

Future planning efforts that do not consider GHG emissions reduction strategies could conflict with AB 32, impeding California's ability to comply with the statewide mandate. The approach summarized in this document allows a comparative assessment of whether proposed projects would provide a fair share of emissions reductions needed to achieve the state's overall GHG emissions reduction mandate. Plans or projects that emit more than their fair share of GHG emissions could have a cumulatively considerable contribution to the significant cumulative impact of global climate change.

The Appendix provides more detail on the development of the implementing thresholds.

4.1 Purpose and Intent

Lead agencies are encouraged to develop and publish thresholds of significance for assessing environmental impacts under CEQA.³² The County's purpose and intent is to provide clear and consistent guidance for assessing the significance of GHG emissions impacts of proposed projects under CEQA.³³ The County has prepared this document to promote clarity and provide support for regional significance determinations related to GHG emissions. The significance criteria provided in this document will help to ensure that new development projects implement project design features and/or feasible mitigation measures to reduce GHG emissions. The structure of the significance thresholds allows for appropriate consideration of GHG reducing features of projects that can be a part of a project description (such as the project's location, design, density, mix of uses, surrounding land use context, and other elements), as well as modifications to the project's operational characteristics, materials, construction methods, and other mitigation measures.

³² CEQA Guidelines Section 15064.7 (a).

³³ GHG emissions have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change, which has been shown to result in sea level rise, changes in rainfall and snowfall (leading to changes in water supply), changes in temperatures and habitats (affecting biological resources), and many other adverse effects. The proper context for addressing this issue is within an assessment of cumulative impacts.

The process described in this document incorporates the precision needed for certainty in the environmental review process and also the flexibility needed to work within the context of a range of policy approaches to this complex and dynamic issue.

The County has drafted this document using guidance provided by the Natural Resources Agency in amendments to the CEQA Guidelines (California Code of Regulations, title 14, sections 15000-15387) to address GHG emissions. To this end, the County's work constitutes a good-faith effort, based on available scientific and factual data, using quantified standards, as well as qualitative guidance to assess significance of impacts under CEQA (CEQA Guidelines Section 15064.4). This document is consistent with state-of-the-practice methods for estimating net GHG emissions changes attributable to development projects. The methods and assumptions used in developing the Guidelines for Determining Significance are consistent with CEQA practice for GHG emissions analysis.

As noted previously, the approach embodied in this document is consistent with and supportive of the state's approach to reducing GHG emissions, as established by AB 32. This document provides the methods the County will use for determining, on a consistent basis, whether projects have contributed their fair share toward meeting the AB 32 legislative mandate and supporting efforts to reduce emissions beyond 2020.

Given the critical importance of land use and transportation planning for GHG emissions generation, oftentimes the most effective way to reduce emissions is through broad-scale planning efforts. General plans, community plans, specific plans, and GHG reduction plans are the most appropriate place for many communities to establish community GHG goals, policies, and standards for existing and new development. A long-term, comprehensive, integrated plan for reducing overall GHG emissions to a less-than-significant level can be preferable to a project-by-project analysis and mitigation of impacts. A programmatic approach can help to provide more predictable and consistent mitigation requirements based on an overall plan and emissions reduction target. When communities take a proactive approach to GHG emissions in their planning documents, they can create a context wherein more projects can succeed in providing GHG-efficient places. For example, a general plan or GHG reduction plan could involve the development of a more complete and connected transportation network that encourages walking, bicycling, and transit. Each project proposed within this jurisdiction would be able to increase its GHG efficiency by taking advantage of this complete and connected transportation network. Addressing GHG emissions at the planning level can help to build GHG emissions goals, policies, and performance standards into the selection of project sites and create a more supportive land use context. A programmatic approach can reduce the need to use the CEQA process to add mitigation requirements to projects after they are already located and designed. The County's General Plan and CAP take advantage of the aforementioned benefits of comprehensive and proactive planning to reduce GHG emissions.

4.2 Use of the Guidelines for Determining Significance

CEQA lead agencies use thresholds to differentiate between significant and less-than-significant adverse physical impacts on the environment. CEQA Guidelines Section 15064.7 provides guidance for lead agencies that wish to develop their own thresholds. A threshold of

significance is “an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.”³⁴

Lead agencies have substantial discretion in analytical approaches and assessing significance under CEQA. Although it is imperative to ground significance determinations in factual and scientific data, where possible, policy judgments are unavoidable in drawing the line between significant and insignificant impacts.³⁵

In order to make use of this document, there are three general guidelines:

1. Estimate GHG emissions associated with construction and operation of proposed projects. This includes both direct and reasonably foreseeable indirect GHG emissions from operations. Detailed instructions for GHG analysis and reporting are included in the County’s “*Report Format and Content Requirements*,” under separate cover.
2. Do not include “life cycle” emissions embodied in manufactured materials. Construction materials (primary manufacturing and transport) or other materials used in projects are intended to meet general market demand, regardless of whether any particular project proceeds.³⁶
3. GHG emissions from permitted stationary sources are estimated separately from a project or plan’s operational emissions. The County has provided a different set of guidance for determining significance for stationary sources.

The focus of the implementing thresholds in this document is on *net new* emissions.³⁷ The continued operation of existing facilities, buildings, neighborhoods, communities, and cities would not typically represent “projects” subject to review under CEQA. The approach summarized in this document acknowledges that *existing* development is responsible for some share of GHG emission reductions needed to achieve AB 32 targets.³⁸ Measures to reduce GHG emissions in existing development (as well as new development) are often

³⁴ CEQA Guidelines Section 15064.7.

³⁵ CEQA Guidelines Section 15064(b)

³⁶ In order to clarify whether life cycle emissions should be a part of CEQA analyses, 2010 amendments to the CEQA Guidelines removed the term “lifecycle,” since “the term could refer to emissions beyond those that could be considered indirect effects of a project as that term is defined in section 15358 of the State CEQA Guidelines.” California Natural Resources Agency, 2009 (December). *Final Statement of Reasons for Regulatory Action. Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*.

³⁷ Emissions from existing development in San Diego County are also factored into the analysis that was used to develop the significance guidelines contained herein.

³⁸ GHG emissions reductions to existing developed areas can occur through revisions to codes and standards. This could occur through investments in non-automobile transportation facility improvements that increase non-automobile mode shares, as well as transportation facility investments that would have the effect of reducing trip lengths in existing developed areas. This could occur through infill and reinvestment, as well as federal and state actions related to emissions standards, renewable energy generation, and other regulations over activities beyond local authority, but that would effectively apply to both existing and new development. Improvements in the efficiency of existing development could also occur through actions described in climate action plans (also known as greenhouse gas reductions plans). Such actions could include requirements for new development, as well as prescriptive, incentive-based, or strictly voluntary measures to reduce emissions from on-the-ground existing land uses.

considered as a part of local GHG reduction plans (also called climate action plans). The County has also developed measures to reduce emissions from existing development as a part of the CAP. So, while the application of the implementing thresholds included herein would be to new projects, the County is pursuing reductions from existing development, as well.

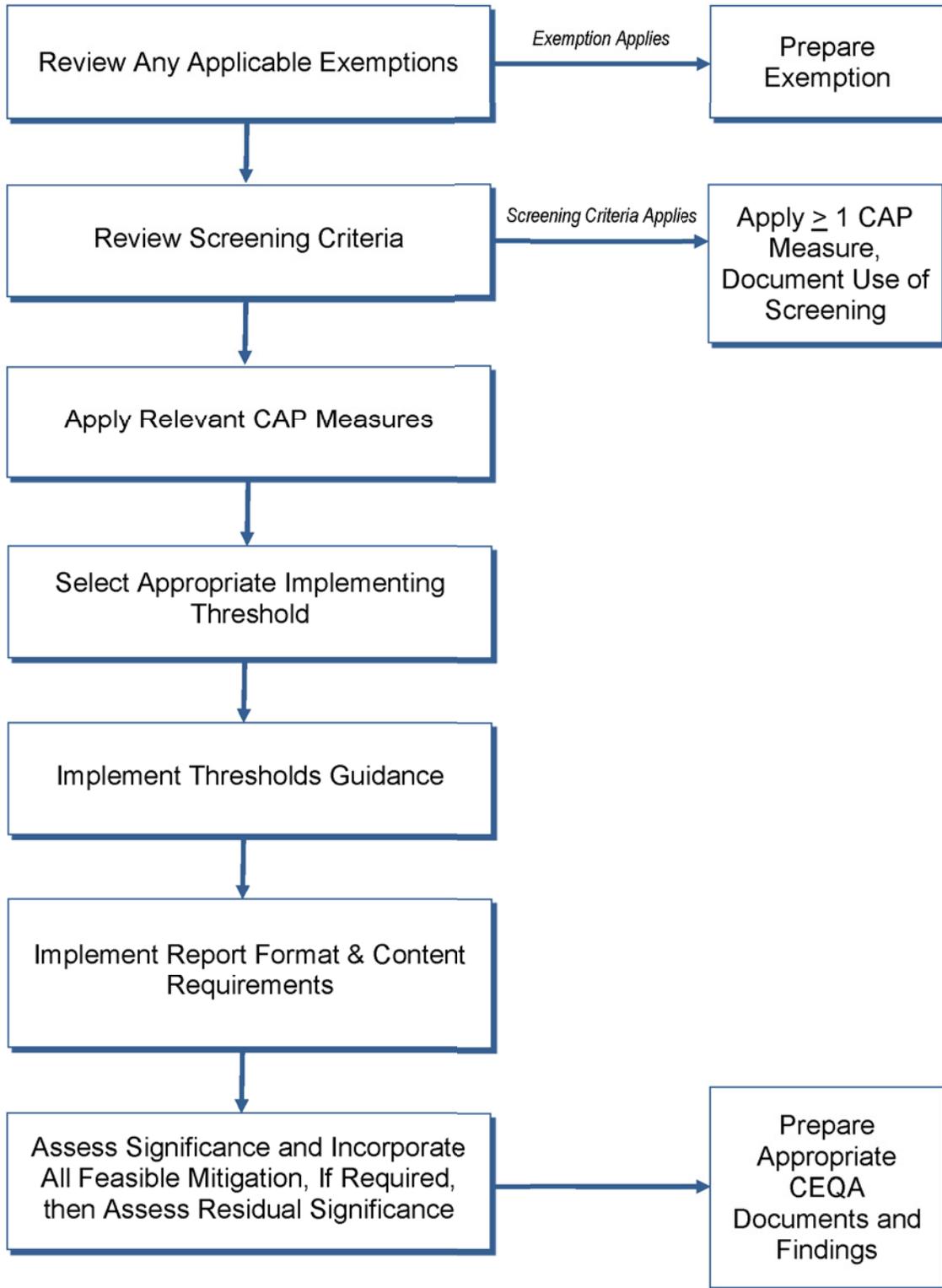
Net increases in GHG emissions relative to the existing baseline include only those emissions attributable to the project and take into account emissions displaced by the project, as well as verifiable emission offsets incorporated into the project design or mitigation (see Section 5.0 for more detail on mitigation strategies). Depending on the nature and purpose of a project, the net emissions increase could be positive, neutral, or negative. Certain infrastructure projects, for example, might have no net additional operational emissions if they simply reconstruct or remodel existing facilities without expanding capacity. Some projects may provide for more efficient operations compared to existing conditions and could actually reduce operational GHG emissions. Exhibit 1 provides a step-by-step guide to the Guidelines for Determining Significance.

Step 1. Review and Apply Exemptions

This Significance Guidelines document does not limit the County's use of tiering or statutory, categorical, general rule, or disapproved project exemptions. Project applicants should first coordinate with the County to determine whether the proposed project is subject to CEQA. If a project does not require CEQA analysis and documentation, then it would also not require the use of these Guidelines for Determining Significance. The County will also consider whether the project has been analyzed as a part of a prior environmental impact report (EIR), consistent with CEQA Guidelines Section 15183. Exemptions for "transit priority projects" that are consistent with the applicable Sustainable Communities Strategy or Alternative Planning Strategy, as described in Public Resources Code Section 21155, could apply to certain proposals.³⁹ If a proposed project is determined to be exempt from CEQA review for any reason, the Significance Guidelines would not apply.

³⁹ Streamlining for residential or mixed-use residential projects consistent with a sustainable communities strategy or alternative planning strategy may also be available for certain proposals, using guidance in Public Resources Code Section 21159.28.

Exhibit 1 – Steps in Applying Guidelines for Determining Significance



This Guidelines for Determining Significance document does not limit the County's administration of CEQA requirements or streamlining, as described in Section 15152 (Tiering), Section 15162 (Subsequent EIRs and Negative Declarations), Section 15163 (Supplement to an EIR), Section 15164 (Addendum to an EIR or Negative Declaration), Section 15168 (Program EIR), Section 15175 (Master EIR), Section 15179.5 (Focused EIRs and Small Projects), or similar provisions of CEQA and the CEQA Guidelines.

Step 2. Apply Screening Criteria

If the project is determined to be subject to CEQA review, the next step is to compare the project to a list of screening criteria.

The County developed screening criteria for a range of project types and sizes to identify smaller projects that would have less-than-cumulatively considerable GHG emissions effects (Table 3). If a proposed project is the same type and equal to, or smaller than the project size listed, it is presumed that the construction and operational GHG emissions for that project would not exceed 2,500 MT CO₂e per year, and there would be a less-than-cumulatively considerable impact. This assumes that the project does not involve unusually extensive construction and does not involve operational characteristics that would generate unusually high GHG emissions. For example, the County's screening approach is not designed to address projects with high global warming potential emissions. If a project does involve unusually extensive construction and operational characteristics the project shall select the appropriate implementing threshold and follow the guidance provided herein.

The screening criteria were developed using conservative assumptions so that the County can ensure projects of the types and sizes listed would, in fact, produce GHG emissions of less than 2,500 MT CO₂e per year. In this case, the term, "conservative," means that the assumptions used to develop the screening criteria are based on emissions estimates that may be somewhat higher than actual GHG emissions for projects of the types and sizes listed. For example, the single-family housing screening criteria is 86 dwelling units. If, however, the site in question is close to public transit, within walking distance of parkland and a school, within an easy bike ride of commercial retail and services, and has good quality pedestrian and bicycle facilities, it is possible that a 90- or 100-unit project in such a location could have GHG emissions of less than 2,500 MT CO₂e per year. Conservative assumptions were employed in this analysis, in part, to account for GHG emissions reductions needed beyond 2020.

It is not possible within a list of screening criteria to account for all the potential project location and design features that would increase or decrease GHG emissions. The objective is to ease administrative burden for small projects, while ensuring that projects that are screened out actually would have GHG emissions that are lower than the County's Bright Line Threshold (see Section 4.3.2 for more detail).

Table 3 – Screening Criteria

Project / Plan Type	Screening Threshold
Single-Family Housing	86 dwelling units
Low-Rise Apartment Housing	121 dwelling units
Mid-Rise Apartment Housing	136 dwelling units
High-Rise Apartment Housing	144 dwelling units
Condominium or Townhouse Housing	120 dwelling units
Congregate Care (Assisted Living) Facility	239 dwelling units
Elementary or Middle School	91,000 square feet
High School	103,000 square feet
University/College (four years)	336 students
Library	81,000 square feet
Restaurant	12,000 square feet
Hotel	106 rooms
Free-Standing Retail Store	31,000 square feet
Shopping Center	33,000 square feet
Convenience Market (24 hour)	2,000 square feet
Office Building	61,000 square feet
Office Park	56,000 square feet
Hospital	47,000 square feet
Warehouse	141,000 square feet
Light Industrial Facility	74,000 square feet

Notes: Land use types outlined in the table above are intended to correlate with those presented in the Institute of Transportation Engineers' Trip Generation Manual (8th Edition). Proposed project land use types will be compared with the land use types included in the screening table above to determine applicability. Low-rise apartments have one or two stories, such as garden apartments. Mid-rise apartments have between 3 and 10 stories. High-rise apartments are normally rental units in buildings with more than 10 stories. A shopping center includes a group of commercial establishments that is developed as a unit. A free-standing retail store (also known as "free-standing discount store") is a free-standing store with off-street parking that offers a wide range of customer services and would typically be open 7 days per week with relatively long hours. Office parks are normally in a suburban context and contain office buildings and support services arranged in a campus-type setting, whereas an office building would accommodate multiple tenants in a single structure. Light industrial facilities would typically involve assembly of processed or partially processed materials into products and would have an energy demand that is not substantially higher than office buildings of the same size and scale. Light industrial facilities would not typically generate dust, other air pollutants, light, or noise that is perceptible beyond the boundary of the subject property.

The screening criteria can be used for multi-use projects, as well. For each use, determine the ratio of the screening threshold. For example, a project that proposes 43 single-family dwelling units would represent 50% of the Single-Family Housing screening level. Then, add the calculated ratios for each individual land use. An example project proposes 43 single-family dwelling units (50% of the threshold), 36 low-rise apartment units (29% of the threshold), and 6,000 square feet in a retail store (19% of the threshold). Adding the ratios of the screening thresholds together yields a total of 0.991. If the sum of the ratios is less than 1.0, the GHG emissions for that project would not exceed 2,500 MT CO₂e per year, and there would be a less-than-cumulatively considerable impact.

Construction Screening Criteria

The County has also developed screening criteria for projects that would only increase GHG emissions during the construction phases. This would include projects to improve existing facilities, without increasing the operational capacity of such facilities. This screening approach does not apply to new roads or new pipelines that the County determines could induce growth. As noted elsewhere, the criteria presented here do not in any way limit the County's ability to apply CEQA streamlining techniques, such as CEQA exemptions. For example, the Class I statutory exemption for existing facilities and the Class 2 exemption for replacement or reconstruction of facilities would still apply and, if used, the screening criteria would not be required. The screening criteria only apply to projects with typical construction techniques and schedules, and would not apply to projects that have characteristics that would produce unusually high GHG emissions from equipment use or other sources. If a project has significant earthmoving activities (greater than 20 acres per day), involves substantial demolition, or has additional haul trips associated with construction activities, the screening criteria would not apply. Applicants shall consult with County staff to determine if project construction activities are consistent with the underlying assumptions used in development of the screening criteria.

As with the above screening criteria, the construction screening criteria was developed to ensure that projects of the types and sizes listed would, in fact, produce GHG emissions of less than 2,500 MT CO₂e per year. Projects of the types listed below would generally have less-than-cumulatively considerable impacts:

- Grading and clearing of land involving no more than 1,285 acres of land per year with no soil hauling, and no other aspect of construction or site preparation.
- Grading and clearing of land involving no more than 100 acres per year, assuming up to 3,100 cubic yards per day of soil hauling.
- Based on an average truck size of 20 cubic yards and an average hauling distance of 30 miles round trip, a project that would haul less than 3,300 cubic yards per day, not including emissions from any other activities, including off-road construction equipment.

