ATTACHMENT 2 to CARB Executive Order G-19-154

Downtown West Mixed Use Plan AB 900 Application and Supporting Documentation

ENVIRONMENTAL LEADERSHIP DEVELOPMENT PROJECT APPLICATION

Downtown West Mixed Use Plan in San José, California

Prepared for
Google LLC

August 2019

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TABLE OF CONTENTS

Environmental Leadership Document Project Application
Downtown West Mixed Use Plan

Page

Introduction **1**

Project Proposal **1**
- Project Description 1
- Project Location 2
- Project Variants 6
- Project Construction and Phasing 10
- Permitting 11

Consistency with Statutory Requirements for CEQA Streamlining **12**

Appendices

A AB 900 Transportation Assessment for San Jose Downtown West Mixed-Use Plan
B Memorandum of Understanding between the City of San José and Google LLC
C Analysis of GHG Impacts for the Downtown West Mixed-Use Plan
D Letter to Rosalynn Hughey, Director, Department of Planning, Building, and Code Enforcement

List of Figures

1 Project Location Map 4
2 Aerial 5
3 Variant A 8
4 Variant B 9

List of Tables

1 Program Variants 6
2 Variant A Construction Phasing 10
3 Variant B Construction Phasing 11
4 Transportation Efficiency by Phase 16

ENVIRONMENTAL LEADERSHIP DEVELOPMENT PROJECT APPLICATION

Downtown West Mixed Use Plan

Introduction

The project applicant, Google LLC, ("applicant") is submitting this Application for certification of the Downtown West Mixed Use Plan ("project" or "plan") as an Environmental Leadership Development Project (ELDP), pursuant to Assembly Bill 900 (AB 900), the Jobs and Economic Improvement through Environmental Leadership Act of 2011, as amended effective January 1, 2018, and codified in Public Resources Code Section 21178 et. seq. Although codified within the California Environmental Quality Act (CEQA), the process for certification of the project as an ELDP is separate from all but a few of the steps required for preparing a CEQA environmental review document.

Project Proposal

Project Description

The applicant proposes to develop a mixed-use project within an approximately 80-acre area ("project site" or "project area") of downtown San José. The proposal would be phased and would include up to 7.3 million gross square feet (GSF) of commercial office space; up to 500,000 GSF of commercial retail space (including arts and cultural, educational, and institutional uses); a hotel with up to 300 guest rooms; up to 800 rooms of limited-term corporate accommodations; an approximately 100,000-GSF event facility with flexible and divisible spaces for hosting conferences and assemblies year-round; up to 5,900 housing units, some in buildings with commercial or other uses at the ground level; and, as replacement for existing parking spaces, up to 3,650 spaces all available for the public that will provide parking at market rates serving retail, office, and entertainment uses, including for off-site uses such as the SAP Center.

The project proposes a district-systems approach to deliver resource efficiency across water, energy and waste flows. A 100,000-square-foot central utility plant (CUP) would provide thermal heating and cooling energy via a district-wide system that would extend across the site; an option for an approximately 1 million gallons per day wastewater treatment facility on the project site that would treat, for beneficial reuse, wastewater streams; options for an evolved electrical distribution system with embedded renewable energy generation and storage, including a grid tied microgrid; a centralized area for solid waste collection, sorting and off-hauling, options for automatic waste collection; and two logistics hubs (each approximately 50,000 square feet) where inbound materials and supply deliveries directed to the site's commercial office buildings could

be inventoried and stored before being efficiently distributed in small-scale natural-gas or electric-powered trucks, to service on-site offices. Stormwater will be managed at a parcel level and within rights of way where required, with sustainable approaches adopted in accordance with the Santa Clara Valley Urban Runoff Pollution Prevention Program and best management practices.

The project would include open space and landscaping improvements throughout the project area, totaling approximately 15 acres, that would entail landscaped green space, new trees, shrubs and ornamental plantings, park areas and ecological enhancements within the riparian zone adjacent to Los Gatos Creek and the Guadalupe River. Within the project boundary, approximately 140 existing trees would remain and 170 existing trees would be removed. The project would add 450 street trees and 300 trees in open spaces. The project includes a new public access trail extending for a mile along the project area's north-south axis, including portions where it would meander along the creek edge and portions where it may follow street rights of way.

