

3.5. GREENHOUSE GAS EMISSIONS

Greenhouse gases (GHGs) refer to a group of chemical compounds that are generally believed to affect global climate conditions. The greenhouse effect is a concept in atmospheric science that describes the process by which certain atmospheric gases—GHGs—absorb energy from sunlight within the Earth’s atmosphere and prevent it from being released back into space. This mechanism is responsible for maintaining a warm, habitable environment on the planet’s surface based on the equilibrium concentrations of the gases. GHGs such as carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) keep the average surface temperature of the Earth close to 60 degrees °F.

For each GHG, a global warming potential (GWP) has been calculated to reflect the atmospheric residence time and how strongly it absorbs energy relative to CO₂ on a per-kilogram basis. GWP is a metric that indicates the relative climate forcing of a kilogram of emissions when averaged over the period of interest both 20-year and 100-year horizons are used for the GWPs in Table 3.5.1. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO₂, denoted as CO₂e.

Table 3.5.1. Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide	100	1	1
Nitrous Oxide	121	264	265
Nitrogen Trifluoride	500	12,800	16,100
Sulfur Hexafluoride	3,200	17,500	23,500
Perfluorocarbons	3,000-50,000	5,000-8,000	7,000-11,000
Black Carbon	days to weeks	270-6,200	100-1,700
Methane	12	84	28
Hydrofluorocarbons	Uncertain	100-11,000	100-12,000

Source: CARB, 2014.

Long-term and irrevocable shifts in weather, including temperature, precipitation, and seasonal patterns are referred to as climate change. According to the Intergovernmental Panel on Climate Change (IPCC), climate change caused by GHG emissions is anticipated to result in sea-level rise, climate-related hazards, extinction of species, species migration, reduced food production, exacerbated health problems, slower economic growth, and displacement of people¹. Some of the possible effects of climate change along the California Coast include:

- Sea-level rise that threatens coastal wetlands, infrastructure, and property.
- Increased storm activity, together with sea-level rise, could increase beach erosion and cliff undercutting.

¹Intergovernmental Panel on Climate Change (IPCC), *Fifth Assessment Report*, 2014.

- Warmer temperatures and more frequent storms due to El Niño that bring more rain instead of snow to the Sierra Nevada Mountains, reducing supply of water for summer needs.
- Decreased summer runoff and warming ocean temperatures that affect salinity, water circulation, and nutrients in the Pacific Ocean, possibly leading to complex changes in marine life.

3.5.1. REGULATORY FRAMEWORK

3.5.1.1. Federal

The federal government's position on climate change is in flux under the current Presidential administration. For example, President Donald Trump has stated that the United States will withdraw from the Paris Climate Accord, an agreement within the United Nations Framework Convention on Climate Change addressing GHG emission reduction strategies, climate change adaptation, and finance starting in the year 2020. Most applicable federal policies apply to fuel efficiency standards, which are not directly applicable to the Proposed Project. However, the United States Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438, that CO₂ and other GHGs are pollutants under the federal CAA, which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. On December 7, 2009, the USEPA made two distinct findings: 1) that the current and projected concentrations of the six key GHGs (CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations; and 2) that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

3.5.1.2. State

California has adopted a variety of statewide legislation to address various aspects of climate change and GHG emissions. Much of this legislation is not directed at citizens or jurisdictions specifically; rather, it establishes a broad framework for the State's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders related to the State's evolving climate change policy. Below is a summary of GHG legislation applicable to the Proposed Project.

Assembly Bill 32 (AB 32)

AB 32 requires the CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions and directs the CARB to set a GHG emission limit—based on 1990 levels—to be achieved by 2020. The Bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. On December 11, 2008, the CARB adopted the AB 32 Scoping Plan, which sets forth the framework for facilitating the State's goal of reducing GHG emissions to 1990 levels by 2020. The first update of the AB 32 Scoping Plan was adopted on May 22, 2014. CARB is drafting the next update of the Scoping Plan. CARB released a draft of the second update of the Scoping

Plan in November 2017.² The second update includes strategies to meet a 2030 GHG reduction goal of 40 percent below 1990 levels (the goal set out in Executive Order (EO) B-30-15 and Senate Bill (SB) 32, described below). Neither AB 32 nor the updated AB 32 Scoping Plan establishes regulations implementing the Legislature’s statewide goals for reducing GHGs at the project level.

The AB 32 Scoping Plan outlines a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions, including expanding energy efficiency programs, increasing electricity production from renewable resources (at least 33 percent of the statewide electricity mix), increasing automobile efficiency, implementing the Low-Carbon Fuel Standard, and developing a cap-and-trade program. Multiple AB 32 Scoping Plan measures address GHG emissions from transportation fuels and energy. Together, the elements of the AB 32 Scoping Plan will ensure that overall statewide emissions will be decreased to the extent necessary to achieve AB 32’s emissions reduction goals.

Senate Bill 32 (SB 32)

In 2016, the California Legislature passed SB 32, which expands upon AB 32, and codifies a 2030 GHG emission reduction target of 40 percent below 1990 levels. The passage of SB 32 was contingent on the passing of Assembly Bill 197 (SB 197), which increases legislative oversight of CARB and provides additional direction for developing the Scoping Plan.