- New pipeline of no more than 11 miles that would disturb no more than 81 acres of land assuming no more than 3,100 cubic yards per day of soil hauling.
- Roadway construction and facility maintenance activities include rubberized emulsion aggregate slurry (REAS) seals, asphalt concrete resurfacing, roadway widening, concrete and sewer repair, and culvert rehabilitation or construction. Screening levels shown here are only applicable to projects that generate GHG emissions during construction alone. If a project may have the potential to increase operations-related GHG emissions (e.g., vehicle emissions due to roadway widening), such emissions need to be estimated and analyzed according to the guidance provided herein. Below is a list of typical distances and emissions for these types of projects:

Construction Activities	Maximum Project Length & MT CO₂e value*	Based on Average Rated Horsepower/Project Area
REAS Seals	7,500 Miles / 2,250 MT CO ₂ e	2,227 HP/ 3 miles
Asphalt-Concrete Resurfacing	291.9 Miles / 2,248 MT CO ₂ e	2,514 HP/ 12 miles
Roadway Widening	23 Miles / 2,248 MT CO ₂ e	2,835 HP/ 6 miles
Concrete Repair	32 Miles / 2,184 MT CO ₂ e	2,877 HP/ 19 miles
Sewer Repair	5.9 Miles / 2,252 MT CO ₂ e	2,050 HP/ 4.55 miles
Culvert Rehabilitation	1,900 acres / 2,280 MT CO ₂ e	1,269 HP / 12.5 acres

* Greenhouse Gas Emission Study, January 4, 2013, RECON

- Construction project that would use a total horsepower in all equipment of no more than 1,984 per day, not including any soil hauling; or a construction project that includes up to 3,100 cubic yards of soil hauling per day and has a total equipment horsepower of no more than 742 per day. These daily horsepower limits are based on a project that would take approximately one year and would involve 262 working days in this year. Projects with a shorter duration may increase these horsepower limits proportionally.

Step 3. Apply Relevant Climate Action Plan Measures

If the project complies with the Bright Line screening criteria, at least one CAP measure shall be incorporated. Impacts would be considered less than cumulatively considerable. Refer to the “*County of San Diego CAP Compliance Checklist for Greenhouse Gas Analysis*,” which illustrates how to comply with the CAP.

If the project is of a type or size that does not comply with the screening criteria, the project should incorporate all applicable CAP measures and estimate emissions relative to one of the quantified implementing thresholds: Efficiency Threshold; Bright Line Threshold; Stationary Source Threshold; or Performance Threshold. The project requires a technical analysis to demonstrate that the project’s design features, along with relevant CAP measure/s and, if necessary, additional feasible mitigation measures, are incorporated that would allow the project to be below the Efficiency Threshold; Bright Line Threshold; Stationary Source Threshold; or Performance Threshold.

Step 4. Consider Project Type and Select Appropriate Implementing Threshold

The next step is to identify which implementing significance threshold to use for GHG analysis (Table 4). The County has provided implementing thresholds that are specifically designed to assess the significance of different types of projects. The appropriate implementing threshold/s must be used, as intended, for the project type. The type-specific implementing thresholds (4.3.1 through 4.3.4) provide guidance on assessing significance under the framework provided by the County’s CAP. Table 4 illustrates the proper use of implementing thresholds for different types of projects.

As shown in Table 4, projects with different emissions sources need to use different thresholds. For example, projects that involve both area/mobile and stationary sources would use the Stationary Source Threshold to evaluate the stationary sources and either the Efficiency Threshold, Bright Line Threshold, or Performance Threshold to evaluate the area and mobile sources.

Table 4 – Implementing Threshold by Project Type

Project Type	Implementing Threshold/s	Notes
Residential; retail; commercial service; private and government offices; warehouse and light industrial; lodging; public/quasi-public projects, including schools, libraries, clinics and hospitals, parks; and projects or plans proposing a mix of these or similar	4.3.1 Efficiency Threshold, <u>or</u> 4.3.2 Bright Line Threshold, <u>or</u> 4.3.4 Performance Threshold	Land use development projects can use the Efficiency, Bright Line, or Performance Threshold to assess significance.
Stationary sources, such as cogeneration facilities, boilers, flares, heaters, refineries, and other types of facilities, including stationary sources that are a part of a project or plan with other sources of GHG emissions.	4.3.3 Stationary Source Threshold	Projects that propose stationary sources use the Stationary Source Threshold. Projects that involve both area/mobile sources AND stationary sources would use the Stationary Source Threshold to evaluate the stationary sources AND either the Efficiency Threshold, Bright Line Threshold, or Performance Threshold to evaluate other emissions sources (area, mobile).
Mining, agriculture, forestry, landfill, airport, water and wastewater treatment, roadway, and other infrastructure projects.	4.3.2 Bright Line, Threshold <u>or</u> 4.3.3 Stationary Source Threshold <u>or</u> 4.3.4 Performance Threshold	Other project types that are not typically considered “land use development” projects have the option of using the Bright Line Threshold or the Performance Threshold. The Stationary Source Threshold shall be used for those portions of projects that involve stationary source emissions.

Step 5. Implement the Significance Thresholds (4.3.1 through 4.3.4)

The County has provided detailed guidance for the use of each implementing significance threshold. This guidance ensures consistent analysis and consistency of significance determinations. The guidance also ensures that the type-specific implementing thresholds (4.3.1 through 4.3.4) accurately assess whether projects contribute their fair share of GHG emissions reductions necessary to meet the AB 32 legislative mandate.

Step 6. Implement the Report Format and Content Requirements

The County has prepared detailed guidance for GHG analysis reports. The County's "*Report Format and Content Requirements*" document provides instructions for analyzing and reporting GHG emissions for projects and plans. This includes quantification (wherever feasible) of GHG emissions attributable to the subject project or plan. Once GHG emissions estimates are available, they can be compared against the appropriate implementing threshold.

Step 7. Assess Significance and Incorporate Feasible Mitigation, if Required

If impacts would be cumulatively considerable, according to the appropriate implementing threshold, feasible mitigation shall be incorporated (see Section 5.0 for detailed mitigation guidance). The emissions reduction benefit of mitigation must be quantified in a technical report, where feasible. Feasible mitigation is required to reduce total project emissions or project emissions per service population below the relevant type-specific implementing threshold level.

To estimate the effectiveness of mitigation, the County recommends using guidance in the California Air Pollution Control Officers Association document, "*Quantifying Greenhouse Gas Mitigation Measures*."⁴⁰ The acceptable tools to estimate the emissions with project mitigation include the Urban Emissions Model (URBEMIS), the California Emissions Estimator Model (CalEEMod), and spatially sensitive models, such as INDEX, I-PLACE³S, Sustainable Systems Integrated Model (SSIM), and others. Additional guidance on estimating mitigation effectiveness is provided in the County's "*Report Format and Content Requirements*" document.

If the effectiveness of mitigation cannot be quantified, specific performance targets may be established for mitigation measures to guide outcomes, as appropriate. Once all feasible mitigation is identified, the residual significance is assessed and reported.

In addition to any required mitigation, there may be other federal, state, regional, or local standards or requirements that may apply to projects and may reduce potential GHG emissions. This guidance document does not supersede or supplant any such requirements.

⁴⁰ California Air Pollution Control Officers Association (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures. A Resource for Local Government to Assess Emission Reduction from Greenhouse Gas Mitigation Measures*. Available: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf> Accessed July 16, 2011.

4.3 Thresholds for Determining Significance

The County's CAP provides the overall framework for assessing significance. The County's General Plan EIR identifies potentially significant effects related to GHG emissions, which are addressed by numerous General Plan policies and mitigation measures. The centerpiece of the County's efforts to avoid cumulative GHG emissions impacts associated with implementation of the General Plan is preparation of the CAP. The CAP demonstrates a range of feasible reduction measures that can be implemented to achieve an overall reduction target that is supportive of the state-mandated reduction target embodied in AB 32. Type-specific implementing thresholds (4.3.1 through 4.3.4) are provided in order to allow projects to clearly demonstrate compliance with the CAP and identify the significance of cumulative contributions to GHG emissions effects.

The overarching threshold, as embodied in the County's CAP is:

A proposed project would have a cumulatively considerable contribution to climate change impacts if it would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or would conflict with an applicable plan, policy, or regulation that was adopted for the purpose of reducing the emissions of greenhouse gases.⁴¹

CEQA analysis for projects in San Diego County can take advantage of tiering and streamlining provisions related to climate action plans described in Section 15183.5 of the CEQA Guidelines.⁴² The County's General Plan and EIR anticipated preparation of a CAP, which has since been prepared. If a project is consistent with an adopted plan adopted to reduce GHG emissions, lead agencies may tier from and/or incorporate by reference that existing programmatic review.⁴³ Based on consistency with relevant requirements of a GHG reduction plan, a lead agency may determine that a project's incremental contribution to climate change impacts is not cumulatively considerable. However, as noted in CEQA Guidelines Section 15064(h)(3), if "*there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding that the project complies with the specified plan... an EIR must be prepared...*"

If lead agencies intend to rely on GHG reduction plans in the manner contemplated by CEQA

⁴¹ This text is similar to that used in the CEQA Guidelines Appendix G to address Greenhouse Gas Emissions.

⁴² See also CEQA Guidelines Section 15130(d).

⁴³ In addition to tiering/streamlining from a climate action plan, analysis of GHG emissions impacts, along with other impacts, can implement various other tiering and analysis streamlining techniques allowed under CEQA. For example, project-level CEQA documents can rely on a program EIR that addressed GHG emissions, as specified in CEQA Guidelines Section 15152. Also relevant for use would be the provisions for program EIRs; master EIRs; EIRs for Specific Plans; and EIRs for zoning, community plans, and general plans; and focused EIRs for small projects. Please refer to CEQA Guidelines Sections 15162, 15168, 15175-17179.5, 15182, and 15183 for more details. The County will continue to apply CEQA exemptions and tiering, as appropriate, in the context of new projects. Lead agencies have additional streamlining that is available for certain residential and mixed-use projects and transit priority projects that are included as a part of an adopted sustainable communities strategy (SCS) or alternative planning strategy, as described in CEQA Guidelines Section 15183.5(c). GHG emissions from cars and light duty trucks do not need to be analyzed in the environmental analysis for such projects.

Guidelines Section 15183.5, there are specific components to include in such plans:

1. Quantified estimates of GHG emissions within a defined geographic area and over a specified period of time, and, where appropriate, estimates of population and employment;
2. Emissions reduction target or GHG efficiency target that is consistent with, and supportive of the legislative mandate embodied in AB 32;
3. Reduction measures, performance standards, incentives, and/or verifiable offsets that would collectively achieve the specified emissions reduction target or GHG efficiency target and could apply to both existing and new development; and
4. Provision to monitor implementation of each measure and progress of the GHG reduction plan in meeting the specified target, including a mechanism to consider changes to the plan, as necessary, to ensure progress toward the specified target.

GHG reduction plans are subject to CEQA review, public noticing, and public comment requirements. Methodologies and assumptions used in developing the GHG reduction plan should be documented and presented as a part of the public review process. The County has incorporated each of the above components in development of the CAP.

4.3.1 Efficiency Threshold

A proposed plan or project would have a cumulatively considerable contribution to climate change impacts if it would result in a net increase of construction and operational greenhouse gas emissions, either directly or indirectly, at a level exceeding 4.32 metric tons of CO₂e per year, per service population.

This guidance for determining significance represents the rate of emissions needed to achieve a fair share of the state's emissions mandate embodied in AB 32. The use of "fair share" in this instance indicates the GHG efficiency level that, if applied statewide, would meet the AB 32 emissions target and support efforts to reduce emissions beyond 2020. The intent of AB 32 is to accommodate population and economic growth in California, but do so in a way that achieves a lower *rate* of GHG emissions. With a reduced rate of emissions per resident + employee, California can accommodate expected population growth and achieve economic development objectives, while also abiding by AB 32's emissions target and supporting efforts to reduce emissions beyond 2020.

The level of emissions in 1990 represents the goal of AB 32 (i.e., reduce 2020 emissions to 1990 levels). The County identified the land use related parts of the 1990 emissions inventory and separated these sources of emissions from other emissions sources for the purpose of analysis.⁴⁴ The statewide inventory in 1990 for land use related emissions is approximately 264 MMT CO₂e. Using 1990 emissions levels and 2020 forecast population

⁴⁴ California Air Resources Board. 2010. *Inventory Data Archive – 1990 to 2004 Inventory*. Available: <http://www.arb.ca.gov/cc/inventory/archive/archive.htm>

and employment, this equates to 4.32 CO₂e emissions per resident + employee (service population).

Focusing on per-unit rather than mass emissions levels is sometimes called “GHG efficiency.” For land development projects, the use of an efficiency approach that considers emissions per resident + employee correlates with the activities that are accommodated by development: population growth and additional employment opportunities. Development projects and plans do not *create* new population or employment (except temporary construction related employment), but rather *accommodate* population and employment growth. One of the benefits of the Efficiency Threshold is that, because it does not focus on mass emissions, it is not necessary to isolate new emissions sources from exiting emissions sources that are moved to the subject project site. The efficiency approach allows lead agencies to assess whether any given project or plan would accommodate population and employment growth in a way that is consistent with the emissions limit established under AB 32.⁴⁵

“Service population” is a term used to express the total population plus employment of proposed projects. Projects that accommodate only employment and no residences would estimate the level of employment accommodated at buildout and use this figure to represent the service population. Projects that would accommodate only residences would estimate the population accommodated by the project when fully occupied. The population and employment estimates should be consistent, where applicable, with SANDAG methods and assumptions, as well as any relevant density and intensity standards in a general plan, community plan, specific plan, or zoning. The Southern California Association of Governments conducted an extensive study of employment density, published in 2001, that may be helpful in estimating the service population of proposed projects.⁴⁶ The State Department of Finance provides information related to household sizes that can be used to estimate residential populations of proposed projects. Household sizes differ depending on demographic characteristics, housing type and density, and location, among other factors. Locally appropriate assumptions should be used, whenever available, to estimate the

⁴⁵ The AB 32 emissions limit applies to statewide emissions levels. Through implementation of ARB’s Scoping Plan, various emissions sources will be reduced to achieve the statewide target. Economic feasibility is an important aspect of AB 32. From the language of the legislation (Health and Safety Code Section 38501 (h)): “*It is the intent of the Legislature that the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases established pursuant to this division in a manner that minimizes costs and maximizes benefits for California’s economy...*” Overall, implementation of the Scoping Plan has been shown to include benefits related to overall economic production, gross state product, personal income, per-capita income, household cost savings, and business cost savings. However, these economic benefits and cost savings will not necessarily be evenly distributed. The legislation directs the State to implement AB 32 in a way that minimizes costs and maximizes benefits, but not in a way that necessarily distributes costs and benefits equally across the regions of the state. The Efficiency Threshold provides a straightforward approach for projects to demonstrate consistency with the AB 32 mandate, without adjustments for local conditions. Other Thresholds provide a more locally tailored approach. The Bright Line Threshold, for example, uses regional growth forecasts and the San Diego region’s emissions profile. The Climate Action Plan includes measures that would achieve a specific local unincorporated County emissions reduction. Through the Climate Action Plan, the County was able to balance between those measures that are more or less efficient, given the specific local context. With the various options outlined in the Thresholds document, the County has provided both approaches that are directly connected to the AB 32 emissions limit (Efficiency Threshold, Performance Threshold) and those that take into account local conditions (Bright Line Threshold).

⁴⁶ The Natelson Company, Inc. 2001 (October). Employment Density Study Summary Report.

buildout service population of proposed projects.

This threshold is not designed to be used for projects or portions of projects that propose agricultural, forestry, or mining uses, manufacturing uses where the GHG emissions profile is largely a result of industrial processing, or permitted stationary sources of GHG emissions. This threshold is designed to be used to evaluate the operational emissions for projects and plans that include residential, commercial, civic, light industrial development, or a mix of these uses.⁴⁷ Analysis of mixed-use projects and plans will include GHG estimates for all land uses proposed – both residential and non-residential. For mixed-use projects or plans, full analysis of all proposed land uses – those that provide for a residential population and those that would provide employment – will balance with the “denominator” of the efficiency ratio, which includes population + employment.

To ensure that the Efficiency Threshold provides an accurate assessment tool, it is important to carefully consider the relationship between land uses proposed within a project, as well as the variety of land uses in the area surrounding the proposed project. Accurate GHG assessment techniques are needed to ensure that the GHG efficiency of mixed use and other project types is not understated or overstated. For example, if a retail project is proposed for a residential area that does not have any existing retail, this project could help to shorten existing trips or increase the mode shares for walking and bicycling, which would promote GHG efficiency. If a mixed-use residential and retail project was proposed instead, this may not achieve the same benefit in terms of GHG efficiency as a retail-only project located in a housing-rich location. Therefore, proper application of the GHG efficiency metric per service population would not create any undue “reward” for mixed-use projects. The GHG emissions for both the residential and non-residential components of mixed-use projects are included in the GHG emissions estimate, in balance with the inclusion of both population and employment in the “denominator” of the efficiency ratio. Proper use of the Efficiency Threshold reveals the benefits of projects that enhance land use diversity of the type that would be needed to provide a more “complete” community, with the requisite services. Proper use of the Efficiency Threshold will demonstrate the GHG efficiency benefits of projects that are located and designed to provide opportunities to reduce the rate of growth in vehicular travel demand, including the project’s location, design, land use context, and other important factors.⁴⁸

Net GHG emissions attributable to a proposed project or plan should be estimated using a cumulative scenario.⁴⁹ Use of the term “net emissions” in this context connotes a flexible

⁴⁷ Correctional facilities can count inmates as residents since inmates are included as a part of the statewide population estimates used to derive the Efficiency Threshold. Schools cannot count students as residents in the service population unless the students actually do reside at the school. Hospitals cannot count inpatients as residents as a part of the service population for the purposes of determining compliance with the Efficiency Threshold.

⁴⁸ If the same percentage GHG reduction were required of transit-oriented, infill, and/or compact development as dispersed, lower-density, automobile-dependent development, this could have the unintended consequence of discouraging the former and encouraging more of the latter. This same conceptual observation was observed by the California Energy Commission in considering the mitigation responsibility of new, efficient power plants vis-à-vis existing, less efficient and more polluting plants. See California Energy Commission. 2009 (March). Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications.

⁴⁹ Net emissions would consider plans and projects that reduce emissions through selection of a project site, adding land use diversity, GHG-efficient design, and other on-site strategies, as well as taking actions off-site. Net emissions

approach that would consider both on-site and off-site emissions reduction strategies. If offset or credit programs are used, it is important to ensure consistency of metrics used in the offset or credit program and the metrics used in the thresholds presented in this document (CO₂e rather than CO₂, annual emissions over the life of the proposed project rather than total emissions or emissions at a single point in time, etc.). The emissions estimate should focus on net new emissions attributable to project or plan operations. If there are existing legal sources of GHG emissions on the subject site at the time of analysis and the project proposes to remove these emissions, they can be “netted out” of the final GHG emissions estimate.