The project would also include various street network improvements, including extending Cahill Street, new streets connecting Cahill Street to Autumn Street, providing increased circulation in the center of the site while also reducing block size and providing building access; sidewalk widening and road diets (lane removal and reconfiguration) along Autumn Street, Montgomery Street, and Delmas Street, which include changing Autumn and Montgomery streets from one-way to two-way, and removing vehicular access on Montgomery Street south of San Fernando Street; streetscape enhancements, including improved streetscapes and intersection design, and new and improved bike facilities throughout the project that prioritize pedestrian and cyclist safety and improve linkages to downtown; and other improvements aimed at leveraging the site's proximity to Diridon Station, which currently includes Caltrain commuter rail and VTA light rail and is planned to include in the future Bay Area Rapid Transit (BART) commuter rail and high-speed rail service.

Project Location

The project area is located within a portion of downtown San José that the City designated as an Urban Village in the *Envision San José 2040 General Plan*[1] and most of the project area is located within of the *Diridon Station Area Plan (DSAP)*[2]. The City of San José is known for being a center of technological innovation and economic activity as it is the largest and most urban city in Silicon Valley. The city provides high quality municipal services, cultural and outdoor recreational opportunities, and an overall high quality of life for its residents. **Figure 1,** *Project Location Map***,** and **Figure 2,** *Aerial***,** shows the project location in an area generally bounded by Lenzen Avenue and the Union Pacific railroad tracks to the north; North Montgomery Street, Los Gatos Creek, the Guadalupe River, South Autumn Street, and Royal Avenue to the east; Auzerais Avenue to the south; and Sunol Avenue, Diridon Station and rail tracks to the west. The project also includes the area generally bounded by Los Gatos Creek to the

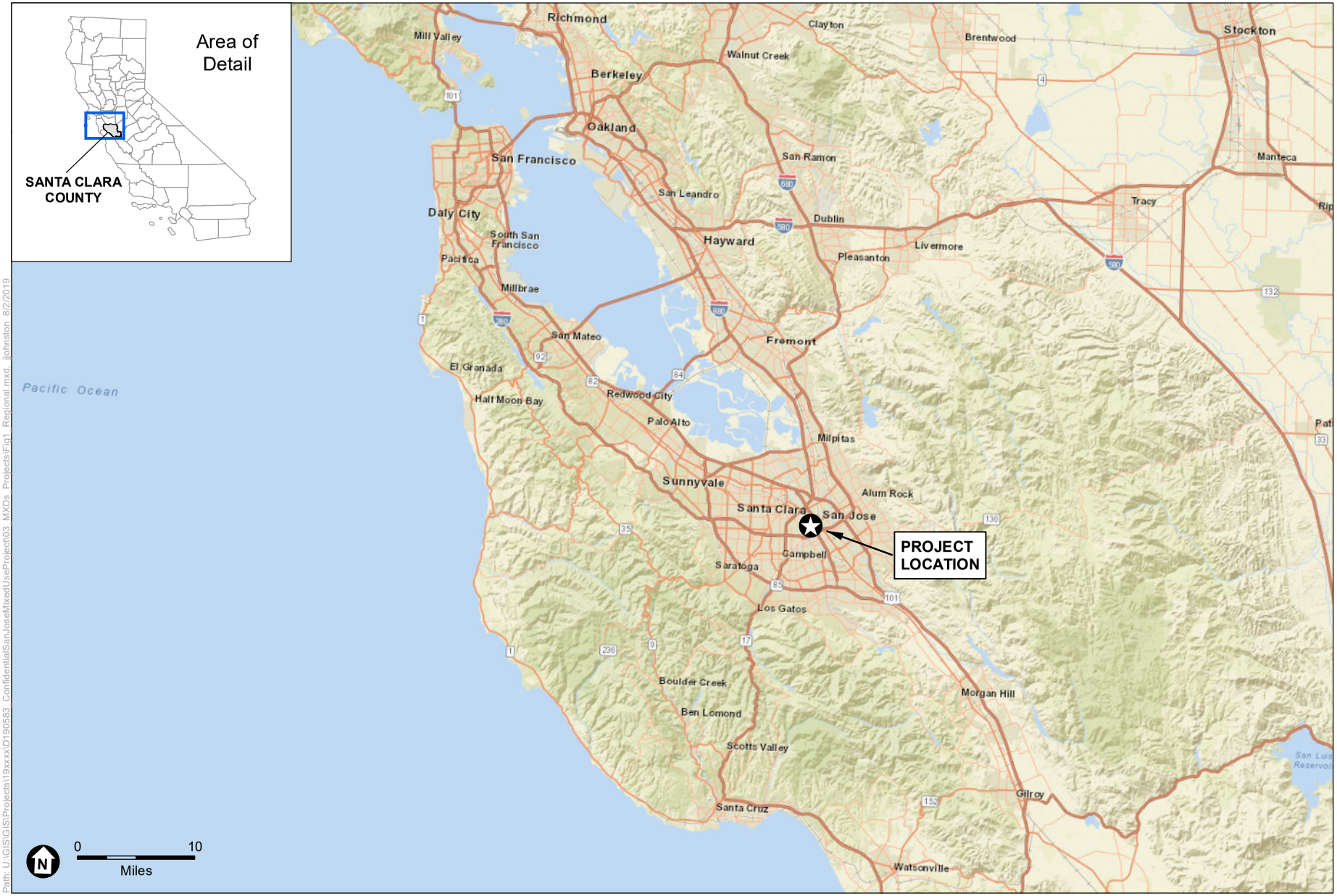
[1] City of San José. *Envision San José 2040 General Plan.* November 1, 2011. Amended December 18, 2018. Available at: http://www.sanjoseca.gov/DocumentCenter/View/474.