Assembly Bill 1493 (AB 1493)

AB 1493 makes amendments to the Clean Car Standards (Chapter 200, Statutes of 2002), also known as the “Pavley” regulations which require reductions in GHG emissions in new passenger vehicles from 2009 through 2016. These amendments are part of California’s commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016. The Clean Car Standards required CARB to develop and adopt standards for vehicle manufacturers to reduce GHG emissions coming from passenger vehicles and light-duty trucks at a “maximum feasible and cost-effective reduction” by January 1, 2005. Pavley I took effect for model years starting in 2009 to 2016; and Pavley II, which is now referred to as “Low Emission Vehicle (LEV) III GHG,” will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction by 2012 and 30 percent by 2016.

In January 2012, CARB adopted the Advanced Clean Cars Program to extend AB 1493 through model years 2017 to 2025. This program will promote all types of clean fuel technologies such as plug-in hybrids, battery electric vehicles, compressed natural gas vehicles, and hydrogen powered vehicles while reducing smog and saving consumers’ money in fuel costs. Fuel savings may be up to 25 percent by 2025.

²CARB, *California’s 2017 Climate Change Scoping Plan*, November 2017, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

Senate Bill 375 (SB 375)

SB 375 was enacted to reduce GHG emissions from automobiles and light trucks through integrated transportation, land use, housing and environmental planning. Under the SB 375, Metropolitan Planning Organizations are tasked with incorporating SCS as an element in RTPs. The SCS documents are intended to:

- Identify the general location of uses, residential densities, and building intensities within the region;
- Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the RTP taking into account net migration into the region, population growth, household formation, and employment growth;
- Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region;
- Identify a transportation network to service the transportation needs of the region;
- Gather and consider the best practically available scientific information regarding resource areas and farmland in the region;
- Consider the State housing goals;
- Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the GHG emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the GHG emission reduction targets approved by the State board; and
- Allow the RTP to comply with the CAA.

State Cap-and-Trade Program

This program creates a market-based system with an overall emissions limit for affected sectors, including electric utilities, large industrial facilities and distributors of transportation, natural gas and other fuels.

Senate Bills 1078/107/X 1-2

SBs 1078 and 107, California's Renewables Portfolio Standard, obligated investor-owned energy service providers and Community Choice Aggregations to procure an additional 1 percent of retail sales per year from eligible renewable sources until 20 percent was reached (by 2010). The CPUC and CEC are jointly responsible for implementing the program. SB X 1-2, called the California Renewable Energy Resources Act, obligates all California electricity providers to obtain at least 33 percent of their energy from renewable resources by 2020.

Executive Order S-01-07 (EO S-01-07)

EO S-01-07 established a Low-Carbon Fuel Standard and directed the Secretary of the Cal/EPA to develop and propose protocols for measuring the life-cycle carbon intensity of transportation fuels.

Executive Order S-3-05 (EO S-3-05)

EO S-3-05 established State GHG emission targets of 1990 levels by 2020 (the same as AB 32, enacted later and discussed below) and 80 percent below 1990 levels by 2050. It calls for the Secretary of the Cal/EPA to be responsible for the coordination of State agencies and progress reporting. In response to the EO, the Secretary of the Cal/EPA created the CAT. California's CAT originated as a coordinating council organized by the Secretary of the Cal/EPA.

Executive Order B-30-15 (EO B-30-15)

EO B-30-15 established a mid-term goal for 2030 of reducing GHG emissions by 40 percent below 1990 levels and required CARB to update its current AB 32 Scoping Plan to identify the measures to meet the 2030 target. The EO supports EO S-3-05, described above, but is currently binding only on State agencies.

California Green Building Standards Code

In January 2010, the California Building Standards Commission adopted the statewide mandatory CALGreen Part 11 of Title 24, CCR. The CALGreen was updated in 2015 to require additional energy savings. CALGreen applies to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure.

Senate Bill 97 (SB 97) and California Environmental Quality Act (CEQA)

By enacting SB 97 in 2007, California's lawmakers expressly recognized the need to analyze GHG emissions as a part of the CEQA process. SB 97 required the Office of Planning and Research (OPR) to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following (CEQA and Climate Change):

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions (CEQA Guidelines Section 15064.4).
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions (CEQA Guidelines Section 15126.4(c)).

- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change (CEQA Guidelines Section 15126.2(a)).
- Lead agencies may significantly streamline the analysis of GHG on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria (CEQA Guidelines Section 15183.5(b)).
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply, and ways to reduce energy demand, including through the use of efficient transportation alternatives (CEQA Guidelines, Appendix F).

Senate Bill 743 (SB 743)

SB 743 encourages land use and transportation planning decisions and investments that reduce vehicle miles traveled that contribute to GHG emissions, as required by AB 32. SB 743 requires the OPR to develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects within transit priority areas that promote the reduction of GHG emissions, the development of multi-modal transportation networks, and a diversity of land uses. It also allows OPR to develop alternative metrics outside of transit priority areas.