VMT used in deriving GHG estimates for comparison against the Efficiency Threshold should account for the relationships between project land uses and surrounding land uses, as well as the transportation network. The VMT used in estimating GHG emissions should represent the difference between: (1) cumulative areawide VMT *without* the project and (2) cumulative areawide VMT *with* the project. VMT estimates should reflect aspects of the project’s location, density, design, access to non-automobile transportation facilities, travel behavior of inhabitants, and other relevant characteristics that affect travel demand and mode choice.

There are many tools available today that are routinely used to derive more accurate measures of VMT than historically had been used for transportation and air quality analysis, including estimates that are sensitive to the surrounding land context, urban design elements, access to non-automobile travel options, density, demographics, and other important factors. This continues to be an active area of research, as well. VMT estimates and methods must be verifiable and approved by County staff. The guidance to estimate VMT by examining the difference between cumulative with project and cumulative without project conditions is for the purposes of assessing GHG emissions estimates only. Local guidance on estimating travel demand should be used, as appropriate, for the purpose of traffic impact assessment.

All applicable, adopted statewide measures that would be implemented by 2020 can be included when estimating GHG emissions under the Efficiency Threshold. Applicants shall coordinate with the County prior to conducting the analysis to ensure that applicable statewide measures are included and to ensure that the emissions reductions levels from statewide measures are appropriate for the subject project. Please refer to the County’s “*Report Format and Content Requirements*,” under separate cover, which provides additional detailed guidance.

Construction-related emissions must be analyzed and included as a part of the assessment

represent the total after cumulative emissions are calculated, along with other GHG-reducing components of a project. Carbon offset programs are designed to achieve a net emissions objective by allowing additional emissions but also requiring purchase of offsetting credits. Funds from these credits could be used for a variety of projects, such as planting trees (which absorb carbon dioxide), converting vehicle fleets to more efficient/less polluting technologies, funding for energy efficiency retrofits of existing buildings, renewable energy projects, and other activities. For a discussion of the potential for carbon offsets in the context of “indirect” GHG emissions and the California regulatory context, see Timothy P. Duane and Joanna D. Malaczynski, “Reducing Greenhouse Gas Emissions from Vehicle Miles Traveled: Integrating the California Environmental Quality Act with the California Global Warming Solutions Act,” *Ecology Law Quarterly*, Vol. 36:71.

of project effects relative to the Efficiency Threshold. Total construction-related emissions must be quantified and amortized over the lifetime of the proposed project to extrapolate an annual estimate of construction emissions. The average yearly emissions from amortized construction would be added to the operational emissions and evaluated against the Efficiency Threshold for assessing significance. The operational life of buildings will vary by building type and purpose. State Executive Order D-16-00 suggests that useful building lifetime is more than 25 years. A report commissioned for the Sustainable Building Task Force, a group of over 40 California state government agencies, estimates the life of a building to conservatively be 20 years. Average building life could change over time, with changes in building materials and construction techniques. At this time, the County recommends amortizing over a 20-year period to estimate annual emissions, when using the Efficiency Threshold, unless evidence is presented establishing a longer project life.

4.3.2 Bright Line Threshold

A proposed project would have a cumulatively considerable contribution to climate change impacts if it would result in a net increase of operational greenhouse gas emissions, either directly or indirectly, at a level exceeding 2,500 metric tons of CO₂e per year.

This guidance for determining significance was derived by estimating the mass emission reductions needed throughout the County from land use development projects to achieve the local fair share of the state's emissions mandate embodied in AB 32 and to support efforts to reduce emissions beyond 2020.

The County identified land use related emissions (residential, retail, service, office, and industry) in ARB's revised 2020 "business as usual" scenario (311 MMT CO₂e per year). The County estimated the effect of statewide GHG emission reduction measures, ensuring that the most up-to-date and accurate estimates were used and that there is no double counting (approximately 39 MMT CO₂e per year in 2020). The County then estimated the remaining emissions reductions needed to get to 1990 levels for land use related emissions at the statewide level. This percentage "gap" for statewide emissions (approximately 3%) was then applied to total 2020 land use related emissions in San Diego County to yield a mass emissions reduction target that would be achieved through feasible mitigation. This level of regional mass emissions reductions needed is the "land use gap."

Population and employment growth was translated into URBEMIS project types and sizes according to a frequency distribution based on a list of historic projects located throughout San Diego County. A sensitivity analysis was conducted using this database of URBEMIS projects to determine where to set the Bright Line Threshold so that feasible mitigation (for projects above the Bright Line) would meet or exceed the land use gap.

This threshold is designed to be used for projects or plans that include residential, commercial, civic, light industrial uses, or a mix of these uses. This threshold could also be used for projects or portions of projects that propose agricultural, forestry, or mining uses. This threshold cannot be used for permitted stationary sources of GHG emissions.

As with the Efficiency Threshold, GHG emissions attributable to a proposed project should be estimated using a cumulative scenario. Consistent with the guidance for the Efficiency Threshold, VMT used in deriving GHG emissions estimates must account for the relationships between project land uses and surrounding land uses and transportation facilities. VMT estimates should reflect aspects of the project's location, design, access to non-automobile transportation facilities, travel behavior of inhabitants, and other relevant characteristics that affect travel demand and mode choice. The level of emissions for any given project depends on its location, design, and other project-specific characteristics. For example, a 100-unit apartment complex adjacent to light rail with frequent headways would have lower GHG emissions compared to the same apartment building that did not have access to transit. GHG analysis should take into account project- and plan-specific characteristics that pertain to the level of GHG emissions generation.

All applicable, adopted statewide measures that would be implemented by 2020 can be included when estimating GHG emissions under the Bright Line Threshold. Applicants shall coordinate with the County prior to conducting the analysis to ensure that applicable statewide measures are included and to ensure that the emissions reductions levels from statewide measures are appropriate for the subject project.

Construction-related emissions do not need to be separately analyzed and included as a part of the assessment of projects against the Bright Line Threshold. Instead, construction emissions for San Diego County land use projects between present and 2020 were quantified and incorporated into the Bright Line Threshold. The Bright Line is set such that the land use gap and construction emissions are both addressed by feasible mitigation for projects above the Bright Line. In other words, the feasible mitigation that will be triggered by projects above the Bright Line will reduce GHG emissions at a level that is sufficient both to meet the land use gap and to make up for construction-related emissions.

4.3.3 Stationary Source Threshold

A proposed project would have a cumulatively considerable contribution to climate change impacts if it would result in a net increase of greenhouse gas emissions, either directly or indirectly, at a level exceeding 10,000 metric tons of CO₂e per year.

This guidance for determining significance is intended to apply a significance level that would capture the vast majority of stationary source emissions. Based on information collected from the San Diego Air Pollution Control District (APCD) on permitted sources, the significance threshold established here would capture more than 90% of GHG emissions (91.3%).

A stationary source is one with an identified emission point or points, often associated with industrial processes. Stationary sources can include cogeneration facilities, boilers, flares, heaters, refineries, and other types of facilities. Single facilities can have many individual emission points. Many of these types of facilities would require a permit from APCD. The permit issued by APCD would normally include certain permit conditions. Facilities that are subject to APCD permits may be required to implement Best Available Control Technology (BACT) or Best Available Control Measures (BACM). BACT or BACM may include equipment or operational thresholds to reduce air pollutant emissions, including GHG

emissions. The definition of BACT and BACM for the purposes of CEQA analysis should key to the meaning of “feasibility” for mitigation as provided in the CEQA Guidelines and relevant case law. Among BACM for stationary sources may be verifiable GHG emissions offsets or credits administered through a third party or registry. Please refer to Section 5.0, “Mitigation and Project Design Considerations,” for additional guidance.

For San Diego County, local stationary sources of emissions represent a relatively small portion of the total emissions profile. Local agencies are not normally responsible for permitting stationary source projects. Nonetheless, the County is interested in providing some clarity and guidance for a range of project types, including industrial/stationary source emissions. For projects that have a direct stationary source component in addition to other sources of emissions, the stationary source component must be analyzed separately using guidance provided in this section. Non-stationary sources of emissions must be analyzed using other type-specific implementing thresholds.

To support this document, the County collected data from APCD and analyzed the GHG emissions associated with permitted stationary source projects of different types and representing a range of industries. Data includes actual use of permitted sources, as opposed the theoretical level of use that may be allowed under the subject permit. Of the 925 permits where the permitted facility reported use, 11% have emissions levels above 900 MT CO₂e/yr, 3% have emissions levels above 10,000 MT CO₂e/yr, and 2% have emissions levels above 25,000 MT CO₂e/yr.

Air districts in California have identified 10,000 MT CO₂e/yr for permitted, stationary source emissions (industrial projects, for example) as a level below which the project would not be expected to substantially conflict with existing legislation adopted to reduce statewide GHG emissions and would therefore represent a less-than-cumulatively considerable contribution to the significant cumulative impact of global climate change. Use of this emissions level is explained and justified in documents developed by the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Luis Obispo County Air Pollution Control District (SLOAPCD).^{50,51,52,53} The use of the County’s Stationary Source Threshold provides consistency relative to thresholds adopted for use in other parts of the state. For most industrial operations, 25,000 MT CO₂ is the level at which the State of California requires mandatory reporting and verification of GHG emissions.

The County’s intent is to set the Stationary Source Threshold at a level that would require the vast majority of new development emission sources to analyze and quantify direct stationary source GHG emissions and incorporate feasible mitigation in order to reduce such

⁵⁰ Bay Area Air Quality Management District (BAAQMD). 2011 (May). California Environmental Quality Act. Air Quality Guidelines.

⁵¹ California Air Pollution Control Officers Association (CAPCOA). 2008 (January). CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.

⁵² SCAQMD directs that CEQA analysis of industrial projects should include construction emissions amortized over a 30-year time period when assessing impacts relative to the 10,000 MT CO₂e/yr threshold.

⁵³ San Luis Obispo County Air Pollution Control District (SLOAPCD). 2011 (December 8th). Proposed Greenhouse Gas Thresholds and Supporting Evidence.

emissions. The availability and effectiveness of mitigation is highly variable for stationary sources, just as the level of emissions associated with stationary sources is highly variable. For example, according to data provided by EPA, vapor recovery or control can reduce 90-95% of emissions for different types of storage tanks, while tuning and optimization of boilers can reduce 3-4% of emissions.⁵⁴ What constitutes “feasible” mitigation for the purposes of CEQA would be subject to a case-by-case analysis. Feasible mitigation will likely change over time as new technologies, materials, and methods become available to address GHG emissions for stationary sources.

As noted, GHG emissions from stationary sources must be estimated separately from other operational sources of emissions in the comparison with the appropriate implementing threshold. For projects that would include a stationary source of emissions, the guidance in this section must be used for assessing significance. Project analysis must also include analysis of construction emissions and operational emissions associated with mobile sources, electricity use, water delivery, and other non-stationary sources associated with the facility.

If the stationary source emissions estimate would exceed the significance criteria, BACT or BACM shall be used to reduce emissions. If the GHG emissions level still exceeds the significance level, verifiable offsets can be used, where feasible, to reduce GHG emissions impacts below the significance level.⁵⁵

It may not be feasible for projects of a certain scale to mitigate GHG emissions levels to a less-than-cumulatively considerable level. This determination must be made by the lead agency on a case-by-case basis according to CEQA statutory guidance, the CEQA Guidelines, and relevant case law.

Stationary source evaluations should occur within the context of regulations intended to implement AB 32. It is anticipated at this time that future state regulations will address stationary sources of GHG emissions. CEQA analysis by lead agencies of these types of projects should account for the evolving regulatory setting in conducting this type of analysis.

4.3.4 Performance Threshold

A proposed project would have a cumulatively considerable contribution to climate change impacts if it would result in a net increase of construction and operational greenhouse gas emissions, either directly or indirectly, and if the project would incorporate mitigation that achieves less than a 16-percent total reduction compared to unmitigated emissions.

⁵⁴ United States Environmental Protection Agency (U.S. EPA). Clean Air Act Permitting for Greenhouse Gases. Available online at: <http://www.epa.gov/nsr/ghgpermitting.html>. Accessed July 12, 2011.

⁵⁵ Offsets, or emissions credits, are a technique to achieve a net emission reduction associated with a project through funding of GHG emission reducing activities off-site, such planting trees (which absorb carbon dioxide), converting vehicle fleets to more efficient/less polluting technologies, funding for energy efficiency retrofits of existing buildings, renewable energy projects, and other activities. Please refer to Section 5.0 of this document, which discusses mitigation techniques, including offsets.

Unmitigated GHG emissions attributable to the project at full buildout in 2020 would be compared to GHG emissions with mitigation. Unmitigated GHG emissions represent the proposed project as described in the application, in compliance with any applicable standards and regulations. If, compared to the unmitigated project, proposed mitigation would reduce GHG emissions by at least 16%, this level of mitigation would represent a fair share of what is necessary statewide to achieve AB 32 targets. This is because the 2020 “business as usual” (no action is taken) scenario would need to be reduced by 15.75% to get to 1990 levels, according to analysis provided by ARB.⁵⁶ A project that provided mitigation of 16% would be reducing potential GHG emissions at the same rate as is needed throughout the state to achieve the AB 32 emissions reduction target. This level of mitigation would represent a fair share of what is needed throughout the state to achieve the AB 32 emissions reduction target and would be considered adequate to avoid a cumulatively considerable contribution to the significant cumulative impact of climate change.

Early coordination with the County is necessary for projects that contemplate use of this percentage mitigation approach to assessing significance. Impact analysis shall occur relative to the existing environmental baseline and consider whether project-related emissions are cumulatively considerable.

Overall, the County’s focus in developing this guidance document for assessing the significance of GHG emissions is focused on the most common project types that would need CEQA analysis. However, there are a range of other proposals and actions that could represent “projects” as defined by CEQA, but may require case-by-case assessment of significance. Mining projects, airport and wastewater treatment plant expansions, landfills, agricultural operations, road and other infrastructure replacement projects, along with other project types may not lend themselves to the application of the Efficiency Threshold or Bright Line Threshold. These project types may require an approach to gauging significance that is tailored to the project type, character, location, and size. The Performance Threshold provides a viable option for these types of projects.

There are several types of projects that could be initiated by the County Department of Public Works, other public agencies, or other private or nonprofit entities that could include GHG reduction during operations as a co-benefit. Examples may include:

- **Wastewater Treatment Plant Improvements.** Improvements to wastewater treatment facilities can reduce fugitive emissions of methane (CH₄) from wastewater and nitrous oxides (N₂O) from nitrification/denitrification processes. CH₄ and N₂O are both GHGs. Improvements to facilities can also improve the energy efficiency, resulting in lower indirect emissions from electricity generation.

⁵⁶ ARB has updated 2020 estimates of GHG emissions to account for new estimates for future fuel and energy demand, the effects of the recent economic recession, and other factors. California Air Resources Board (ARB). 2010 (October 29). Greenhouse Gas Inventory - 2020 Emissions Forecast. Available: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>. Accessed July 16, 2011.

- **Congestion Management.** Projects to alleviate congestion, reduce trip lengths, reduce idling, and otherwise address congestion could also reduce vehicular GHG emissions and improve overall efficiency of vehicular movement.
- **Habitat Restoration.** Restoring habitat can improve ecosystem function and can be designed to avoid the need for supplemental irrigation. Habitat restoration projects sometimes replace paved surfaces with trees, which would reduce GHG emissions compared to existing conditions.
- **Xeriscaping.** Landscaping projects that use low-water plants can reduce water demand and the energy associated with moving water and associated GHG emissions. Introducing landscaping can also increase carbon sequestration.
- **Flood Control, Bridges, and Other Infrastructure Improvements.** Improvements to infrastructure and facilities can help to reduce lifetime maintenance requirements and maintain efficiency of vehicular movement. Depending on the specifics of the project, these types of improvement projects could have GHG reduction benefits.
- **Construction of Bicycle and Pedestrian Facilities.** Projects that increase the convenience or otherwise promote bicycle and pedestrian travel would be expected to reduce vehicular travel and the associated VMT and GHG emissions.

The operation of projects that improve GHG efficiency of communities, such as a project to extend public transit or a project to reduce congestion and vehicle idling, would normally have less-than-cumulatively considerable effects. For many project types, however, the extent to which the project would enhance GHG efficiency of the community that it serves may not be as clear-cut. For some project types, the project would serve market demand that could be either focused or dispersed and dynamic, rather than demand generated within a static and identifiable community.

It is important in assessing impacts of non-land use projects to carefully consider what *new* emissions are attributable to the project. Depending on the nature and purpose of a project, the *net* emissions increase could be positive, neutral, or negative. For example, the State Department of General Services and State Department of Forestry and Fire Protection concluded that the relocation of the Ukiah Air Attack Base could provide for more efficient ground-based operations and therefore, reduced GHG emissions compared to baseline conditions.⁵⁷ The City of Los Angeles found that, for the LAX Crossfield Taxiway Project, the changes analyzed under the EIR would reduce both natural gas and electricity related GHG emissions. For this same project, the EIR indicates that GHG emissions associated with aircraft operations would also decrease, due to a reduction in the amount of idling time.⁵⁸ For a project that would involve rehabilitation of an existing roadway, there may be no change in the long-term operational GHG emissions, and rather, the analysis would focus on

⁵⁷ State Department of General Services and Department of Forestry and Fire Protection. 2008 (January) Draft Environmental Impact Report. Ukiah Air Attack Base Relocation Project.

⁵⁸ City of Los Angeles. 2008 (September) Draft Environmental Impact Report for Los Angeles International Airport (LAX) Crossfield Taxiway Project.

construction-related emissions. It is possible that an airport project could provide service to a greater number of people in closer proximity to their residences, reducing GHG emissions associated with reaching the airport compared to the baseline condition. An agricultural project could be intended to meet existing demand in closer proximity to the end market. Depending on the details of the existing baseline and the project characteristics, this type of project could have GHG reduction benefits compared to existing conditions. Just as with other aspects of the analysis report, evidence would be required to demonstrate that projects would provide a net GHG benefit.⁵⁹

Early coordination with the County is required for applicants that wish to use the Performance Threshold to ensure that mitigation levels toward the 16% target are appropriately estimated. Mitigation to achieve the 16% requirement cannot include a reduction in the project size or scale. Mitigation identified toward this 16% target cannot include the effects of the Pavley I clean car standard or the 20% Renewable Portfolio Standard because these programs are already included in the calculations that support the 16% mitigation requirement.⁶⁰ Other statewide measures, however, can be included without risk of “double counting.” Renewable Portfolio Standards beyond 20% can be included toward the minimum 16% mitigation requirement. The Low Carbon Fuel Standard can be included as a part of the 16% mitigation requirement. Since some GHG emissions models build in different statewide measures, it is important to coordinate with County staff to ensure that the correct approach is being used to estimate the effects of mitigation, particularly since new statewide measures will be established over time and certain of these measures are likely to be included in updates to GHG emissions models.