California Air Pollution Control Officers Association (CAPCOA)

CAPCOA is a non-profit association of the air pollution control officers from all 35 local air quality agencies throughout California. CAPCOA promotes unity and efficiency in State air quality issues and strives to encourage consistency in methods and practices of air pollution control. In 2008, CAPCOA published the *CEQA and Climate Change White Paper (2008)*. This paper is intended to serve as a resource for reviewing GHG emissions from projects under CEQA. It considers the application of thresholds and offers approaches toward determining whether GHG emissions are significant. The paper also evaluates tools and methodologies for estimating impacts and summarizes mitigation measures.

3.5.1.3. Regional

Southern California Association of Governments (SCAG)

SCAG is the Metropolitan Planning Organization for the six-county region that includes Los Angeles, Orange, Riverside, Ventura, San Bernardino and Imperial counties. SCAG adopted the 2016-2040 RTP/SCS on April 7, 2016, and it includes a strong commitment to reduce emissions from transportation sources to comply with SB 375. SB 375 requires CARB to develop regional CO₂ emission reduction targets (exclusive of Pavley emissions that are counted separately), compared to 2005 emissions, for cars and light trucks for 2020 and 2035 for each Metropolitan Planning Organization. The 2016-2040 RTP/SCS charts a course for closely integrating land use and transportation planning including in areas labeled as High

Quality Transit Areas. High Quality Transit Areas reflect areas with rail transit service or bus service where lines have peak headways of less than 15 minutes.

The 2016-2040 RTP/SCS was prepared through a collaborative, continuous and comprehensive process by SCAG and it serves as an update to the 2012-2035 RTP/SCS. Major themes in the 2016-2040 RTP/SCS that are relevant to the Proposed Project include integrating strategies for land use and transportation, striving for sustainability, protecting and preserving the existing transportation infrastructure, increasing capacity through improved system management, and giving people more transportation choice. Importantly, the 2016-2040 RTP/SCS states that the region will meet or exceed the SB 375 per capita targets, lowering regional per capita GHG emissions (below 2005 levels) by eight percent by 2020 and 18 percent by 2035. The 2016-2040 RTP/SCS also states that regional 2040 per capita emissions would be reduced by 22 percent, although CARB has not established a 2040 per capita emissions target.

South Coast Air Quality Management District (SCAQMD)

SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. In its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target (e.g., 30 percent) to determine significance for commercial/residential projects that emit greater than 3,000 metric tons per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where the SCAQMD is the lead agency. However, SCAQMD has yet to adopt a GHG significance threshold for land use development or transportation projects and has formed a GHG CEQA Significance Threshold Working Group to further evaluate potential GHG significance thresholds.

The GHG CEQA Significance Threshold Working Group is tasked with providing guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group included government agencies implementing CEQA and representatives from various stakeholder groups that will provide input to the SCAQMD staff on developing CEQA GHG significance thresholds. The working group discussed multiple methodologies for determining project significance. These methodologies included categorical exemptions, consistency with regional GHG budgets in approved plans, a numerical threshold, performance standards, and emissions offsets.³ The GHG CEQA Significance Threshold Working Group has not convened since 2011 and has not adopted any GHG significance thresholds that would apply to the Proposed Project.

3.5.1.4. Local

Los Angeles County Metropolitan Transportation Authority (Metro)

Metro's Countywide Sustainability Planning Program provides leadership for the implementation of a regional transit system that increases mobility, fosters walkable and livable communities,

³SCAQMD, *GHG CEQA Significance Thresholds*, December 1, 2008.

and minimizes GHG emissions and environmental impacts.⁴ The Countywide Planning Policy is a tool for defining long-term, desired sustainability outcomes in order to facilitate greater coordination and collaboration across transportation modes, planning disciplines and government agencies. The Policy aims to fully integrate sustainability into Metro's planning functions, complement and provide a framework for building upon federal, State, regional and local sustainability policies/plans, and foster collaboration and inspire partnerships that will lead to more sustainable communities.

Metro's Climate Action and Adaptation Plan establishes a framework to reduce GHG emissions and prepare for the impacts of climate change.⁵ The first section of the Plan addresses the need to mitigate climate change by reducing GHG emissions. It provides an accounting of Metro's current and forecast emissions, as well as a discussion of actions that Metro can take to further reduce emissions from private vehicles. The bulk of this section presents a framework for reducing emissions from Metro's internal operations. Metro's progress on emissions reductions and emissions reduction strategies is documented in the annual Energy and Resource Reports, which analyzes the sustainability and environmental performance of Metro operational activities during each calendar year. The second section identifies Metro services and assets that are likely to be affected by climate impacts. Several adaptation strategies are presented that could address these vulnerabilities. A third section provides next steps for both the mitigation and the adaptation components of the Plan. Refer to the Plan for a detailed discussion of GHG emission reduction strategies and adaptation strategies.