Mitigation for land use and transportation reduction measures can be included for the Performance Threshold. In order to estimate the effect of such measures, applicants shall estimate VMT using County-approved trip rates for the subject land use and average trip lengths for the same land use specific to the area of the unincorporated County where the project is proposed. The County has developed estimates of trip lengths by land use for different parts of the unincorporated County to support the development of traffic impact fees. These estimates, or those deemed by the County to be more appropriate or more up to date must be used for the pre-mitigation scenario. VMT for the post-mitigation scenario is used to estimate the percentage mitigation that is appropriate for proposed land use and transportation reduction measures. This should be based on a transportation study that is relevant to the subject project and is subject to County staff approval.

⁵⁹ County staff should be consulted before such an approach is used.

⁶⁰ Other significance threshold efforts have relied on 28-30% as the reduction from business as usual conditions in order to achieve the 2020 emissions limit. However, ARB revised the business as usual estimate downward recently.

5.0 MITIGATION AND PROJECT DESIGN CONSIDERATIONS

Projects that have cumulatively considerable (i.e. significant) impacts according to the Guidelines for Determining Significance shall include project design features and/or adopt mitigation to reduce or avoid impacts to below the cumulatively considerable level. The benefits of proposed mitigation should be quantified, wherever feasible. Refer to Section 4.2 under “Step 7” for examples of acceptable emission models that can be used to estimate mitigation benefits. Refer also to the County’s “*Report Format and Content Requirements*,” under separate cover, for additional detailed direction.

The County does not have a “standard” list of mitigation that would be required for projects with potentially significant GHG emissions impacts. The type, character, and level of mitigation will depend entirely on the project type, size, location, context, and other factors. The availability of mitigation measures changes over time, as well, with new technologies, building materials, building and design practices, and other changes. Local policy, implementation programs, and standards can provide guidance for identifying feasible mitigation. However, if a project design or operational features is already required, this would be required as a part of the project description, rather than serving as mitigation.

Many local, regional, and state agencies have produced lists of feasible mitigation strategies that can be used to reduce GHG emissions. These lists of mitigation strategies can be consulted when developing feasible mitigation for projects within the County, including, but not limited to:

- **Governor’s Office of Planning and Research. 2008. Technical Advisory. CEQA AND CLIMATE CHANGE: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.** See Attachment 3, “Examples of GHG Reduction Measures.” Available: <http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. Accessed: July 16, 2011.
- **California Air Pollution Control Officers Association (CAPCOA). 2008 (January). CEQA & Climate Change. Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.** See page 79, “Mitigation Strategies for GHG.” Available: <http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA-White-Paper.pdf>. Accessed July 16, 2011.
- **California Air Pollution Control Officers Association (CAPCOA). 2010 (August). Quantifying Greenhouse Gas Mitigation Measures. A Resource for Local Government to Assess Emission Reduction from Greenhouse Gas Mitigation Measures.** Available: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf> Accessed July 16, 2011.
- **Attorney General of the State of California. 2008 (December). The California Environmental Quality Act. Addressing Global Warming Impacts at the Local Agency Level.** Available: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf. Accessed July 21, 2011.

The above documents, in addition to lists of mitigation measures and design features maintained by other organizations cover a wide range of topics, including:

- **Land use, urban design, transportation measures.** Locating projects in higher-density, mixed-use areas with access to jobs, services, infrastructure, and transit can reduce GHG emissions. As noted previously, the level of GHG emissions associated with a project will depend on its land use profile, as well as the relationship with surrounding land uses. The degree to which a project is able to reduce VMT and GHG emissions will depend on the existing and planned transportation network in and around the subject project site. Other options may include carpool programs; strategies to increase the operational efficiency of transportation systems; improvements to transit level of service, bicycle and pedestrian facilities; limiting parking; pricing strategies; and measures to limit idling. Increased transportation connectivity may help improve the mode share for non-automobile trips, but also can shorten vehicle trips (and thus reduce VMT and GHG emissions). There are many other potentially feasible land use, urban design, and transportation mitigation strategies and design features available to proposed projects that may be considered to reduce potentially significant impacts.
- **Shade and sequestration.** Urban forestry projects and tree-planting programs can help reduce the net increase in GHG emissions attributable to projects. In addition to the direct benefit associated with sequestration, planting trees or constructing other shade structures can reduce the need for air conditioning and associated energy demand and GHG emissions.
- **Energy conservation.** There are a wide variety of structural enhancements that can be used to increase the energy efficiency of structures beyond that required by current codes. More energy efficient equipment and vehicles or those that use zero carbon fuels can help to cut GHG emissions. Educational programs can help to make the operation of physical energy efficiency improvements more effective. Replacing traffic lights, street lights, and other lights with more energy efficient technologies and installation of renewable energy systems, including use of landfill gas, can help to reduce indirect emissions. Water and wastewater systems and other types of infrastructure can be built new or retrofitted to increase efficiency. Codes that require proper solar orientation, passive heat/cooling, insulation, and climate-appropriate landscaping and shade trees can reduce energy demand and therefore reduce indirect GHG emissions.

The County is committed to promoting the expansion of electric vehicle use, solar water heating and alternative energy systems in San Diego consistent with the CAP. Residential and commercial projects are encouraged to implement one or more of the following energy conservation measures to meet the required GHG reductions. These measures may also be used to demonstrate CAP consistency for those projects below the Bright Line Threshold:

- ✓ Accommodate the installation of residential EV charging stations by providing sufficient electrical capacity and appropriate circuitry in proximity to vehicle parking areas.
 - ✓ Provide solar panels on residential projects and/or construct residences with appropriate infrastructure (e.g. wiring, plumbing) to allow for future installation of solar panels.
 - ✓ Provide EV charging stations in parking areas of commercial projects.
 - ✓ Provide solar panels on commercial rooftops and/or parking areas.
- **Solid waste.** Increasing recycling and greenwaste collection programs and otherwise reducing solid waste generation can help to cut GHG emissions. This could occur both during construction and demolition phases, as well as operational phases of projects. Collecting organic waste more frequently and implementing waste to energy (i.e. digestion and biogas production) projects can also have GHG reduction benefits.
 - **Water conservation.** Water conservation measures can help to reduce GHG emissions since energy is used to move water, particularly for projects in southern California. This can include the use of landscaping that does not require much water, reuse of water, and other approaches for outdoor water use, as well as a range of physical improvements and education programs to decrease indoor use.
 - **Construction.** Feasible mitigation could include strategies that would reduce GHG emissions from construction equipment, which may include, but is not limited to the use of alternative fuels and recycling or reuse of construction/demolition debris.⁶¹ Other examples include minimizing idling time of equipment, maintaining equipment in proper working condition, training on the proper use of equipment, and using the right equipment for the job. There could be a minor benefit for GHG reductions attributable to use of coatings with low volatile organic compound (VOC) content.⁶²
 - **Carbon reduction credits (offsets).** After feasible on-site methods to reduce construction and operation emissions are incorporated, if effects would still be cumulatively considerable, the County may allow the use of verified carbon reduction credits (also known as offsets). The emission credit must be in addition to any GHG reduction otherwise required by law or regulation, and any GHG emission reduction that otherwise would occur.⁶³ The required amount of credits shall be calculated on an annual basis for the lifetime of the proposed project to correlate with the implementing thresholds, which are presented on an annual basis. A key consideration of the use of carbon credits as mitigation is enforceability. Per CEQA Guidelines §15126.4(a)(2) mitigation measures must be fully enforceable through permit conditions, agreements, or another legally binding instrument. An enforcement

⁶¹ Secondary effects related to other air pollutants or co-benefits should be identified if alternative fuel use is proposed as mitigation.

⁶² National Oceanic and Atmospheric Administration National Climatic Data Center. Greenhouse Gases, Frequently Asked Questions. Available: <<http://www.ncdc.noaa.gov/oa/climate/gases.html>> .Accessed September 21, 2011.

⁶³ See CEQA Guidelines Section 15126.4 (c).

mechanism of some type must be implemented so that the offset requirement is tracked through the planning, subdivision, and entire project approval process.

The responsibility for demonstrating adequacy of GHG emission reductions resides with the project proponent. There are many registries and exchanges that can be utilized to obtain GHG emission reduction credits. The County requires the use of an emissions registry with protocols that have undergone extensive review and include procedures for review, verification and issuance of credits. In addition, the GHG emission reduction credits should be part of a program that includes ongoing enforcement of operational conditions to ensure that the GHG reductions are real and permanent. Project applicants may purchase offset credits issued by ARB. Registries currently approved by ARB as part of California's Cap-and-Trade program include the American Carbon Registry and the Climate Action Reserve. Other registries with rigorous protocol standards include The Gold Standard Registry, the Markit Registry, and the APX VCS Registry.

Alternatively, a project applicant may propose additional options for offsite mitigation of GHG impacts for consideration by the County; however, the proposed mitigation should include a mechanism to ensure that the GHG reductions are real, additional, transparent, measureable, permanent, verifiable, and enforceable. This guidance does not supersede the County's discretion as a CEQA lead agency in determining the adequacy and feasibility of off-site GHG mitigation for a specific project.

Additional protocols for generating GHG emission reduction credits may be developed and approved by ARB, the Climate Action Reserve and/or CAPCOA, and additional registries and trading platforms may surface. The County will consider these new protocols and registries during project review. The County recognizes that future markets for offsets are uncertain and price volatility may be a concern. Should offsets as a mitigation option become economically infeasible, the County may consider other options to ensure projects can feasibly mitigate their GHG impacts. Developing a locally controlled GHG mitigation program is one option that may be considered if the need arises.

Offsets used for mitigation should have a mechanism to monitor the effectiveness of offsets over time to ensure that they accurately account for the needed level of mitigation for the lifetime of the subject project. Off-site mitigation may only be employed once all feasible on-site mitigation measures have been exhausted. The use of offsets for mitigation must be approved by the County.

Some mitigation and design approaches that reduce GHG emissions are built into the location, design, and context of project, while other mitigation measures may require ongoing monitoring. In general, projects that exceed the screening criteria and implementing thresholds would be larger discretionary projects that would likely include ongoing permits or site plans. These projects would have ongoing GHG emissions mitigation enforced through permit conditions. In the event that the project is a subdivision or required only a one-time approval, enforcement of ongoing GHG emissions mitigation would require application of an additional permit or easement to ensure the mitigation is satisfied.

In addition to any required mitigation, there may be other federal, state, regional, or local standards or requirements that may apply to projects and may reduce potential GHG emissions. This guidance document does not supersede or supplant any such requirements.

The above guidance is not necessarily exhaustive and is not prescriptive. Projects are encouraged to incorporate relevant measures from the County of San Diego CAP and, if necessary, identify measures tailored to address project-specific emissions sources.

6.0 MONITORING AND UPDATE MECHANISMS

This guidance document focuses on a 2020 timeline, consistent with the legislative mandate embodied in AB 32. Some projects and plans considered under the Guidelines for Determining Significance provided herein would build out after 2020, and while there is not a comprehensive regulatory or legislative framework for addressing GHG emissions beyond 2020, this guidance document and its updates will also support efforts to reduce emissions beyond 2020.

There are several factors that will require the County to revise the CEQA approach to analyzing and mitigating GHG emissions over time. There will be new assessment tools and new mitigation techniques. Revised and new legislation, incentive programs, and regulations will affect the implementation of CEQA, including, potentially, the need for revised approaches to assessing significance. Revisions to the statewide and regional GHG emissions inventory could affect certain aspects of this document.

Lead agencies that establish GHG emission reduction targets and reduction plans should monitor progress toward those targets over time and consider whether changes to their reduction plan are necessary. In order to achieve GHG emission-related policies in general plans or measures included in GHG reduction plans, it may be necessary to revise street standards, drainage requirements, zoning and development standards, and other implementing mechanisms related to local land use and development policy.

New statewide regulatory programs may be enacted that did not exist when the local agency adopted the reduction target. This is important since there can be an interaction between local GHG reduction measures and those implemented at the state level (for example a statewide program to reduce the GHG intensity of vehicle fuels would increase the reduction benefits of local programs to reduce vehicle miles traveled).

Therefore the County will provide for annual monitoring of the CAP and the reduction targets, considering the current environmental, technological, economic, and regulatory context.

It may become appropriate to revise certain of the guidance contained in this document in the context of future Sustainable Communities Strategy work, CEQA Guidelines updates and new precedent case law, new emission factors and modeling tools, new AB 32-related regulatory rollouts that create new statewide GHG reduction measures, and other changes. It is possible that programs for sequestration, offsets, and GHG emission credits could provide new opportunities for communities and businesses, which could be taken into account in

local GHG reduction plans. It is possible that new indirect source review programs may become enacted, which could address GHG emissions. It is anticipated that the state may release guidelines for climate action plans/GHG reduction plans, which could influence somewhat the guidance provided herein. The ARB could consider and adopt statewide GHG significance thresholds. It is possible that state regulations could supersede local air quality thresholds or rules.

The Bright Line Threshold is based, in part, on conservative assumptions regarding the effectiveness of feasible mitigation incorporated into new development projects in San Diego County. If the actual level of mitigation achieved by new development projects is substantially different from these assumptions, the County will need to revise the Bright Line Threshold. Similarly, the implementing thresholds outlined in this document are based on the framework established in the County's CAP. If GHG emissions reductions achieved under the CAP are dramatically different than anticipated in this document, the County may need to revisit both the CAP and this Significance Guidelines document and consider appropriate revisions.

The County envisions that the guidance contained within this document and the County's Guidelines for Determining Significance will be updated, as necessary, to be consistent with the County's CAP.

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APPENDIX TO GUIDELINES FOR DETERMINING SIGNIFICANCE
CLIMATE CHANGE
November 7, 2013

Approach

The development of greenhouse gas (GHG) significance thresholds for the County of San Diego involves both efficiency based threshold development (i.e., how GHG efficient is the project at hand relative to reduction targets per person and per employee?), as well as a “bright line” threshold.

The bright line threshold is set at a level that would capture enough projects so that, through feasible mitigation, GHG emissions would be reduced through the CEQA process at a level sufficient to achieve the San Diego region’s fair-share of GHG emissions reductions for land use sectors.

This effort involved substantial research and analysis related to the details of the state’s inventory, as well as the effectiveness of various statewide reduction measures (Pavley, Renewable Portfolio Standard, etc.). AECOM disaggregated the 1990 and 2020 statewide GHG inventory estimates for local application.

Conceptually, both the efficiency-based and the bright line approaches rely on determining the proportional or fair-share of emission reductions required to meet the legislative mandate established in The Global Warming Solutions Act (AB 32) that would be required within San Diego County. AB 32 requires that statewide GHG emissions must be reduced to 1990 levels by 2020. Future planning efforts that do not consider GHG emissions reduction strategies could conflict with AB 32, impeding California’s ability to comply with the statewide mandate.

This guidance document allows the County to assess the extent to which projects account for their “fair share” of the statewide emissions reductions necessary to achieve the AB 32 legislative mandate. This fair share approach can be used to assess the significance of impacts for special project types, as well, consistent with CEQA Guidelines Section 15130(c)(3):

(3) An EIR may determine that a project’s contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project’s contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

In the case of GHG emissions, the fair share of mitigation may come through the selection of a project site, design, incorporation of emissions reducing technologies, and other elements that may be built into the project description, as well as adopted mitigation measures.

Cumulatively Considerable Greenhouse Gas Emissions

The approach summarized the County’s guidance document allows a comparative assessment of whether proposed land use projects would meet their fair share of the state’s overall GHG emissions reduction mandate. Plans or projects that emit more than their fair share of GHG emissions could have a cumulatively considerable contribution to the significant cumulative impact of global climate change.

The efficiency approach allows projects to demonstrate rates of GHG emissions that, if applied statewide, would achieve the AB 32 emissions target and support efforts to reduce emissions beyond 2020. The intent of AB 32 is to accommodate population and economic growth in California, but do so in a way that achieves a lower rate of GHG emissions. With a reduced rate of emissions per capita and per employee, California can accommodate expected population growth and achieve economic development objectives, while also abiding by AB 32's emissions target and supporting efforts to reduce emissions beyond 2020. The Efficiency Threshold is presented as annual emissions per service population (population + employment).

The bright line approach assesses mass emission levels that could be cumulatively considerable. Projects below the bright line would not be required to incorporate mitigation measures, although emissions of these projects would still be reduced through compliance with codes and regulations that would directly or indirectly increase energy efficiency or otherwise reduce GHG emissions.

Existing and New Emissions

The methods and analysis provided as a part of the development of this guidance document allow the County to assess the significance of GHG emissions in the context of proposed plans and projects that would require discretionary action. The focus of development of thresholds is on new emissions, although existing emissions levels are also being factored into the analysis. The continued operation of existing buildings and development patterns would not represent "projects" subject to review under CEQA.

The fair-share approach summarized in the County's guidance document assumes that *existing* development would be responsible for a share of GHG emission reductions needed to achieve AB 32 targets. This would occur through infill and reinvestment, as well as federal and state actions related to emissions standards, renewable energy generation, and other regulations over activities beyond local authority, but that would apply to both existing and new development. Improvements in the efficiency of existing development could also occur through actions described in climate action plans (also known as greenhouse gas reductions plans). Such actions could include requirements for new development and prescriptive, incentive-based, or strictly voluntary measures to reduce emissions from on-the-ground existing land uses. These measures and similar measures are routinely required as a part of local GHG reduction plans (also called climate action plans) and the implementation of these GHG reduction plans through revisions to codes and standards and other actions.

Land Use Related Emissions

Both the efficiency based and bright line thresholds are focused on emissions associated with typical land development projects, such as residential, retail, commercial service, office, and light industrial developments. The focus on land use related emissions reflects the nature of local government entitlement authority. Rather than considering explicitly *all* sources of GHG emissions, the focus here is on transportation; electricity; natural gas; water and wastewater; and recycling and waste.

GHG emissions produced by manufacturing processes and other sources that are mostly outside of the control of local jurisdictions are not included as a part of the efficiency or bright line thresholds. Lead agencies approving CEQA projects would not typically review or condition projects to include or prohibit specific manufacturing processes or certain materials used as a part of an industrial use. State and federal regulatory actions would more typically control industrial process and selection of materials. The thresholds will instead be keyed to those sectors over which the County would exercise some influence through typical planning, development, or environmental policies and

standards. Light industrial uses that do not have industrial process related emissions could be treated using the thresholds developed for land development projects.