Metro's ECMP is a strategic blueprint to guide energy use in a sustainable, cost-effective, and efficient manner. The ECMP complements Metro's Energy and Sustainability Policy, focusing on electricity for rail vehicle propulsion, electricity for rail and bus facility purposes, natural gas for rail and bus facility purposes, and the application of renewable energy (e.g., solar and wind). The ECMP addresses energy needs and plans to meet increasing ridership through system expansion and new facility construction. It identifies opportunities to reduce energy consumption and realize cost savings through the implementation of low cost operational initiatives and cost-effective capital retrofits. The ECMP also evaluates and recommends an optimal organizational structure and approach for the focused and effective implementation of an agency-wide ECMP. Finally, the ECMP provides a set of implementation strategies for implementing the plan.

Metro has adopted a Green Construction Policy committing to less polluting construction equipment and vehicles and implementing best practices to reduce harmful diesel emissions on all Metro construction projects performed on Metro properties and rights-of-way.⁶ Best practices include Tier 4 emission standards for off-road diesel-powered construction equipment greater than 50 horsepower and restricting idling to a maximum of five minutes. The emission standards are more stringent than the statewide standards established by CARB.

⁴Metro, *Countywide Sustainability Planning Policy and Implementation Plan*, December 2012.

⁵*Ibid.*

⁶Metro, *Green Construction Policy*, August 2011.

Additionally, Metro released a Resiliency Indicator Framework Report in 2015 “to help prioritize and evaluate climate adaptation implementation priorities to ensure infrastructure resilience and maintain a good state of repair.”⁷ The report outlines metrics referred to as resiliency indicators that “facilitate the process of continual improvement and help prioritize actions for Metro’s planning, construction, and operational activities.”⁸ The intent is that the indicators will “contribute to the understanding of the progress of Metro’s climate management efforts over time and allow the agency to gauge the effectiveness of specific strategies.”⁹ The indicators include both technical and organizational dimensions of Metro’s operations, and cover principles such as robustness, safe to fail, redundancy, change readiness, networks, and leadership and culture.

City of Los Angeles

The City of Los Angeles has issued guidance promoting green building to reduce GHG emissions. The goal of the Green LA Action Plan (GreenLA) is to reduce GHG emissions 35 percent below 1990 levels by 2030.¹⁰ The Plan identifies objectives and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations and create a framework to address City-wide GHG emissions. GreenLA lists various focus areas in which to implement GHG reduction strategies. Focus areas include energy, water, transportation, land use, waste, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions.

In order to provide detailed information on action items discussed in the GreenLA, the City published an implementation document titled ClimateLA. ClimateLA presents the existing GHG inventory for the City, includes enforceable GHG reduction requirements, provides mechanisms to monitor and evaluate progress, and includes mechanisms that allow the plan to be revised in order to meet targets. By 2030, the plan aims to reduce GHG emissions by 35 percent from 1990 levels which were estimated to be approximately 54.1 million metric tons. Thus, the City will need to lower annual GHG emissions to approximately 35.1 million metric tons per year by 2030. To achieve these reductions the City has developed strategies that focus on energy, water use, transportation, land use, waste, open space and greening, and economic factors.

In addition to the GreenLA, Mayor Eric Garcetti released L.A.’s first-ever Sustainable City pLAN (pLAN) on April 8, 2015. The pLAN is a roadmap to achieving short-term results and sets a path to strengthen and transform the City in future decades. Recognizing the risks posed by climate change, Mayor Garcetti set time-bound outcomes on climate action, most notably to reduce GHG emissions by 45 percent by 2025, 60 percent by 2035, and 80 percent by 2050, all against a 1990 baseline.

⁷Metro, *Resiliency Indicator Framework*, December 2015.

⁸*Ibid.*

⁹*Ibid.*

¹⁰City of Los Angeles, *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming*, May 2007.

Through the completion and verification of the GHG inventory update, the City concluded that:

- The City accounted for approximately 36.2 million metric tons of CO₂e in 1990;
- The City's most recent inventory shows that emissions fell to 29 million metric tons of CO₂e in 2013; and
- Los Angeles's emissions are 20 percent below the 1990 baseline as of 2013, putting Los Angeles nearly halfway to the 2025 pLAN reduction target of 45 percent. In addition, the 20 percent reduction exceeds the 15 percent statewide goal listed in the first update to the AB 32 Scoping Plan.

The second annual (2016-2017) pLAN was released and notable progress has been made:¹¹

- As of January 2017, the City had 1,390 publicly accessible electric vehicle chargers, including 45 fast chargers—the most of any city in the United States;
- The City's electric vehicle car sharing pilot program for disadvantaged neighborhoods will help avoid the purchase of 1,000 cars--the equivalent of cutting up to an estimated 4,700 metric tons of CO₂ annually--while providing critical benefits for low-income communities; and
- LADWP has achieved 1,900 gigawatt-hours in cumulative electricity savings since 2010-2011, putting the City ahead of schedule to meet its 15 percent energy efficiency target for 2020 and saving nearly one million metric tons of CO₂.

County of Los Angeles

The County of Los Angeles has published a Community Climate Action Plan. The purpose of the Community Climate Action Plan is to mitigate and avoid GHG emissions associated with community activities in unincorporated Los Angeles County. The Project Site is located in the City of Los Angeles and the Community Climate Action Plan is not relevant to the Proposed Project.