CEQA Analytical Protocols

The CEQA thresholds approach is also structured to be consistent with typical CEQA analysis. Based on direction from air districts and ARB, as well as industry standard CEQA practice, certain emissions sources for land use projects are included and excluded from analysis. The thresholds will explicitly take into account those emissions sources that are included in CEQA analysis that is prepared consistent with current CEQA practice. The thresholds exclude those emissions sources that are not analyzed as a part of CEQA documentation. In so doing, the County will have an appropriate “apples to apples” comparison for proposed CEQA projects – a theme that is woven throughout the County’s guidance document. This will be an aspect of the CEQA thresholds that may need to evolve over time as new emissions sources are embodied in typical CEQA analysis. For example, until recently, it was unusual for CEQA project analysis to fully consider landfill-related emissions. The Bay Area Air Quality Management District Guidelines recommends not including landfill related emissions in CEQA analysis, in fact. Previous CEQA project analysis did not always include project-related wastewater emissions. The County’s approach allows a project comparison to certain parts of the state’s inventory. The more types of emissions included in CEQA project analysis, the more emissions sources need to be included in the comparison version of the statewide inventory.

Lifecycle Emissions

“Life cycle” emissions – those emissions that are embodied in manufactured materials, for example – are not taken into account. GHG emissions embedded in construction materials or other materials used in projects may be manufactured to meet general market demand, regardless of whether one particular project proceeds. In order to clarify whether lifecycle emissions should be a part of CEQA analyses, 2010 amendments to the CEQA Guidelines removed the term “lifecycle,” since “the term could refer to emissions beyond those that could be considered indirect effects of a project as that term is defined in section 15358 of the State CEQA Guidelines.”¹

The 1990 GHG Emissions Inventory

The level of emissions in 1990 represents the goal of AB 32 (i.e., reduce 2020 emissions to 1990 levels). For CEQA assessment purposes, the County isolated land use related components of the 1990 emissions inventory.² The statewide inventory in 1990 for land use related emissions was approximately 264.1 million metric tons (MMT) of carbon dioxide equivalent (CO₂e) (Table 1). Using 1990 emissions levels and 2020 forecast population and employment, this equates to 4.3 to 4.4 MT CO₂e emissions per resident + employee (service population).³ Details regarding the development of the land-use emissions in 1990 are provided below.

¹ California Natural Resources Agency. 2009 (December). *Final Statement of Reasons for Regulatory Action. Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97.*

² California Air Resources Board. 2010. *Inventory Data Archive – 1990 to 2004 Inventory.* Available: <http://www.arb.ca.gov/cc/inventory/archive/archive.htm>

³ “Service population” measures the number of residents plus the number of employees in a specified area.

**Table 1
Statewide Land Use-Adjusted 1990 GHG Emissions Inventory**

Emissions Sector/ Subcategory	Emissions (MMT CO₂e/yr)	Notes/Adjustments	Omitted Emissions (MMT CO₂e/yr) (Percent of Sector Total)
Electricity (In State and Imports)	74.3	Applied CEC 1990 electricity consumption rates for industrial land uses to remove industrial electricity consumption.	36.3 (33%)
Transportation	138.0	Removed aviation, non specified transportation, rail, and water borne transportation.	12.7 (8%)
Landfills	5.5	Removed industrial solid waste disposal.	0.8 (12%)
Wastewater Treatment	2.8	Removed industrial wastewater treatment emissions (i.e., fruits and vegetables, poultry, and red meat processing).	0.3 (11%)
Commercial	13.9	Removed national security emissions.	0.6 (4%)
Residential	29.7	Includes all emissions.	none
Total	264.1		
GHG Efficiency Target per Service Population: 4.32 MT			
Notes: GHG = greenhouse gas; MMT CO ₂ e/yr = million metric tons of carbon dioxide equivalent per year; CEC = California Energy Commission. Totals may not appear to add exactly due to rounding. Source: ARB 2010a, CEC 2009, AECOM 2011			

Non-land use sectors in the ARB inventory that were removed include agriculture, forestry, and “not specified”. Other sectors (e.g., development of energy sources) include both land use related emissions (residential, commercial), as well as emissions related to industrial processing. Industrial process related emissions have been disaggregated, wherever possible, to allow CEQA analyses of land use projects to focus only on relevant emissions sources. As noted earlier, light industrial uses could be addressed using the thresholds developed for land use projects.

The AB 32 emissions limit applies to statewide emissions levels. Through implementation of ARB’s Scoping Plan, various emissions sources will be reduced over time, with the ultimate objective of achieving this statewide target. Overall, implementation of the Scoping Plan has been shown to benefits related to overall economic production, gross state product, personal income, per-capita income, household cost savings, and business cost savings. But these economic benefits and cost savings will not necessarily be evenly distributed. The legislation directs the State to implement AB 32 in a way that minimizes costs and maximizes benefits, but not in a way that necessarily distributes costs and benefits equally across the regions of the State. An important element of the language of this legislation relates to the economic feasibility of different GHG reduction approaches. From the language of the legislation (Health and Safety Code Section 38501 (h):

“It is the intent of the Legislature that the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases

established pursuant to this division in a manner that minimizes costs and maximizes benefits for California's economy..."

So, while the County recognizes that the costs, benefits, and GHG reductions under AB 32 will not be experienced at the same proportion for each county, the Efficiency Threshold is focused on assessing whether projects do their "fair share" of emissions reductions required statewide. The Efficiency Threshold allows projects to demonstrate consistency in a straightforward way with the AB 32 mandate, without any taking into account any specific adjustments for local conditions. However, other Thresholds in the County's document envision a more locally tailored approach, in order to provide options and flexibility. The Bright Line Threshold, for example, was developed using regional growth forecasts and the San Diego region's emissions profile. The County has also developed a Climate Action Plan that establishes measures that would achieve an overall unincorporated County emissions reduction. Through this process, the County was able to, among other things, balance between those measures that are more or less efficient, given the specific local context.

With the various options outlined in the Thresholds document, the County has provided both approaches that are directly connected to the AB 32 emissions limit (Efficiency Threshold, Contingency Threshold) and those that take into account local conditions (Bright Line Threshold, Climate Action Plan Threshold).

Electricity

ARB's 1990 inventory did not separate out electricity generation by end use sector. A portion of electricity generated is used by industrial land uses. The County researched data sources that could be used to separate the land use-related electricity consumption from the industrial.

The California Energy Commission's (CEC) California Energy Demand 2010-2020 Commission-Adopted Forecast was used to determine the amount of electricity consumption associated with residential, commercial, and industrial land uses in the year 1990.⁴ The CEC's California Energy Demand report provides the amount of electricity consumption by land use sector for years 1990 to 2020. According to this report, land use sectors accounted for 67% of electricity consumption in 1990 (i.e., residential 29%; commercial 32%; transportation, communication, utilities 5%; and streetlights 1%). The remaining 33% consists of industrial (21%), mining (3%), and agriculture (9%). Therefore, this analysis removed 33% of electricity-related emissions as non-land-use. It should be noted that the CEC report only identifies industrial as one entity and does not separate industrial process emissions from industrial building/office emissions.

Transportation

For 1990 transportation sector, all on-road emissions are assumed to be associated with land use projects. All other transportation subcategories such as aviation, rail, water-borne, and non-specified transportation were removed from the inventory. Although these transportation emission sources can be related to land use projects, these emissions are not quantified as part of typical CEQA analyses of residential, commercial retail, commercial services, and office developments. Therefore, aviation, rail, water-borne, and non-specified transportation emissions are not included. These sources collectively comprise approximately 8% of the total 1990 transportation emissions.

⁴ California Energy Commission. 2009. *California Energy Demand 2010-2020 Commission-Adopted Forecast: Statewide Demand Forecast Forms*. Available: < <http://www.energy.ca.gov/2009publications/CEC-200-2009-012/index.html>>.

Fuel Combustion

The 1990 residential and commercial fuel combustion sectors (e.g., natural gas for water and space heating) were both included in the analysis. For the commercial emission sector, the national security natural gas combustion subcategory was removed from the inventory since these emissions would not be associated with land use projects.

For the 1990 industrial sector, all fuel combustion emissions (e.g., natural gas, coal, distillate, etc.) were removed from the inventory with the exception of landfill and wastewater treatment emissions.

Landfill and Wastewater Treatment

Both the landfill and wastewater treatment subcategories include activities associated with land use projects and industrial uses. The County investigated the potential to separate the land use related portion of these subcategories in order to allow San Diego jurisdictions to have a more “apples to apples” comparison for land use projects.

For landfills, the County researched solid waste tonnage reporting from CalRecycle. However, CalRecycle separates solid waste disposal by residential and commercial land uses. The commercial category includes both commercial and industrial land uses. The County separated the industrial solid waste disposal using the California Integrated Waste Management Board’s (CIWMB) *California 1999 Statewide Waste Composition Study*.⁵ (CIWMB is now known as CalRecycle).

It was determined from the CIWMB report that industrial solid waste makes up approximately 12.4% of the total waste disposed in landfills. For wastewater, the County researched the method used to develop 1990 wastewater treatment inventory emissions, which is based on population (i.e., domestic wastewater) and tons of fruits and vegetables, poultry, and red meat processed in the year (i.e., industrial wastewater). For this analysis, the GHG emissions associated with industrial wastewater (i.e., fruits and vegetables, poultry, and red meat processing) were removed from the inventory, which represented approximately 10.5% of the total wastewater emissions. Therefore, only the land use portions of the landfill gas and wastewater treatment sectors were included in the inventory.

The 2020 GHG Inventory

The next step to develop the “bright line” threshold is to determine the amount of GHG emissions anticipated to occur in 2020 associated with land use projects under ARB’s “Business as Usual” scenario.

The County evaluated ARB’s 2020 GHG emissions inventory to isolate the emissions associated with comparable residential and commercial land uses.⁶ Similar to the 1990 inventory analysis described above, the County evaluated the 2020 inventory to remove the industrial-related emissions for threshold development purposes. There are slight differences in how the 1990 and 2020 inventories were assembled. Where possible and applicable, the County used the same methods to separate industrial emissions from land use-related emissions were used for both the 1990 and 2020 inventory.

⁵ California Integrated Waste Management Board. 1999 (December). California 1999 Statewide Waste Composition Study. Available: <<http://www.calrecycle.ca.gov/publications/LocalAsst/34000009.pdf>>. Accessed March 29, 2011.

⁶ California Air Resources Board. 2010. *Greenhouse Gas Inventory – 2020 Emissions Forecast*. Available: <<http://www.arb.ca.gov/cc/inventory/data/forecast.htm>>

Total land use related emissions in 2020, as calculated below, are estimated to be approximately 311 MMT CO₂e/yr (Table 2).

Table 2 Statewide Land Use-Adjusted 2020 GHG Emissions Inventory			
Emissions Sector/ Subcategory	Emissions (MMT CO₂e/yr)	Notes/Adjustments	Omitted Emissions (Percent of Sector Total) (MMT CO₂e/yr)
Electricity	86.4	Applied CEC 2020 electricity consumption rates for industrial land uses to remove industrial electricity consumption.	24.0 (22%)
Transportation	168.2	Removed ships and commercial boats, aviation, rail, and unspecified transportation. Includes on-road passenger and heavy-duty vehicles.	15.8 (9%)
Commercial and Residential	45.3	Includes all emissions.	none
Recycling and Waste	7.5	Removed industrial solid waste disposal.	1.1 (12.4%)
Wastewater Treatment	2.8	Originally embedded within the “Other Process Emissions” industrial sector. Worked with ARB to separate emissions and used same 1990 proportion of industrial versus land use projects to isolate land use wastewater treatment emissions.	4.2 (59%)
High GWP	0.8	Only include electricity grid SF ₆ losses with application of CEC 2020 electricity consumption rates for land use-related uses.	37.1 (98%)
Total	311.0		
Notes: GHG = greenhouse gas; MMT CO ₂ e/yr = million metric tons of carbon dioxide equivalent per year; CEC = California Energy Commission; SF ₆ = sulfur hexafluoride; GWP = global warming potential. Totals may not add exactly due to rounding. Source: ARB 2010b, CEC 2009, AECOM 2011			

Non Land Use Emissions for 2020

For the forecasted 2020 electric power sector, the CEC’s California Energy Demand Forecast (described above) was also used to separate industrial-related electricity consumption.⁷ For the transportation sector, all on-road emissions were included, while ships and commercial boats, aviation, rail, and unspecified transportation were removed.

Similar to the 1990 inventory, the entire agriculture and forestry sectors were removed from the inventory. All emissions from the commercial and residential fuel combustion sector were included in the inventory, while all emissions associated with the industrial fuel combustion sector were removed. The industrial portion of the recycling and waste sector was removed using similar methods to those described above for landfill emissions.

⁷ CEC. 2009. California Energy Demand 2010-2020 Commission-Adopted Forecast: Statewide Demand Forecast Forms. Available: < <http://www.energy.ca.gov/2009publications/CEC-200-2009-012/index.html>>.

For the High Global Warming Potential (GWP) sector, the electricity grid sulfur hexafluoride (SF₆) losses subcategory was included since it relates to electricity use. However, all other portions of the high GWP sector were removed. The electricity grid SF₆ losses subcategory was separated by land use using the CEC's California Energy Demand Forecast. It was assumed that the amount of SF₆ loss is proportional to the amount of electricity consumed.

A majority of the high global warming potential (GWP) emissions were removed in either the 1990 or 2020 inventories for this analysis. ARB's 1990 inventory does not list high GWP emissions as a separate line item in the inventory. It is anticipated that a significant portion of high GWP emissions are attributable to land use projects, such as homes, motor vehicles, supermarkets, and commercial storage facilities. However, the question is not only whether or not high GWP conceptually fits within land use development projects for the purposes of CEQA assessment. It also depends on current CEQA protocols for GHG analysis. Today, high GWP emissions are not normally analyzed as a part of most CEQA projects. If these emissions were incorporated into the "bright line" development, all future CEQA GHG analyses would be required to quantify high GWP emissions in order to maintain consistency between the threshold and evaluated emissions.

The County contacted ARB to explore to possibility of separating the industrial portion of high GWP emissions. However, high GWP emissions for the statewide inventories are developed using end use equipment (e.g., chillers, cold storage, transport refrigeration), which do not provide a clear indication of the land use type. ARB will be developing the high GWP portion of the statewide inventory using more refined methods for the new statewide inventory.

Lead agencies and air districts could work to develop a standardized statewide methodology for quantifying high GWP emissions and attributing emissions for land use projects. Once ARB has refined its methods, the high GWP emissions could be incorporated into modified inventory estimates, a modified bright line threshold, and future CEQA analysis. In addition, all interested parties should continue to work with ARB to develop inventories with consistent methodologies and levels of detail for future analysis and comparison efforts.

Statewide Reduction Measures

The next step towards the "bright line" threshold is to determine what future emission reductions will be achieved through the implementation of statewide GHG reduction measures.

Many measures and potential measures are outlined in the AB 32 Scoping Plan. Statewide measures associated with the AB 32 Scoping Plan will achieve some portion of the emission reduction goal (i.e., achieve 1990 levels by 2020), while the remaining emissions would be achieved through mitigation within the context of land use development projects, improvements to existing buildings and development patterns, investments in transit and non-vehicular transportation facilities, and other measures. The 2020 inventory is estimated to be reduced by approximately 39.08 MMT CO₂e/yr through implementation of statewide GHG reduction measures (Table 3).

As additional measures from the Scoping Plan or other sources are implemented, this estimate should be revised when new measures would change the level of GHG reduction substantially.

Emissions reductions associated with the AB 32 Scoping Plan measures should be taken into account to accurately identify the portion of emission reductions that are the responsibility of land use projects. The County accounted for all known statewide measures that would reduce emissions from land use projects (i.e., residential and commercial) and existing development.

**Table 3
Additional Statewide AB 32 Scoping Plan GHG Emission Reductions**

Scoping Plan Measure	Emission Reductions (MMT CO₂e/yr)	Notes/Adjustments
Pavley II	4.0	Represents additional emission reductions beyond Pavley I as stated in the Scoping Plan.
Low Carbon Fuel Standard	16.0	As identified for fuel combustion only (not all lifecycle related emissions) by ARB.
Tire Pressure Program	0.6	Represents fuel efficiency benefits from program as stated in the Scoping Plan.
Tire Tread Standard	0.30	Represents fuel efficiency benefits from standard as stated in the Scoping Plan.
Heavy-Duty Vehicle GHG Emission Reduction Program ⁸	0.7	Aerodynamic efficiency requirement that will improve fuel efficiency in heavy-duty trucks as stated in the Scoping Plan.
Landfill Methane Control Measure	1.50	Represents enhanced control and monitoring of methane emissions from municipal solid waste landfills.
Renewable Electricity Standard ⁹	9.847	Adjusted to remove industrial portion of emission reduction.
Water Efficiency	1.40	Likely includes some portion of industrial water efficiency reductions. Water districts are currently actively implementing efficiency measures to achieve this target.
2008 Title 24 Standards ¹⁰	4.737	Represents the annual CO ₂ emissions saved from incorporation of 2008 Title 24 building standards from electricity and natural gas consumption for land use projects as calculated by CEC.
Total	39.08	

Notes: GHG = greenhouse gas; MMT CO₂e/yr = million metric tons of carbon dioxide equivalent per year. Values may not appear to add exactly due to rounding. Source: ARB 2010c, ARB 2010d, CEC 2009, AECOM 2011

⁸ Based on the Scoping Plan documentation (pages 53-54), 1.4 MMT CO₂e is the estimated total GHG reductions in 2020 from two measures (T-7 and T-8). Measure T-7 HDV GHG Emission Reduction Measure – Aerodynamic Efficiency was estimated to provide a reduction of 0.93 MMT CO₂e and Measure T-8 Medium/Heavy-Duty Vehicle Hybridization 0.5 MMT CO₂e. Measure T-7 is based on US EPA SmartWay program and was adopted, but during the rulemaking (in 2010), the benefits were revised to be 0.7 MMT CO₂e based on updated VMT and vehicle population operating in California, which went down because of the economic recession. Measure T-8 is not yet adopted and therefore the County has elected not to include this measure as a part of the Bright Line Threshold calculation process. According to Daniel Hawelti of the California Air Resources Board, scaling the inventory down to a local jurisdiction (e.g., based on VMT proportions) would be appropriate if the fleet characteristics and activity for the local jurisdiction is similar to that used to estimate the statewide inventory (Daniel Hawelti, California Air Resources Board, Personal Correspondence with Cheryl Laskowski of AECOM, July 20th, 2011).

⁹ The previous ARB calculations for RPS (20%) and RES (33%) were 7.9 and 13.4 MMT, respectively (see ARB’s “Scoping Plan Measures Implementation Timeline, October 28, 2010, authors: Dave Mehl (RES) and Paul Douglas (RPS). The total of these was updated to be 20 MMT. However, to reflect a recent revision for the estimated reduction for this measure, the County took the proportion of each RPS (7.9/(7.9+13.4)) and RES (13.4/(7.9+13.4)) and multiplied by the new estimate of 20 MMT. In addition, the County only used the land use emission related portion of total electricity consumption (78.26%) to avoid an overestimate of reductions from this statewide measure for the purpose of calculating the Bright Line Threshold.

¹⁰ Page 7 of the California Energy Commission’s (CEC) document entitled “Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings” states that the implementation of 2008 Title - 24 energy efficiency standards will reduce approximately 473,282 tons of carbon dioxide for each year of construction activity (in both newly constructed buildings and alterations to existing buildings). Assuming that 2008 T-24 standards apply to construction between 2010 and 2020, the total reductions in 2020 would be 5.2 million tons of carbon dioxide. Converting short tons to metric tons results in total reduction of 4.737 MMT CO₂e. See California Energy Commission (CEC). 2007 (November 7). Impact Analysis, 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings. Available online at: http://www.energy.ca.gov/title24/2008standards/rulemaking/documents/2007-11-07_IMPACT_ANALYSIS.PDF. Last accessed December 3, 2011.

The County conducted research into ARB's 2020 forecasted emissions inventory methodology to determine which AB 32 Scoping Plan measures were already accounted for in the forecast. It is important not to "double count" measures that were already assumed in the statewide 2020 inventory estimate. Voluntary measures, measures that did not have regulatory support, and incentive-based programs without funding were not included.

The thresholds approach will need to be updated over time as new measures become fixed in regulation and as future GHG emissions inventory estimates are revised.

Pavley I and Renewable Portfolio Standard

ARB's forecasted 2020 emission inventory incorporated the emission reductions associated with Pavley I and Renewable Portfolio Standard. Therefore, no further emission reductions were taken for these programs.

Pavley II, Low Carbon Fuel Standard, Renewable Electricity Standard, and Water Efficiency

The County evaluated the list of AB 32 Scoping Plan measures for feasibility and applicability to land use projects. It was determined that emission reductions from Pavley II,¹¹ Low Carbon Fuel Standard,¹² Renewable Electricity Standard (RES) (ARB 2010d),¹³ and Water Efficiency¹⁴ should be applied to adjust the forecasted 2020 emission level.

It is anticipated that for some of these programs, a portion of the emission reductions would occur from industrial land uses. For example, RES and Water Efficiency would also affect electricity and water efficiency, respectively, for industrial land uses. The County used the CEC's Energy Demand Forecast to separate the amount of RES emission reductions that would affect industrial versus land use projects, similar to the method described above for 1990 and 2020 inventories.¹⁵

For Water Efficiency, the County evaluated the potential to separate industrial water efficiency emission reductions from land use reductions. It is not currently possible to differentiate industrial from land use related emission reductions for Water Efficiency Measures. Therefore, a portion of the Water Efficiency emission reductions included in the estimate would actually apply to industrial land uses. However, Water Efficiency is a very small portion (i.e., approximately 7%) of the total emission reductions applied to the 2020 inventory.

The State's Low Carbon Fuel Standard (LCFS) will reduce the carbon intensity of transportation-related fuels purchased in California.^{16,17} This program has the potential to provide substantial GHG reduction benefits throughout the period of implementation. ARB has provided a tool (i.e., EMFAC Postprocessor) for estimating the benefits of the LCFS at the project level. Other attempts to

¹¹ California Air Resources Board. 2010. *Updated Economic Impacts Analysis by the Economic Impacts Subcommittee of the Economic and Allocation Advisory Committee*. Available:

<http://www.climatechange.ca.gov/eaac/documents/eaac_reports/2010-04-19_EAAC_REPORT_Appendix.pdf>.

¹² California Air Resources Board. 2010. *Updated Economic Impacts Analysis by the Economic Impacts Subcommittee of the Economic and Allocation Advisory Committee*. Available:

<http://www.climatechange.ca.gov/eaac/documents/eaac_reports/2010-04-19_EAAC_REPORT_Appendix.pdf>.

¹³ California Air Resources Board. 2010. *Scoping Plan Measures Implementation Timeline*. Sacramento, CA.

¹⁴ California Air Resources Board. 2010. *Scoping Plan Measures Implementation Timeline*. Sacramento, CA.

¹⁵ California Energy Commission. 2009. *California Energy Demand 2010-2020 Commission-Adopted Forecast: Statewide Demand Forecast Forms*. Available: <<http://www.energy.ca.gov/2009publications/CEC-200-2009-012/index.html>>.

¹⁶ California Air Resources Board, 2011, *AECOM Personal Communication with John Courtis and Kevin Cleary, of ARB on April 13, 2011*. Sacramento, CA.

¹⁷ California Air Resources Board. 2010. *Updated Economic Analysis of AB 32 Scoping Plan*. Pg 37. Sacramento, CA.

estimate the benefits of statewide measures for reducing land use-related emissions have included LCFS reductions.

It is important in the context of a thresholds development effort focused land use, however, to carefully consider what aspects of LCFS would apply to fuel production-related lifecycle emissions versus what portion would relate to direct transportation emissions. The County communicated extensively with ARB staff regarding estimates of the GHG reduction benefits of the LCFS and reviewed reports made available by ARB on this program. GHG emissions reductions from LCFS would result from:

“production and use of lower carbon transportation fuels in California and changes in the vehicle fleet composition due to new, lower carbon fuels being available to the transportation fuel pool. [ARB] staff has estimated the GHG emissions reductions for the combustion of transportation fuels to be about 16 MMT CO₂e by 2020.”¹⁸

The above mentioned ARB estimate (16 MMT) was used in the assessment of the effectiveness of statewide measures.

Tire Pressure and Tire Tread Standard

The Tire Pressure Program and Tire Tread Standard are part of the AB 32 Scoping Plan and would affect land use projects, as well as industrial projects, to some extent.¹⁹ The Tire Pressure Program is a Discrete Early Action and enforcement of the program commenced in January 2010. The Tire Tread Standard is enforced by regulations. Although a portion of these measures would affect industrial land uses, similar to Water Efficiency, these measures represent a very small portion of the overall statewide emission reductions (i.e., approximately 4%).

Heavy-Duty Vehicle GHG Emissions Reduction Program

The Heavy-Duty Vehicle GHG Emission Reduction program will be enforced by regulation and require existing trucks/trailers to be retrofitted with aerodynamic efficiency technologies.¹² This measure is a Discrete Early Action and requires trucks and trailers to comply through a phase-in schedule starting in 2010 and achieve 100% compliance by 2014.

Landfill Methane Capture Control Measure

The Landfill Methane Control Measure will require owners and operators of municipal solid waste landfills and other uncontrolled landfills to install gas collection and control systems¹². Additionally, all affected landfills will be required to satisfy enhanced methane monitoring requirements to ensure that their gas collection and control system is operating optimally and that fugitive emissions are minimized. The measure is a Discrete Early Action and is enforced by regulation. The measure will likely have a phase-in period to become fully effective.

¹⁸ California Air Resources Board. 2009 (March). Proposed Regulation to Implement the Low Carbon Fuel Standard. Volume I. Staff Report: Initial Statement of Reasons. Page VII-1. Available: <<http://www.arb.ca.gov/regact/2009/lcfs09/lcfsisor1.pdf>>

¹⁹ California Air Resources Board. 2008. *Climate Change Scoping Plan Appendices Volume I: Supporting Document and Measure Detail*. Available: <http://www.arb.ca.gov/cc/scopingplan/document/appendices_volume1.pdf>. Accessed April 4, 2011.

Title 24

The County investigated the GHG reduction potential of implementing the 2008 Title 24 standards into land use projects. CEC quantified the GHG emissions saved from reduced electricity and natural gas consumption with implementation of 2008 Title 24 Standards.²⁰

Total Effect of Reliable Statewide Measure

Following application of the additional feasible and reasonably foreseeable AB 32 Scoping Plan measures, the gap to achieve the AB 32 emission reduction goal can be calculated by subtracting 1990 emissions (Table 1) from 2020 emissions with AB 32 Scoping Plan reductions (Table 2 minus Table 3). This gap represents the amount of emissions in the land use sectors that would need to be filled in order to meet the emission reduction goal of AB 32.

At the statewide level, land use projects would need to reduce 2020 emissions by approximately 2.87% to meet the emission reduction goal of AB 32. This percentage can be considered a fair-share reduction goal for land use projects throughout the state. Therefore, applying the 2.87% reduction to San Diego County's 2020 forecasted land use-related emissions would provide an estimate of the land use related mass emissions reductions needed to achieve the emission reduction goal of AB 32.

Statewide 2020 Land Use Emissions <hr/> 311.0 MMT CO ₂ e/yr	⇒	Statewide 1990 Land Use Emissions <hr/> 264.1 MMT CO ₂ e/yr	⇒	Statewide GHG Reduction Measures <hr/> 39.08 MMT CO ₂ e/yr
Percent Reduction Required to get to 1990 Emissions by 2020		Percentage Reduction Achieved from Statewide Measures		Land Use Emissions Reduction "Gap"
15%		12%		3%

Equations

The following equations show the reductions needed to get to 1990 emissions by 2020, the share attributable to statewide measures, and the "gap" left for land use emissions.

Statewide 2020 Emissions	–	Foreseeable AB 32 Measures	–	Statewide 1990 Emissions	=	Emission Reduction Gap
311.0 MMT CO ₂ e/yr	–	39.08 MMT CO ₂ e/yr	–	264.1 MMT CO ₂ e/yr	=	7.8 MMT CO ₂ e/yr
Emission Reduction Gap	÷	(Statewide 2020 Emission	–	Foreseeable AB 32 Measures)	=	Percent Reduction Gap
7.8 MMT CO ₂ e/yr	÷	(311.0 MMT CO ₂ e/yr	–	39.08 MMT CO ₂ e/yr)	=	2.87%

Notes: Numbers may not appear to exact due to rounding.

²⁰ CEC. 2007. Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings. Available: <http://www.energy.ca.gov/title24/2008standards/rulemaking/documents/2007-11-07_IMPACT_ANALYSIS.PDF>.

The County reviewed, in detail, all available documentation on the Countywide GHG inventory by the Energy Policy Initiatives Center (EPIC). This inventory includes several non land use emissions sources. The next step is to translate the statewide land use gap (3.05%) to the 2030 forecast GHG emissions inventory derived by EPIC. The total estimated 2020 emissions in San Diego County for land use related activities is estimated at 33.57 MMT CO₂e per year. Multiplying this total by the statewide land use gap of 2.87% yields 964,966 MT CO₂e per year. New development (between 2011 and 2020) represents approximately 10.54% of the total population and employment in San Diego County in 2020. Multiplying 10.54% by the mass land use gap of 964,966 million MT yields a share of the land use gap for new development of approximately 101,707 MT CO₂e per year. Assuming new development would account for twice its share of the needed regional GHG emissions reduction targets, the total reduction target to achieve through the Bright Line Threshold would be 203,415 MT CO₂e per year.

Development Projections Methodology

The County created growth projections for new development from 2011 to 2020 based on (1) the 2050 San Diego Association of Governments (SANDAG) Regional Growth Forecast; (2) the California Department of Finance (DOF) for population, household size, and residential unit distribution projections; and (3) the California Economic Development Department (EDD) for employment projections by North American Industry Classification System (NAICS) code. These data sources were selected primarily due to the accuracy of the projections, but also because the data is reported at a level of specificity that allows for simple translation into URBEMIS land use categories. DOF and SANDAG data were used for population estimates and EDD for employment. SANDAG data were used for population and housing projections, and DOF data were used to distribute future housing across more specific housing types. The DOF and EDD data were not at a fine enough resolution to develop projections for every URBEMIS land use category. In instances in which there were asymmetries between the DOF/EDD data and the URBEMIS land use categories, development projections were aggregated into the most similar category based on development density and trip capture assumptions in the URBEMIS model. Table 4 illustrates the conversion between industry classification and URBEMIS land uses.

NAICS Code	Industry Title	Urbemis
1133,21	Natural Resources and Mining	General Heavy Industry
1133	Logging	General Heavy Industry
21	Mining	General Heavy Industry
211	Oil and Gas Extraction	General Heavy Industry
212	Mining (except Oil and Gas)	General Heavy Industry
213	Support Activities for Mining	General Heavy Industry
23	Construction	General Light Industry
236	Construction of Buildings	General Light Industry
2361	Residential Building Construction	General Light Industry
2362	Nonresidential Building Construction	General Light Industry
237	Heavy and Civil Engineering Construction	General Light Industry
2371	Utility System Construction	General Light Industry
2372	Land Subdivision	General Light Industry

2373	Highway, Street, and Bridge Construction	General Heavy Industry
2379	Other Heavy and Civil Engineer Construction	General Heavy Industry
238	Specialty Trade Contractors	General Light Industry
2381	Foundation, Structure, and Building Exterior Contractors	General Light Industry
2382	Building Equipment Contractors	General Light Industry
2383	Building Finishing Contractors	General Light Industry
2389	Other Specialty Trade Contractors	General Light Industry
2399	Residual-Other Heavy and Civil Engineering Construction (includes 2371-2372,2379)	General Heavy Industry
31-33	Manufacturing	General Heavy Industry
321	Durable Goods(321,327,331-339)	General Heavy Industry
321	Wood Product Manufacturing	General Heavy Industry
3211	Saw mills and Wood Preservation	General Heavy Industry
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	General Heavy Industry
3219	Other Wood Product Manufacturing	General Heavy Industry
3299	Residual-Miscellaneous Manufacturing (includes 321,327,331-333,335,337,339)	General Heavy Industry
327	Nonmetallic Mineral Product Manufacturing	General Heavy Industry
331	Primary Metal Manufacturing	General Heavy Industry
3311	Residual-Iron and Steel Mills and Ferralloy (includes3311-3312,3314-3315)	General Heavy Industry
3313	Alumina and Aluminum Production	General Heavy Industry
332	Fabricated Metal Product Manufacturing	General Heavy Industry
3323	Architectural and Structural Metals Manufacturing	General Heavy Industry
	Residual-Forging and Stamping Mfg.(includes 3321-3322,3324-3326)	General Heavy Industry
3327	Machine Shops,Turned Product,and Screw,Nut and Bolt Manufacturing	General Heavy Industry
3328	Coating,Engraving,Heat Treating,and Allied Activities	General Heavy Industry
3329	Other Fabricated Metal Product Manufacturing	General Heavy Industry
333	MachineryManufacturing	General Heavy Industry
	Residual-Agriculture,ConstructionandMiningMachineryMfg(includes3331,3334)	General Heavy Industry
3332	IndustrialMachineryManufacturing	General Heavy Industry
3333	CommercialandServiceIndustryMachineryManufacturing	General Heavy Industry
3335	MetalworkingMachineryManufacturing	General Heavy Industry
3336	Engine,Turbine,andPowerTransmissionEquipmentManufacturing	General Heavy Industry
3339	OtherGeneralPurposeMachineryManufacturing	General Heavy Industry
334	ComputerandElectronicProductManufacturing	Manufacturing
3341	ComputerandPeripheralEquipmentManufacturing	Manufacturing
3342	CommunicationsEquipmentManufacturing	Manufacturing
3343	AudioandVideoEquipmentManufacturing	Manufacturing
3344	SemiconductorandOtherElectronicComponentManufacturing	Manufacturing
3345	Navigational,Measuring,Electromedical,andControlInstrumentsManuf acturing	Manufacturing
3346	ManufacturingandReproducingMagneticandOpticalMedia	Manufacturing
335	ElectricalEquipment,Appliance,andComponentManufacturing	Manufacturing
336	TransportationEquipmentManufacturing	Manufacturing
3361	MotorVehicleManufacturing	General Heavy Industry
3363	MotorVehiclePartsManufacturing	General Heavy Industry
3364	AerospaceProductandPartsManufacturing	General Heavy Industry
3366	ShipandBoatBuilding	General Heavy Industry
	Residual-	Manufacturing

Table 4 Lookup Table: NAICS Code to URBEMIS Code		
	OtherTransportationEquipmentManufacturing(includes3362,3365,3369)	
337	FurnitureandRelatedProductManufacturing	Manufacturing
3371	HouseholdandInstitutionalFurnitureManufacturing	Manufacturing
3372	Residual-OtherFurnitureRelatedProductManufacturing(includes3372,3379)	Manufacturing
339	MiscellaneousManufacturing	Manufacturing
3391	MedicalEquipmentandSuppliesManufacturing	Manufacturing
3399	OtherMiscellaneousManufacturing	Manufacturing
311	NondurableGoods(311-316,322-326)	Manufacturing
311	FoodManufacturing	Manufacturing
3119	Residual-AnimalFoodManufacturing(includes3111-3112,3117)	Manufacturing
3113	SugarandConfectioneryProductManufacturing	Manufacturing
3114	FruitandVegetablePreservingandSpecialtyFoodManufacturing	Manufacturing
3115	DairyProductManufacturing	Manufacturing
3116	AnimalSlaughteringandProcessing	Manufacturing
3118	BakeriesandTortillaManufacturing	Manufacturing
3119	OtherFoodManufacturing	Manufacturing
312	BeverageandTobaccoProductManufacturing	Manufacturing
313	TextileMills	Manufacturing
314	TextileProductMills	Manufacturing
315	ApparelManufacturing	Manufacturing
3151	ApparelKnittingMills	Manufacturing
3152	CutandSewApparelManufacturing	Manufacturing
3159	ApparelAccessoriesandOtherApparelManufacturing	Manufacturing
316	LeatherandAlliedProductManufacturing	General Heavy Industry
322	PaperManufacturing	General Heavy Industry
3221	Pulp,Paper.andPaperboardMills	General Heavy Industry
3222	ConvertedPaperProductManufacturing	General Heavy Industry
323	PrintingandRelatedSupportActivities	General Heavy Industry
324	PetroleumandCoalProductsManufacturing	General Heavy Industry
325	ChemicalManufacturing	General Heavy Industry
3254	PharmaceuticalandMedicineManufacturing	General Heavy Industry
3256	Soap,CleaningCompound,andToiletPreparationManufacturing	General Heavy Industry
	Residual-OtherChemicalProdsandPrepMfg(includes3251-3253,3255,3259)	General Heavy Industry
326	PlasticsandRubberProductsManufacturing	General Heavy Industry
3261	PlasticsProductManufacturing	General Heavy Industry
3262	RubberProductManufacturing	General Heavy Industry
22,42-49	Trade,Transportation,andUtilities	Warehouse
42	WholesaleTrade	Warehouse
423	Merchantwholesalers,DurableGoods	Warehouse
4231	MotorVehicleandMotorVehiclePartsandSuppliesMerchantWholesalers	Warehouse
4232	FurnitureandHomeFurnishingMerchantWholesalers	Warehouse
4233	LumberandOtherConstructionMaterialsMerchantWholesalers	Warehouse
4234	ProfessionalandCommercialEquipmentandSuppliesMerchantwholesalers	Warehouse
4235	MetalandMineral(exceptPetroleum)Merchantwholesalers	Warehouse
4236	ElectricalandElectronicGoodsMerchantwholesalers	Warehouse
4237	Hardware,andPlumbingandHeatingEquipmentandSuppliesMerchantwholesalers	Warehouse