3.5.2. EXISTING SETTING

California's GHG emissions have followed a declining trend within the past decade. Table 3.5.2 shows the California GHG emissions inventory rounded to the nearest whole number for the years 2006 to 2015. The transportation sector remains the largest source of GHG emissions within the State, accounting for 37 percent of the inventory, with an increase in 2015, from year 2014.¹²

¹¹City of Los Angeles, *Sustainable City pLAN 2nd Annual Report 2016-2017*, 2017.

¹²CARB, *California GHG Emission Inventory: 2017 Edition*, June 6, 2017.

Table 3.5.2. California Greenhouse Gas Emissions Inventory

Sector	CO ₂ e Emissions (Million Metric Tons)									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Transportation	185	184	173	166	163	160	159	158	160	165
Electric Power	108	105	114	101	90	88	95	90	88	84
Commercial and Residential	43	43	44	44	45	46	43	44	37	38
Industrial	93	90	90	87	91	91	91	93	94	92
Recycling and Waste	10	11	12	12	14	15	16	17	18	19
High Global Warming Potential	10	11	12	12	14	15	16	17	18	19
Agriculture	36	36	36	34	35	35	36	35	36	35
Emissions Total	485	480	481	456	452	450	456	454	451	452

Source: CARB, 2017.

Emissions from the electricity sector have continued to decline due to the increase of zero-GHG energy generation sources. Emissions from the electric power sector comprise 19 percent of 2015 statewide GHG emissions. GHG emissions from this sector declined by 5.2 percent in 2015 compared to 2014. Furthermore, there has been a loss in electricity generation due to the San Onofre Nuclear Generating Station. The decline in hydropower has been replaced by solar, wind and natural gas generation.

Per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 metric tons per person to 11.3 metric tons per person in 2015, a 19 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California’s economy is declining, representing a 33 percent decline since the 2001 peak, while the State’s Gross Domestic Product has grown 37 percent during this period.¹³

SCAG estimated regional transportation GHG emissions in the 2016-2040 RTP/SCS for a 2012 emissions scenario. The SCAG regional transportation total was estimated to be 243,152 tons per day of CO₂. Los Angeles County, the largest county in the SCAG region, represented 120,929 tons per day of transportation emissions, or 50 percent of the regional transportation total.

3.5.3. THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines, the Proposed Project would have a significant impact related to greenhouse gas emissions and climate change if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The SCAQMD has yet to adopt a GHG significance threshold for transportation or land use development projects, although it has adopted significance thresholds for industrial-type

¹³CARB, *California GHG Emission Inventory: 2017 Edition*, June 6, 2017.

projects for which it is the lead agency. However, those industrial thresholds are not relevant to the project.

On November 30, 2015, the California Supreme Court issued an opinion on GHG significance thresholds for CEQA in the case *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife*. The following discussion is paraphrased from that case, which assessed the use of GHG significance thresholds.

The Court stated that California air pollution control officials and air quality districts have made several proposals for numerical thresholds. Multiple agencies' efforts at framing GHG significance issues have not yet coalesced into any widely accepted set of numerical significance thresholds but have produced a certain level of consensus on the value of AB 32 consistency as a criterion. Neither AB 32 nor the AB 32 Scoping Plan set out a mandate or method for CEQA analysis of GHG emissions from a project. A 2007 CEQA Amendment, however, required the preparation, adoption and periodic update of guidelines for mitigation of GHG impacts. The resulting direction was that a lead agency should attempt to describe, calculate or estimate the amount of GHG; the Proposed Project will emit, but recognizes that agencies have discretion in how to do so. It goes on to provide that when assessing the significance of GHG emissions, the lead agency should consider these factors among others:

- (1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
- (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the Proposed Project.

The Court also acknowledged that the scope of global climate change and the fact that GHGs, once released into the atmosphere, are not contained in the local area of their emission means that the impacts to be evaluated are global rather than local. For many air pollutants, the significance of their environmental impact may depend greatly on where they are emitted; for GHG, it does not.

Meeting statewide reduction goals does not preclude all new development. Rather, the Scoping Plan, the State's roadmap for meeting AB 32's target, assumes continued growth and depends on increased efficiency and conservation in land use and transportation from all Californians. To the extent a project incorporates efficiency and conservation measures sufficient to contribute its portion of the overall GHG reductions necessary for the entire State, one can reasonably argue

that a project's impact is not cumulatively considerable, because it would be helping to solve the cumulative problem of GHG emissions as envisioned by California law. Given the reality of growth, some GHG emissions from new development is inevitable. The critical CEQA question is the cumulative significance of a project's GHG emissions, and from a climate change point of view it does not matter where in the State those emissions are produced. Under these circumstances, evaluating the significance of GHG emissions by their effect on the State's efforts to meet its long-term goals is a reasonable threshold.