4238	Machinery, Equipment, and Supplies Merchant Wholesalers	Warehouse
4239	Miscellaneous Durable Goods Merchant Wholesalers	Warehouse
424	Merchant Wholesalers, Nondurable Goods	Warehouse
4241	Paper and Paper Product Merchant Wholesalers	Warehouse
	Residual-Drug and Druggists Sundries Merch Wholesalers (includes 4242, 4245, 4247-4248)	Warehouse
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	Warehouse
4244	Grocery and Related Products Wholesalers	Warehouse
4246	Chemical and Allied Products Merchant Wholesalers	Warehouse
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	Warehouse
425	Wholesale Electronic Markets and Agents and Brokers	General Office Building
44-45	Retail Trade	Free-Standing Discount Superstore
441	Motor Vehicle and Parts Dealers	Free-Standing Discount Superstore
4411	Automobile Dealers	Free-Standing Discount Superstore
4412	Other Motor Vehicle Dealers	Free-Standing Discount Superstore
4413	Automotive Parts, Accessories, and Tire Stores	Free-Standing Discount Superstore
442	Furniture and Home Furnishings Stores	Free-Standing Discount Store
4421	Furniture Stores	Free-Standing Discount Superstore
4422	Home Furnishings Stores	Free-Standing Discount Superstore
443	Electronics and Appliance Stores	Electronic Superstore
444	Building Material and Garden Equipment and Supplies Stores	Home Improvement Superstore
4441	Building Material and Supplies Dealers	Home Improvement Superstore
4442	Lawn and Garden Equipment and Supplies Stores	Home Improvement Superstore
445	Food and Beverage Stores	Supermarket
4451	Grocery Stores	Supermarket
4452	Specialty Food Stores	Convenience Market (24 Hour)
4453	Beer, Wine, and Liquor Stores	Convenience Market (24 Hour)
446	Health and Personal Care Stores	Pharmacy/Drugstore without drive-through
447	Gasoline Stations	Convenience Market with Gas Pumps
448	Clothing and Clothing Accessories Stores	Strip Mall
4481	Clothing Stores	Strip Mall
4482	Shoe Stores	Strip Mall
4483	Jewelry, Luggage, and Leather Goods Stores	Strip Mall
451	Sporting Goods, Hobby, Book, and Music Stores	Strip Mall
4511	Sporting Goods, Hobby, and Musical Instrument Stores	Strip Mall
4512	Book, Periodical, and Music Stores	Strip Mall
452	General Merchandise Stores	Strip Mall
4521	Department Stores	Strip Mall
4529	Other General Merchandise Stores	Strip Mall
453	Miscellaneous Store Retailers	Strip Mall

4531	Florists	Strip Mall
4532	Office Supplies, Stationery, and Gift Stores	Strip Mall
4533	Used Merchandise Stores	Strip Mall
4539	Other Miscellaneous Store Retailers	Strip Mall
454	Nonstore Retailers	Warehouse
4541	Electronic Shopping and Mail-Order Houses	Warehouse
	Residual- Vending Machine Operators and Direct Selling Establishments (includes 4542-4543)	Warehouse
22,48-49	Transportation, Warehousing, and Utilities	General Heavy Industry
22	Utilities	General Heavy Industry
2211	Electric Power Generation, Transmission and Distribution	General Heavy Industry
2212	Natural Gas Distribution	General Heavy Industry
2213	Water, Sewage and Other Systems	General Heavy Industry
48-49	Transportation and Warehousing	Warehouse
481	Air Transportation	Warehouse
4811	Scheduled Air Transportation	Warehouse
4812	Nonscheduled Air Transportation	Warehouse
482	Rail Transportation	Warehouse
484	Truck Transportation	Warehouse
4841	General Freight Trucking	Warehouse
4842	Specialized Freight Trucking	Warehouse
485	Transit and Ground Passenger Transportation	Warehouse
4854	School and Employee Bus Transportation	Warehouse
	Residual- Other Transit and Ground Passenger Transp (includes 4851-4853, 4855, 4859)	Warehouse
	Residual- Water, Pipeline, Scenic, and Sightseeing Transp (includes 483, 486-487)	Warehouse
488	Support Activities for Transportation	Warehouse
4883	Support Activities for Water Transportation	Warehouse
4884	Support Activities for Road Transportation	Warehouse
4885	Freight Transportation Arrangement	Warehouse
	Residual- Other Support Activities for Transportation (includes 4881-4882, 4889)	Warehouse
492	Couriers and Messengers	Warehouse
4921	Couriers	Warehouse
4922	Local Messengers and Local Delivery	Warehouse
493	Warehousing and Storage	Warehouse
51	Information	General Office Building
511	Publishing Industries (except Internet)	General Office Building
5111	Newspaper, Periodical, Book, and Directory Publishers	General Office Building
5112	Software Publishers	General Office Building
512	Motion Picture and Sound Recording Industries	General Office Building
5121	Motion Picture and Video Industries	General Office Building
5122	Sound Recording Industries	General Office Building
515	Broadcasting (except Internet)	Office Park
5151	Radio and Television Broadcasting	Office Park
5152	Cable and Other Subscription Programming	Office Park
517	Telecommunications	General Office Building
5171	Wired Telecommunications Carriers	General Office Building

5172	WirelessTelecommunicationsCarriers	General Office Building
5173	TelecommunicationsResellers	General Office Building
5174	SatelliteTelecommunications	General Office Building
5175	CableandOtherProgramDistribution	General Office Building
5179	OtherTelecommunications	General Office Building
518	InternetServiceProviders,WebSearchPortals,andDataProcessingServices	General Office Building
5181	InternetServiceProvidersandWebSearchPortals	General Office Building
5182	DataProcessing,Hosting,andRelatedServices	General Office Building
	Residual-OtherInformationServices(includes516,519)	General Office Building
52-53	FinancialActivities	General Office Building
52	FinanceandInsurance	General Office Building
522	CreditIntermediationandRelatedActivities	General Office Building
5221	DepositoryCreditIntermediation	General Office Building
5222	NondepositoryCreditIntermediation	General Office Building
5223	ActivitiesRelatedtoCreditIntermediation	General Office Building
523	Securities,CommodityContracts,andOtherFinclInvestmentsandRelatedActivities	General Office Building
5231	SecuritiesandCommodityContractsIntermediationandBrokerage	General Office Building
5232	SecuritiesandCommodityExchanges	General Office Building
5239	OtherFinancialInvestmentActivities	General Office Building
524	InsuranceCarriersandRelatedActivities	General Office Building
5241	InsuranceCarriers	General Office Building
5242	Agencies, Brokerages, and Other Insurance Related Activities	General Office Building
	Residual-Financial Activities (includes521,525)	General Office Building
53	Real Estate and Rental and Leasing	General Office Building
531	Real Estate	General Office Building
5311	Lessors of Real Estate	General Office Building
5312	Offices of Real Estate Agents and Brokers	General Office Building
5313	Activities Related to Real Estate	General Office Building
532	Rental and Leasing Services	General Office Building
5321	Automotive Equipment Rental and Leasing	General Office Building
5322	Consumer Goods Rental	General Office Building
5323	General Rental Centers	General Office Building
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	General Office Building
533	Lessors of Nonfinancial Intangible Assets(except Copyrighted Works)	General Office Building
5399	Residual-Rental and Leasing Services (includes 532-533)	General Office Building
54-56	ProfessionalandBusinessServices	General Office Building
54	Professional,Scientific,andTechnicalServices	Office Park
5411	LegalServices	General Office Building
5412	Accounting,TaxPreparation,Bookkeeping,andPayrollServices	General Office Building
5413	Architectural,Engineering,andRelatedServices	General Office Building
5414	SpecializedDesignServices	General Office Building
5415	ComputerSystemsDesignandRelatedServices	General Office Building
5416	Management,Scientific,andTechnicalConsultingServices	General Office Building
5417	ScientificResearchandDevelopmentServices	Office Park
5418	AdvertisingandRelatedServices	General Office Building
5419	OtherProfessional,Scientific,andTechnicalServices	General Office Building
5499	Residual-Other Professional, Scientific and Technical Services	General Office Building

Table 4		
Lookup Table: NAICS Code to URBEMIS Code		
	(includes 5411-5412,5414, 5416-5419)	
55	ManagementofCompaniesandEnterprises	General Office Building
56	AdministrativeandSupportandWasteManagementandRemediationSer vices	General Office Building
561	AdministrativeandSupportServices	General Office Building
5611	OfficeAdministrativeServices	General Office Building
5612	FacilitiesSupportServices	General Office Building
5613	EmploymentServices	General Office Building
5614	BusinessSupportServices	General Office Building
5615	TravelArrangementandReservationServices	General Office Building
5616	InvestigationandSecurityServices	General Office Building
5617	Services to Buildings and Dwellings	General Office Building
5619	OtherSupportServices	General Office Building
5699	Residual-Other Support Services (includes 5611-5612,5614- 5615,5619)	General Office Building
562	WasteManagementandRemediationServices	General Office Building
61-62	EducationServices,HealthCareandSocialAssistance	Elementary School
61	EducationalServices(Private)	Elementary School
6111	ElementaryandSecondarySchools	Elementary School
6112	JuniorColleges	Junior College (2 years)
6113	Colleges,Universities,andProfessionalSchools	University/College (4 years)
	Residual- BusinessSchoolsandComputerandMgmt.Training(includes6114- 6115,6117)	Government Office Building
6116	OtherSchoolsandInstruction	Elementary School
62	HealthCareandSocialAssistance	Hospital
621	AmbulatoryHealthCareServices	Hospital
6211	OfficesofPhysicians	Hospital
6212	OfficesofDentists	Hospital
6213	OfficesofOtherHealthPractitioners	Hospital
6214	OutpatientCareCenters	Hospital
6215	MedicalandDiagnosticLaboratories	Hospital
6216	HomeHealthCareServices	Hospital
6219	OtherAmbulatoryHealthCareServices	Hospital
622	Hospitals(Private)	Hospital
6221	GeneralMedicalandSurgicalHospitals	Hospital
6222	Psychiatric and Substance Abuse Hospitals	Hospital
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	Hospital
623	Nursing and Residential Care Facilities	Congregate Care (Assisted Living) Facility
6231	Nursing Care Facilities	Congregate Care (Assisted Living) Facility
6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities	Congregate Care (Assisted Living) Facility
6233	Community Care Facilities for the Elderly	Congregate Care (Assisted Living) Facility
6239	Other Residential Care Facilities	Congregate Care (Assisted Living) Facility
624	Social Assistance	Government Office Building
6241	Individual and Family Services	Government Office Building
6242	Community Food and Housing, and Emergency and Other Relief Services	Government Office Building
6243	Vocational Rehabilitation Services	Government Office Building

6244	Child Day Care Services	General Office Building
71-72	Leisure and Hospitality	Place of Worship1
71	Arts, Entertainment, and Recreation	Place of Worship1
711	Performing Arts, Spectator Sports, and Related Industries	Place of Worship1
7111	Performing Arts Companies	Place of Worship1
7112	Spectator Sports	Place of Worship1
7199	Residual-PromotersofPerformingArts,Sports,andSimilarEvents(includes7113-7114)	Place of Worship1
7115	Independent Artists, Writers, and Performers	Place of Worship1
712	Museums, Historical Sites, and Similar Institutions	Place of Worship1
713	Amusement, Gambling, and Recreation Industries	Regional Shopping Center
7131	Amusement Parks and Arcades	Regional Shopping Center
7132	Gambling Industries	Regional Shopping Center
7139	Other Amusement and Recreation Industries	Regional Shopping Center
72	Accommodation and Food Services	Hotel
721	Accommodation	Hotel
722	Food Services and Drinking Places	High Turnover (sit-down) Restaurant
7221	Full-Service Restaurants	Quality Restaurant
7222	Limited-Service Eating Places	High Turnover (sit-down) Restaurant
7223	Special Food Services	Fast Food Restaurant without Drive Thru
7224	Drinking Places (Alcoholic Beverages)	High Turnover (sit-down) Restaurant
81	Other Services (excludes 814 - Private Household Workers)	General Light Industry
811	Repair and Maintenance	General Light Industry
8111	Automotive Repair and Maintenance	General Light Industry
8112	Electronic and Precision Equipment Repair and Maintenance	General Light Industry
8113	Commercial and Industrial Machinery and Equipment Repair and Maintenance	General Light Industry
8114	Personal and Household Goods Repair and Maintenance	General Light Industry
812	Personal and Laundry Services	General Light Industry
8121	Personal Care Services	General Light Industry
8122	Death Care Services	Medical Office Building
8123	Dry cleaning and Laundry Services	General Light Industry
8129	Other Personal Services	General Light Industry
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations	General Office Building
8131	Religious Organizations	Place of Worship
8132	Grantmaking and Giving Services	General Office Building
8133	Social Advocacy Organizations	General Office Building
8134	Civic and Social Organizations	General Office Building
8139	Business, Professional, Labor, Political, and Similar Organizations	General Office Building
9999	Government	Government Office Building
9999	Federal Government	Government Office Building
9999	State and Local Government	Government Office Building
9999	State Government	Government Office Building
9999	State Government Education	Government Office Building
9999	Other State Government	Government Office Building
9999	Local Government	Government Office Building

Table 4		
Lookup Table: NAICS Code to URBEMIS Code		
9999	Local Government Education	Government Office Building
9999	Other Local Government	Government Office Building
Note: 1 - Urbemis Trip Rate for "Place of Worship" most closely represents the trip for recreational entertainment areas		

For residential development, the DOF projections of population, household size, and residential unit distribution were used to develop population-driven residential square footage projections. For non-residential development, EDD projections for employment by NAICS code were used to develop employment-driven commercial, retail, and industrial development square footage projections.

Using project type and size distribution data from projects that passed through the CEQA process from 2000-2010 for the County of San Diego, the development size (dwelling units, square footage, rooms, etc.) annual projections were translated into units and project size distributions for each URBEMIS land use category. These projections were used to develop a “projected development inventory” for new development in San Diego County’s jurisdiction between 2012 and 2020.

The County researched available documentation, contacted Air District representatives, and assembled information on assembling a list of historic land use projects with different greenhouse gas (GHG) emissions profiles. This additional work helped to determine the appropriate methods to compile a CEQA database that can be used to develop CEQA thresholds for GHG emissions. For other efforts involving thresholds development, Air Districts have considered different strategies, including compiling data kept by the County Clerk’s office. The preferred method of assembling a CEQA database involves a search of records kept by the Office of Planning and Research (OPR) State Clearinghouse (SCH). The SCH was contacted to retrieve electronic files for San Diego County projects. The data were sorted and scrubbed to eliminate duplicative information, non land use projects, and projects without sufficient information to use in the frequency distribution analysis. Using a dataset of CEQA projects supplied by SCH, each application was coded for the URBEMIS land use category and size of development being permitted. Using these data, frequency distributions and average project sizes were calculated. These calculations were used to translate the development projections described above into numbers of future projects by type and size category. These projections were used as a basis for the emissions modeling exercise described below.

2020 Emissions and Mitigation Modeling

Since URBEMIS does not contain emission assumptions specific to San Diego County, assumptions from the South Coast Air Quality Management District were used as a proxy. The County used the year 2020 to model all operational and area source emissions, and assumed an approximate 15 month construction period occurring over the years 2020 and 2021. This was a conservative estimate because year 2020 will have lower emission rates for vehicle and off-road construction equipment, which are the primary sources of GHG emissions for construction and operations. The reasoning for this assumption is that URBEMIS accounts for changes in emissions technology and fleet turnover. URBEMIS does not provide modeled emissions from indirect sources of emissions, such as those emissions that would occur off-site at utility providers associated with the project’s energy and water demands. Estimates of these emissions were derived using methods described below.

URBEMIS2007 Version 9.2.4 was used to quantify mobile- and area-source GHG emissions associated with land use projects. URBEMIS2007 was primarily developed to evaluate regional air quality criteria air pollutants. However, when analyzing GHG emissions, long-term operational

activities associated with land use projects also generate indirect GHG emissions. Indirect GHG emissions may not occur at the point of consumption, but would occur at an off-site location (e.g., wastewater treatment plant, power plant, landfill). Because of the global nature of GHG emissions, it is equally important to capture and account for indirect GHG emissions. For this analysis, supplemental GHG emissions were quantified and added to the URBEMIS mobile- and area-source GHG emissions to represent the total operational GHG emissions that would be analyzed to develop GHG thresholds. Supplemental GHG emissions include those occurring from electricity consumption, potable water consumption, wastewater generation, and solid waste disposal. The following section describes the methods used to quantify these supplemental GHG emissions.

Electricity

Electricity consumption and associated GHG emissions were added to the total operational emissions using information from the California Energy Commission (CEC) and the Local Government Operations Protocol Version 1.1. Electricity intensities for the various land uses in units of kilowatt-hours per dwelling unit or kilowatt-hours per thousand square feet were obtained from CEC's California Statewide Residential Appliance Saturation Study (CEC 2004) and California Commercial End-Use Survey (CEC 2006a), respectively.^{21,22} Electricity consumption by residential and commercial land uses were then used to calculate GHG emissions using electricity production emission factors specific to San Diego Gas and Electric from the Local Government Operations Protocol.²³ Because the Local Government Operations Protocol only provides a CO₂ emission factor for San Diego Gas and Electric, California statewide factors for methane (CH₄) and nitrous oxide (N₂O) from USEPA's eGRID were used to quantify the carbon dioxide equivalent (CO₂e) emissions.

Potable Water

The electricity consumption and GHG emissions associated with supplying potable water to residential and commercial land uses were quantified using residential and commercial water consumption rates and water electricity intensity factors from CEC. For residential water consumption, statewide per capita water consumption per year was obtained from the Pacific Institute's Waste Not, Want Not study.²⁴ For commercial water consumption, statewide per employee water consumption (gallons per employee per year) for the various land uses were also obtained from the Waste Not, Want Not study. The commercial land uses in each size category were converted to number of employees using employee density factors (i.e., square feet per employee) from the Southern California Association of Governments (SCAG).²⁵ SCAG has developed employment density factors for various commercial and industrial land uses. The electricity consumption associated with residential and commercial water consumption was quantified using water supply electricity intensity factors developed by CEC.²⁶ CEC developed water supply intensity factors for Southern and Northern California that incorporates the supply, conveyance, treatment, distribution, and wastewater treatment. For this analysis, the Southern

²¹ CEC. 2004 (June). California Statewide Residential Appliance Saturation Study, Vol 2 Study Results Final Report [KEMA-XENERGY, Itron, RoperASW]. CEC-300-00-004. Tables 2-3, 2-19.