Using consistency with AB 32's statewide goal for GHG reduction, rather than a numerical threshold, as a significance criterion is also consistent with the broad guidance provided by Section 15064.4 of the CEQA Guidelines. Section 15064.4 was drafted to reflect that there is no iron-clad definition of significance. Section 15064.4 was not intended to restrict agency discretion in choosing a method for assessing GHG emissions, but rather to assist lead agencies in investigating and disclosing all that they reasonably can regarding a project's GHG emissions impacts.

While the Supreme Court held that establishing a significance criterion based on consistency with AB 32's reduction goals was appropriate, the court found that there was no substantial evidence supporting the conclusion of the EIR at issue in that case that the project would be consistent with AB 32's reduction goals. As background, AB 32 requires statewide GHG emissions to return to 1990 levels by 2020. In the AB 32 Scoping Plan, CARB determined that meeting this statewide GHG reduction goal would require a 29 percent reduction in statewide emissions from a business-as-usual approach (i.e., an approach with no conservation or regulatory efforts beyond what was in place when the forecast was made).

Based on this, the EIR had concluded the Proposed Project would not result in a significant climate change impact because the Proposed Project was designed to reduce GHG emissions by 31 percent over a business-as-usual approach. The Supreme Court found that there was no substantial evidence that the project-level reduction of 31 percent in comparison to business as usual is consistent with AB 32's statewide goal of a 29 percent reduction from business as usual. The Court reasoned that the Scoping Plan nowhere related its statewide level of reduction efforts to the percentage of reduction that would or should be required from individual projects, and nothing in the administrative record indicated that the required percentage reduction from business-as-usual is the same for an individual project as for the entire State population and economy. The Court suggested, however, that an appropriate threshold could assess whether a project would comply with regulatory programs designed to reduce emissions from particular activities.

3.5.4. IMPACT ANALYSIS AND MITIGATION MEASURES

This section assesses potential impacts associated with the Proposed Project and, if necessary, identifies mitigation measures to eliminate or reduce impacts. The methodology implemented in this assessment consists of evaluating whether the Proposed Project would have significant GHG impacts according to the above-stated thresholds.

Impact 3.5.1 Would the Proposed Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities.

Construction

It is very unlikely that any individual development project would generate GHG emissions of a sufficient magnitude to directly impact regional climate change; therefore, there would be no direct GHG emissions impact resulting from implementation of the Proposed Project and any impact would be considered on an indirect or cumulative basis. There are currently no officially adopted quantitative Metro or SCAQMD thresholds of significance pertaining to GHG emissions generated by construction of projects of this nature. Construction activities associated with implementation of the Proposed Project would be temporary and GHG emissions attributed to equipment and vehicle sources would cease upon completion of construction.

Construction of the Proposed Project is anticipated to begin in early Spring 2019 and finish in Fall 2023, followed by several months of testing and commissioning prior to opening for use in November 2023. General activity phases that would occur during construction of the Proposed Project include demolition of structures and widening of the existing Division 20 portal, modification of the existing 1st Street Bridge, grading and excavation to level the Project Site, installation of the new storage tracks, and construction of the turnback tracks and installation of a new TPSS and emergency backup power generator. It is proposed that the first two phases of construction activity may utilize up to eight pieces of construction equipment per day, and that the latter two phases of construction activity would utilize up to 10 pieces of construction equipment per day. As a conservative exercise, the GHG emissions assessment assumed that the entire equipment inventory for each phase would be operating continuously for eight hours per day.

Demolition activities would raze and remove approximately 306,875 square feet of existing building structures resulting in a maximum of 15 truckloads per day, and excavation would involve the displacement and disposal of approximately 100,000 CY of material at an off-site facility resulting in a maximum of 25 truckloads per day. It was assumed that installation of the new storage tracks and construction of the turnback facility would require a maximum of 10 truckloads of material deliveries per day for the purposes of emissions modeling. CalEEMod was utilized to prepare estimates of GHG emissions that would be generated by construction of the Proposed Project. Sources of GHG emissions during construction activities include heavy-duty diesel equipment exhaust, construction worker trips vehicle exhaust, and materials delivery and disposal trucks vehicle exhaust. Direct correspondence with Metro provided the demolition quantities, excavation quantities, equipment inventories, and worker and truck trips. Detailed CalEEMod emissions modeling output files containing input data can be found in the Air Quality and Greenhouse Gas Technical Memorandum.

SCAQMD’s interim guidance for GHG analyses recommends that construction GHG emissions be “amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies.”¹⁴ Table 3.5.3 displays the results of the GHG emissions analysis for heavy duty construction equipment and vehicle trips and presents the amortized annual rate over a 30-year construction period in accordance with SCAQMD methodology.

Table 3.5.3. Estimated GHG Emissions – Proposed Project Construction

Source Category	Emissions (Metric Tons)
Construction Equipment	2,138.9
Vehicle Trips	1,500.3
Total	3,639.2
Amortized Total (30-Year Period)	121.3
Maximum Annual (2019)	995.8

Note: Based on SCAQMD guidance, the emissions summary also includes construction emissions amortized over a 30-year span.

Source: Terry A. Hayes Associates Inc., 2017.