²² CEC. 2006a (March). California Commercial End-Use Survey [prepared by Itron, Inc.]. CEC-400-2006-005. Table 11-1.

²³ ARB. 2010 (May). Local Government Operations Protocol Version 1.1. Available: <http://www.arb.ca.gov/cc/protocols/localgov/pubs/lgo_protocol_v1_1_2010-05-03.pdf>.

²⁴ Gleick, Peter. 2003 Waste Not, Want Not: The Potential for Urban Water Conservation in California Appendix A. Pacific Institute. November 2003.

²⁵ Southern California Association of Governments (SCAG). 2001. Employee Density Study. Table IIa and IIb.

²⁶ CEC. 2006b (December). Refining Estimates of Water-Related Energy Use in California [prepared by Navigant Consulting, Inc.] CEC-500-2006-118 Table C-5.

California factor was used. The GHG emissions associated with electricity consumption to supply potable water were quantified using the San Diego Gas and Electric factors described above.

Wastewater

The treatment of wastewater generates GHG emissions (i.e., methane and nitrous oxide) through the wastewater processing, as well as the energy required to treat water. As described above, the energy involved in wastewater treatment has been accounted for in the potable water emissions. The process emissions associated with wastewater processes were quantified using methodologies from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.²⁷ IPCC has developed methods and standard factors to quantify methane emissions during wastewater treatment and nitrous oxide emissions associated with effluent discharge. Standard factors for the US provided by IPCC were used to quantify emissions.

Solid Waste

Solid waste GHG emissions were quantified using statewide solid waste disposal rates and quantification methods from the Local Government Operations Protocol Version 1.1. Solid waste disposal rates per employee and per capita were obtained from the California Integrated Waste Management Board's (now known as CalRecycle) California 1999 Statewide Waste Characterization Study.²⁸ The study provided waste disposal rates in units of tons per employee per year for various commercial and industrial land uses. Similar to potable water, the SCAG Employment Density study was used to determine the number of employees for each land use and size category. Total waste generated by residential and commercial land uses was then inputted into the Local Government Operations Protocol equation to calculate solid waste GHG emissions.²⁹ Waste categorization (statewide) was also obtained from the Local Government Operations Protocol.

Feasible Mitigation

The County derived estimates of feasible mitigation to use with the modeled operational emissions, using a sensitivity analysis to determine the level of the bright line necessary to trigger feasible mitigation at a level necessary to achieve the "land use gap." Draft Climate Action Plan measures that could apply to development projects were used as a proxy for feasible mitigation measures. The bright line is set at a level that assumes that new land use development would achieve twice its fair share of the land use gap through mitigation.

Construction Emissions

Construction emissions for new development projects between present and 2020 were also modeled. Air districts typically recommend that construction of land use development projects should be estimated using the most recent version of URBEMIS. URBEMIS allows users to model construction criteria air pollutants and precursor emissions from demolition, site grading, asphalt paving, building construction, and architectural coating activities (SMAQMD 2009). The default values in URBEMIS tend to provide a conservative estimate of emissions. In other words, use of

²⁷ IPCC. 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 5, Chapter 6. Available: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/5_Volume5/V5_6_Ch6_Wastewater.pdf>

²⁸ CIWMB. 1999 (December). Statewide Waste Characterization Study. Available: <<http://www.calrecycle.ca.gov/publications/LocalAsst/34000009.pdf>>.

²⁹ ARB. 2010 (May). Local Government Operations Protocol Version 1.1. Available: <http://www.arb.ca.gov/cc/protocols/localgov/pubs/lgo_protocol_v1_1_2010-05-03.pdf>.

defaults normally would overestimate actual emissions.³⁰ The bright line operational threshold is set at a level such that feasible mitigation for projects above the bright line would make up the “land use gap” and construction emissions associated with all land use development projects.

Construction emissions were included as a part of the County’s work on development of significance thresholds. For use of the efficiency threshold, total construction emissions should be quantified and amortized over the life of the project to estimate annual emissions. This average annual construction emissions rate should be used with annual operational emissions to assess the project, when using the efficiency threshold. The operational life of buildings will vary by building type and purpose. State Executive Order D-16-00 suggests that useful building lifetime is more than 25 years. A report commissioned for the Sustainable Building Task Force, a group of over 40 California state government agencies, estimates the life of a building to conservatively be 20 years. Average building life could change over time, with changes in building materials and construction techniques.

Construction emissions are built into the bright line threshold. As noted above, the bright line has been set at a level so that feasible mitigation will be required at a level that would meet or exceed the regional “land use gap” and construction emissions associated with regional land use projects between present and 2020.

Screening Criteria

The screening thresholds were developed based on conservative GHG emissions estimate for mobile sources; area sources including fireplace and landscaping equipment; and indirect emissions related to electricity use, water and wastewater use, and solid waste generation and disposal. Mobile and area source emissions were estimated using default assumptions in the Urban Land Use Emissions Model (URBEMIS). However, trip length data specific to San Diego County were used to develop for mobile source emissions. The County has estimated average trip lengths for different land uses in different locations. The longest applicable average trip length was used to develop these screening criteria. Electricity use, water and wastewater use, and solid waste generation and disposal were estimated using methodology consistent with the Local Government Operations Protocol.

Construction Screening Criteria

In addition to the project size screening levels, construction screening levels have been developed for use in assessing cumulative significance. Construction screening levels were developed for projects that ONLY have construction-related GHG emissions and would not have associated operational emissions. Proposed projects that would affect an area (e.g., in acreage or mileage) that is equal or smaller to screening criteria would have a less than cumulatively considerable contribution. If a project has significant earthmoving activities (greater than 20 acre/day), involves substantial demolition, or has additional haul trips associated with the construction activities, the screening criteria would not apply. Construction screening criteria include:

- Grading (includes only site grading and no other aspects of construction or site preparation): 1,285 acres; or
- Repaving: 6.0 miles and 241 acres; or
- New Roadway: 3.5 miles and 107 acres; or

³⁰ Sacramento Metropolitan Air Quality Management District. 2009 (December). Guide to Air Quality Assessment in Sacramento County. Page 3-5.

- Pipeline: 13.5 miles and 81 acres

Construction screening thresholds were developed using default assumptions URBEMIS and the Roadway Construction Emissions Model, which is maintained by the Sacramento Metropolitan Air Quality Management District.

Grading projects were estimated using the Fine Site Grading Phase of URBEMIS. Emissions were estimated assuming a project timeframe of 12 months and converted to metric tons by multiplying by 0.91 to account for non-CO₂ emissions. Emissions were estimated for a variety of project sizes to determine a per-acre emission rate based on default equipment assumptions.

Construction screening levels for repaving, new roadway, and pipeline projects were estimated using the Roadway Construction Emissions Model, which is a spreadsheet-based model able to use basic project information (e.g., total construction months, project type, total project area) to estimate a construction schedule and quantify GHG emissions from heavy-duty construction equipment, haul trucks, and worker commute trips associated with linear construction projects. The model includes construction phases for (1) Grubbing/Land Clearing, (2) Grading/Excavation, (3) Drainage/Utilities/Sub-grade, and (4) Paving. New roadway and pipeline projects include all construction phases. Repaving projects only include emissions from the Paving phase. Default equipment assumptions were used for the analysis.

Emissions developed by the Roadway Construction Emissions Model are sensitive to both the length of the project and the disturbed area. Project examples from published environmental impact reports were used to develop a range of project sizes for repaving, new roadway, and pipeline projects. Emissions were estimated using the range of project sizes and assuming a project timeframe of 12 months to determine the appropriate screening levels for linear construction projects. If a proposed project is less than both the length and the disturbed acreage listed, the project would have a less than cumulatively considerable contribution.

Mitigation and Design Considerations

Many local, regional, and state agencies have produced lists of feasible mitigation strategies that can be used to reduce GHG emissions, including, but not limited to:

Governor's Office of Planning and Research. 2008. Technical Advisory. CEQA AND CLIMATE CHANGE: Addressing Climate Change through California Environmental Quality Act (CEQA) Review. See Attachment 3, "Examples of GHG Reduction Measures."

California Air Pollution Control Officer's Association (CAPCOA). 2008 (January). CEQA & Climate Change. Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. See page 79, "Mitigation Strategies for GHG."

California Air Pollution Control Officer's Association (CAPCOA). 2010 (August). Quantifying Greenhouse Gas Mitigation Measures. A Resource for Local Government to Assess Emission Reduction from Greenhouse Gas Mitigation Measures.

Attorney General of the State of California. 2008 (December). The California Environmental Quality Act. Addressing Global Warming Impacts at the Local Agency Level.

Existing Regulations and Policy

Federal, state, regional, local, and even international governmental efforts have addressed greenhouse gas emissions and climate change. The following is a brief summary of these efforts.

National and International Efforts

International and federal legislation have been enacted to address climate change issues. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change (IPCC) to assess the scientific, technical, and socioeconomic information needed to understand the scientific basis for human-induced climate change, potential impacts, and options for adaptation and mitigation. IPCC reports have provided the scientific consensus on measurable changes to the climate; have established that these changes are caused by human activity; and have identified that have significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable. The IPCC's Fifth Assessment Report is now underway, to be completed in 2013 or 2014.³¹

In October 1993, President Clinton introduced the Climate Change Action Plan, which had a goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. This Plan includes measures to reduce all significant greenhouse gases in all sectors of the economy that emit greenhouse gases, with the intent to stimulate investments in technologies that can generate additional economic activity.³²

In 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The Supreme Court of the United States ruled on April 2, 2007 that CO₂ is an air pollutant as defined under the CAA, and that the Environmental Protection Agency (EPA) has the authority to regulate GHG emissions. In 2009, EPA published their Endangerment Finding and Cause or Contribute Finding for GHGs under the CCA in the Federal Register. The Endangerment Finding is based on Section 202(a) of the Clean Air Act, which states that the Administrator (of EPA) should regulate and develop standards for "emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The Cause or Contribute Finding establishes that GHG emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.³³ These Findings do not directly create new regulations for automobile manufacturers or other industrial users. However, EPA is required to make these Findings prior to adopting new regulations, such as emission standards for light-duty vehicles.

³¹ Intergovernmental Panel on Climate Change. Available: <http://www.ipcc.ch/>. Accessed: July 13, 2011.

³² President William J. Clinton and Vice President Albert Gore, Jr. 1993 (October). The Climate Change Action Plan. Available: <http://www.gcrio.org/USCCAP/toc.html>.

³³ United States Environmental Protection Agency (U.S. EPA). 2011. Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act. Available: <http://www.epa.gov/climatechange/endangerment.html>. Accessed: July 21, 2011.

State Regulations and Standards

Assembly Bill 32, California Global Warming Solutions Act of 2006³⁴

The California Global Warming Solutions Act of 2006 (AB 32) recognizes that global climate change poses a serious threat to the economy, public health, and natural resources of California and that there are substantial amounts of GHG emissions associated with activities in California. AB 32 enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires reduction of statewide GHG emissions to 1990 levels by 2020. AB 32 requires ARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

In 2008, ARB adopted the Climate Change Scoping Plan, which identifies the main strategies California will implement to achieve reduction of approximately 169 million metric tons (MMT) of CO₂e. The Scoping Plan includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing improved emissions standards for light-duty vehicles, the Low-Carbon Fuel Standard, energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems, and a renewable portfolio standard for electricity production. The Scoping Plan states that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions.

Senate Bill 97

SB 97 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA. The California Natural Resources Agency adopted amendments to the CEQA Guidelines (California Code of Regulations, title 14, sections 15000-15387) to address GHG emissions, consistent with Legislature's directive in Public Resources Code section 21083.05 (enacted as part of SB97 (Chapter 185, Statutes 2007)). These changes took effect in 2010.

Senate Bill 375

SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) to address GHG reduction targets in the context of that MPO's Regional Transportation Plan (RTP).³⁵ City or County land use policies (including General Plans) are not

³⁴ Health and Safety Code Section 38500 *et seq.*

³⁵ This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle to create a closer match with the timelines for revising RTPs (for the Metropolitan Planning Organizations affected by the bill). The RNHA is used to guide the amount of housing to be accommodated for the full range of household incomes in mandatory local housing plans (Housing Elements).

required to be consistent with the RTP (and associated SCS or APS).³⁶ The ARB targets for the San Diego Association of Governments (SANDAG) region call for a 7% reduction in GHG CO₂ emissions per capita from automobiles and light duty trucks compared to 2005 levels by 2020, and a 13% reduction by 2035.³⁷

Executive Order #S-3-05

Executive Order S-3-05 proclaims that California is vulnerable to the impacts of climate change, including increased temperatures that could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established targets for emissions reductions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Local Policy

Legislation and executive orders related to climate change in California have established a statewide context and process for evaluating GHG emissions. Different GHG emission sectors would experience varying degrees of state regulation and would be reduced overall on a statewide level. Legislation already in effect will achieve statewide reductions of GHG emissions associated with electricity production, industry, vehicle miles traveled (VMT), and motor vehicle emission rates. Certain GHG emission sectors regulated by statewide or federal measures are beyond the control of local government (e.g., vehicle emissions standards, renewable energy portfolio standards). However, other sources of GHG emissions are strongly influenced by local policy.

Local land use entitlement authority guides development patterns, community design, transportation facilities planning, and other factors known to influence VMT, which, in turn, influences GHG emissions associated with the transportation sector. Although local government does not have control over vehicle emissions technology or fuel economy standards, cities and counties can promote development patterns that expand mobility options for residents and hold down VMT. Similarly, while energy facility permitting and renewable energy requirements are outside of local government's control, cities and counties can participate in energy efficiency incentive programs, guide solar orientation of buildings, and implement other measures related to improving energy efficiency (and therefore reduce GHG emissions). Local lead agencies will play a role in achieving statewide emission reduction goals through managing land use change and transportation planning to reduce VMT, providing more GHG efficient services (e.g., recycling service, waste management, and wastewater treatment), providing public education and incentives (e.g., energy and water conservation), along with other strategies, many of which are already being implemented by agencies in San Diego County. A brief set of examples follows.

The City of San Marcos comprehensive General Plan update is incorporating state-of-the-art, dynamic land use, transportation, and emissions modeling to develop long-term strategies that ensure a vibrant environment for future generations, while also addressing greenhouse gas emissions reduction and environmental sustainability.³⁸

³⁶ Provisions of CEQA directed under this legislation create streamlining for certain projects that are consistent with an approved SCS or APS. Residential or mixed-use projects that are consistent with the SCS/APS and incorporate mitigation measures from relevant prior CEQA document/s are not required to reference, describe, or discuss growth-inducing impacts or impacts of cars and light-duty truck trips on climate change or on the regional transportation network. "Transit priority projects," as defined in this legislation and future RTPs, are exempt from CEQA review.

³⁷ San Diego Association of Governments (SANDAG). Draft 2050 Regional Transportation Plan. Available: <http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail#RTP>. Accessed July 13, 2011.

³⁸ City of San Marcos. General Plan Update – News. Available: http://www.ourcityyourfuture.com/documents/newsletter_1.pdf. Accessed May 7, 2012.

The City of San Diego's General Plan (City of Villages) places great emphasis on enhancing its communities and neighborhoods by encouraging growth in mixed-use, pedestrian-friendly activity centers that are served by transit. Among other social, economic, and environmental benefits, this planning framework can help minimize GHG emissions.³⁹

The City of Chula Vista's General Plan – Vision 2020 – is built on a vision that includes neighborhood design that promotes walking, a variety of local housing and job opportunities, expanded transit accessibility, and other complementary framework policy emphases that help to minimize GHG emissions.⁴⁰

The City of El Cajon revised its Downtown Specific Plan, in part, to encourage development in the Transit Center and the Main Street/Civic Center areas.⁴¹ The City of La Mesa endorsed the U.S. Mayor's Climate Protection Agreement and directed staff to report back on the City's actions towards climate protection, including preparation of a GHG inventory.⁴² The City of Encinitas has adopted a Climate Action Plan (CAP) that outlines a series of measures to reduce GHG emissions.⁴³ The City of Solana Beach participated in SANDAG's Sustainable Region's Program, which is intended to assist with energy efficiency projects and programs, including building retrofits, new building design, and policy development.⁴⁴ The policy initiatives outlined above are just a sampling of the recent activities by local governments within San Diego County related to GHG emissions.

The County's updated General Plan incorporates smart growth and land planning principles intended to reduce VMT, and thus result in a reduction of GHGs. This will be accomplished by locating future development within and near existing infrastructure. The General Plan directs preparation of a climate action plan with reduction targets, development of regulations to encourage energy efficient building design and construction, and development of regulations that encourage energy recovery and renewable energy facilities, among other actions.⁴⁵

Currently, the County has a number of assistance programs that promote ways to reduce air and water pollution, including a Green Building Program designed to educate builders and provide incentives for the incorporation of green building standards.⁴⁶ Additionally, there are outreach programs that focus on the importance of reducing air quality impacts (e.g. lawn mower trade-in program) and reducing solid waste by recycling (subsidized compost bin programs and transfer station events).

³⁹ City of San Diego. City of San Diego General Plan: City of Villages. Available: <http://www.sandiego.gov/planning/genplan/pdf/generalplan/fullversion.pdf>. Accessed May 7, 2012.

⁴⁰ City of Chula Vista. Chula Vista Vision 2020. Available: http://www.chulavistaca.gov/City_Services/Development_Services/Planning_Building/General_Plan/documents.asp. Accessed May 7, 2012.

⁴¹ City of El Cajon. Downtown El Cajon Specific Plan 182. Available: <http://www.ci-el-cajon.ca.us/dept/comm/Forms/SP%20182.pdf>. Accessed May 7, 2012.

⁴² City of La Mesa. Update on La Mesa's Climate Protection Actions. Available: <http://www.cityoflamesa.com/DocumentView.aspx?DID=1734>. Accessed May 7, 2012.

⁴³ City of Encinitas. Climate Action Plan. Available: <http://www.ci.encinitas.ca.us/index.aspx?page=285>. Accessed May 7, 2012.

⁴⁴ City of Solana Beach. Sustainable Regions Program – News. Available: <http://www.ci.solana-beach.ca.us/csite/cms/321.htm>. Accessed May 7, 2012.

⁴⁵ San Diego County. General Plan Update – News. Available: <http://www.sdcounty.ca.gov/dplu/gpupdate/>. Accessed July 13, 2011.

⁴⁶ San Diego County. The Green Building Program. Available: <http://www.sdcounty.ca.gov/dplu/greenbuildings.html>. Accessed May 7, 2012.