Total GHG emissions associated with construction of the Proposed Project would be 3,639.2 MTCO₂e, with the maximum annual GHG emissions throughout the duration being approximately 995.8 during the first year of construction. Amortized over a 30-year period, annual GHG emissions resulting from construction activities would represent approximately 121.3 MTCO₂e annually. All construction equipment would be maintained and inspected in accordance with the Metro Green Construction Policy—as well as applicable SCAQMD Rules and Regulations—to ensure that emissions are consistent with regulatory standards. All construction equipment utilized would have engines meeting Tier 4 emission standards in accordance with the Metro Green Construction Policy; however, this does not affect GHG emissions. All diesel haul trucks would be operated in accordance with existing CARB regulations, and idling would be restricted as set forth in the Metro Green Construction Policy.

Operations

Operation of the Proposed Project would result in both direct and indirect GHG emissions. Following the completion of construction activities in 2023, operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars within the existing and proposed turnback facilities. Implementation of the Proposed Project would increase the train storage capacity in the Division 20 Rail Yard from 104 to 282 and would require approximately 107 additional employees at the Project Site who would commute through a combination of single-occupancy vehicles, carpools, and public transit. Employee commuting to and from the Project Site would represent a direct source of GHG emissions. Indirect GHG emissions would be generated through the increase in electricity

¹⁴SCAQMD, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008, available at: <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds/page/2>, as of January 17, 2018.

use, natural gas use, and water use associated with the expansion of the storage yard. Direct and indirect GHG emissions were quantified for operation of the Proposed Project.

Direct GHG emissions would be generated by motor vehicle exhaust released through employee commuting. The CARB developed the EMFAC2017 emissions model for use as a tool in estimating mobile source GHG emissions. The EMFAC2017 emissions model contains emission factors for CO₂, CH₄, and N₂O based on VMT. Daily VMT associated with operational employee trips were estimated using regional surveys conducted by CAPCOA that were compiled in the formulation of the CalEEMod software. The CalEEMod default average trip length for work trips within Los Angeles County is 16.6 miles, which results in total daily VMT of 3,552.4 miles. For the purposes of the emissions analysis it was conservatively assumed that all employees would commute individually. Annual direct GHG emissions from motor vehicle exhaust in 2023 would be approximately 379 MTCO₂e. As mandatory CARB programs related to fuel and engine efficiency are implemented in the future, annual direct GHG emissions from motor vehicles will decrease.

Indirect GHG emissions during operation of the Proposed Project would result from the increase in provision of energy resources, including electricity, natural gas, and water. GHG emissions are indirectly generated through the production of electricity, the burning of natural gas, and generating the electricity used for conveyance of water throughout the LADWP distribution system. Under existing conditions, the Project Site accommodates 104 rail cars, and as of 2016 the annual energy demand for the rail yard was approximately 14,338.7 megawatt-hours (MWh) of electricity, approximately 9,780 therms of natural gas, and approximately 3.2 million gallons of water according to correspondence with Metro. The energy resources demand was linearly extrapolated based on the ratio of storage capacity for 282 cars in the future operational condition relative to 104 cars in the existing condition. Annual operation of the Proposed Project in 2023 would require approximately 38,879.9 MWh of electricity, approximately 26,518.8 therms of natural gas, and approximately 8.7 million gallons of water.

Table 3.5.4 presents the results of GHG emissions modeling for operation of the Proposed Project. The data include amortized construction emissions. GHG emissions associated with electricity were estimated using the 2015 LADWP CO₂ intensity factor value of 1,132 pounds CO₂ per MWh and the CalEEMod regional survey data values of 0.029 pounds per CH₄/MWh and 0.00617 pounds per N₂O/MWh. GHG emissions associated with natural gas use were estimated using the CalEEMod regional survey data values of 11.76 pounds per CO₂/therm, 0.000225 pounds per CH₄/therm, and 0.000216 pounds per N₂O/therm. GHG emissions associated with water conveyance were estimated using the CalEEMod electricity intensity factor of 13.02 MWh/million gallons and the emission intensity factors stated above for electricity use. As shown in Table 3.5.4, annual operation of the Proposed Project would generate approximately 20,707.4 MTCO₂e.

Table 3.5.4. Estimated GHG Emissions – Proposed Project Operation

Source Category	Emissions (Metric Tons CO ₂ Equivalents)
Construction (Amortized)	121.3
Mobile Vehicle Trips	379.0
Direct Electricity Use	20,006.7
Direct Natural Gas Combustion	142.3
Indirect Electricity Use from Water Conveyance	58.1
Total Annual GHG Emissions	20,707.4
NET GHG EMISSIONS ANALYSIS	
Existing Conditions Energy-Related GHG Emissions	7,452.3
Reduction in Regional Transportation GHG Emissions (WPLE)	33,215.0
Net Annual Emissions	-19,959.9

Note: Based on SCAQMD guidance, the emissions summary also includes construction emissions amortized over a 30-year span.

Source: Terry A. Hayes Associates Inc., 2017.

The Proposed Project would allow Metro to operate the Metro Purple Line Extension at full capacity and improve headways for the Purple and Red Lines. According to the Record of Decision, the Metro Purple Line Extension, “will reduce congestion by providing reliable, higher speed transit service.” The GHG emissions analysis for the Proposed Project would allow Metro to operate the Purple Line Extension. Metro has determined that annual regional GHG emissions would be reduced by approximately 33,215 MTCO₂e as a result of the Metro Purple Line Extension. Additionally, existing energy resource consumption at the Project Site currently generates approximately 7,452.3 MTCO₂e annually. As the effects of GHG emissions on regional and global climate change are cumulative in nature, it is appropriate to consider the net change in regional GHG emissions resulting from implementation of the Proposed Project in conjunction with the Metro Purple Line Extension. Ultimately, implementation of the Proposed Project and the Purple Line Extension would reduce regional GHG emissions by approximately 19,959.9 MTCO₂e.

Therefore, implementation of the Proposed Project would not have the potential to generate direct or indirect GHG emissions that may have a significant impact on the environment; impacts would be less than significant.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

Impact 3.5.2 Would the Proposed Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions?

Impact Analysis

Less-than-Significant Impact. The following analysis addresses the potential for impacts during construction and operational activities. In recognition of the extensive regulatory framework adopted to reduce GHG emissions, Metro prepared a Countywide Sustainability Plan to highlight sustainable features of the Proposed Project that are in line with Metro

sustainability policies. The Countywide Sustainability Plan also recommends design, construction, and maintenance features and technologies that could be realistically incorporated to maximize the sustainable potential.

Construction

As discussed previously, GHG emissions are regionally cumulative in nature and it is highly unlikely construction of any individual project would generate GHG emissions of sufficient quantity to conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Metro is committed to enhancing regional sustainability, and the expansion of the public transit system is consistent with regional efforts to provide alternative modes of transportation in lieu of passenger vehicles. Construction activities would be conducted in accordance with the stringent best management practices set forth in the Metro Green Construction Policy, such as restrictions on vehicle and equipment idling and scheduling of construction activities that affect traffic flow on the arterial system to off-peak hours to the extent feasible.

Standard construction procedures would be undertaken in accordance with SCAQMD and CARB regulations applicable to heavy duty construction equipment and diesel haul trucks. Adhering to requirements pertinent to equipment maintenance and inspections and emissions standards, as well as diesel fleet requirements related to idling restrictions, would ensure that construction of the Proposed Project would not conflict with GHG emissions reductions efforts. Additionally, the Proposed Project will give competitive preference for construction products and services that conserve natural resources, such as recycled materials. Impacts would be less than significant.

Operations

Operation of the Proposed Project would involve train travel through the expanded Division 20 Rail Yard portal and storage of rail cars within the existing and proposed turnback facilities. Implementation of the Proposed Project would increase the number of trains stored in the Division 20 Rail Yard from 104 to 282. However, the trains are powered by electric propulsion and do not constitute mobile sources of GHG emissions. There would be approximately 107 additional employees at the Project Site after completion of the Proposed Project. Employees would arrive through a combination of single-occupancy vehicles, carpools, and public transit. Annual direct GHG emissions associated with employee commuting would be no greater than approximately 379 MTCO₂e. Annual indirect GHG emissions associated with energy consumption would be approximately 20,207 MTCO₂e. However, when accounting for reductions in regional GHG emissions as a result of the Purple Line Extension, there would be a net reduction of approximately -19,960 MTCO₂e annually.

In addition, the Proposed Project would allow Metro to operate the Purple Line Extension at full capacity and improve headways for the Purple and Red Lines. The Purple Line Extension would extend the existing Metro Purple Line heavy rail transit subway from its current terminus at Wilshire/Western Station to a new western terminus near the West Los Angeles Veterans Administration Hospital. According to the Record of Decision, the Metro Purple Line

Extension, “will reduce congestion by providing reliable, higher speed transit service. During peak periods, rail operating speeds are faster than speeds for a comparable trip by automobile, providing more reliability in travel time variation. The improved convenience of transit improvements in the corridor would encourage use of a public transit alternative that would reduce daily vehicle trips, VMT, and congestion on roadways.”¹⁵ Importantly for regional GHG emissions, the Proposed Project would assist in reductions in regional VMT and associated emissions.

Reducing regional VMT and associated GHG emissions is the primary objective of the SCAG 2016–2040 RTP/SCS. The entirety of the Purple Line Extension was incorporated into the regional transportation and GHG emissions analyses for the 2016–2040 RTP/SCS and is included in the Project Listing. The Proposed Project would provide the necessary storage capacity infrastructure to accommodate the Purple Line Extension. Enhancing and expanding the Metro public transit network is at the crux of reducing regional VMT and associated GHG emissions, which is the top priority of the regional and local transportation and sustainability plans, as well as the CARB Scoping Plan. Therefore, implementation of the Proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions and would be directly contributory to regional efforts to improve sustainability and reduce VMT. This impact would be less than significant.

Mitigation Measures

This impact would be less than significant and does not require mitigation measures.

¹⁵FTA, *Environmental Record of Decision for the Westside Subway Extension*, August 9, 2012.