[2] City of San José. *Diridon Station Area Plan*. June 17, 2014. Available at: http://www.sanjoseca.gov/index.aspx?NID=1743.

west, San Fernando Street to the south, the Guadalupe River to the east, and Santa Clara Street to the north. While most of the land being studied as part of the project as described above is owned by Google LLC, some parcels are under option, while some parcels are subject to discussions currently underway for inclusion in the project. These parcels are included in this application to ensure full analysis of the anticipated project. In conjunction with the Urban Village designation, the City adopted the DSAP, which establishes a vision for Diridon Station and the surrounding area in response to the planned extension of BART and high-speed rail service to San José. The proposed project would require the City to consider a number of amendments to the DSAP as part of the approvals required.

The project site is located at the confluence of a network of regional transportation facilities and lies within a transit oriented development area. The San José Diridon Station, a central passenger rail hub just outside and to the west of the project boundaries, is served by Caltrain, Altamont Commuter Express (ACE), Santa Clara Valley Transportation Authority (VTA) light rail, Amtrak Capitol Corridor, Amtrak Coast Starlight, and will be served by BART, with plans for high-speed rail service connecting San Francisco and Los Angeles. Bus services at the Diridon Station include California Shuttle Bus, Amtrak Thruway Bus (55 Monterey-San José Express, 86- King City/San José/SJ Airport), Monterey-Salinas Transit, Santa Cruz Metro (Highway 17 Express), local VTA bus lines 22, 63, 64, 65, 68, 168, 181, 522, DASH Downtown Area Shuttle, and employer shuttles. A Downtown San José/Santa Clara BART extension with a stop on West Santa Clara Street is expected to be completed by 2026. State Route (SR) 87 intersects with the project area at San Fernando Road in the south and then generally runs north-south parallel to the project area approximately 1,000 feet to its east; Interstate 280 (I-280) is immediately adjacent to the south; and I-880 is accessible via the Alameda/San Carlos Street approximately 5,500 feet to the northwest of the project area.

Within the project area vicinity are established neighborhoods including the Garden-Alameda neighborhood to the north; St. Leo's neighborhood to the west; Sunol-Midtown to the south; and the Market-Almaden/Lakehouse neighborhoods to the east of State Route 87. The Norman Y. Mineta San José International Airport is located approximately 4 miles to the north of the project area, accessible from SR-87.



SOURCE: ESRI

Diridon Mixed Use Project

Figure 1
Project Location Map

ESA

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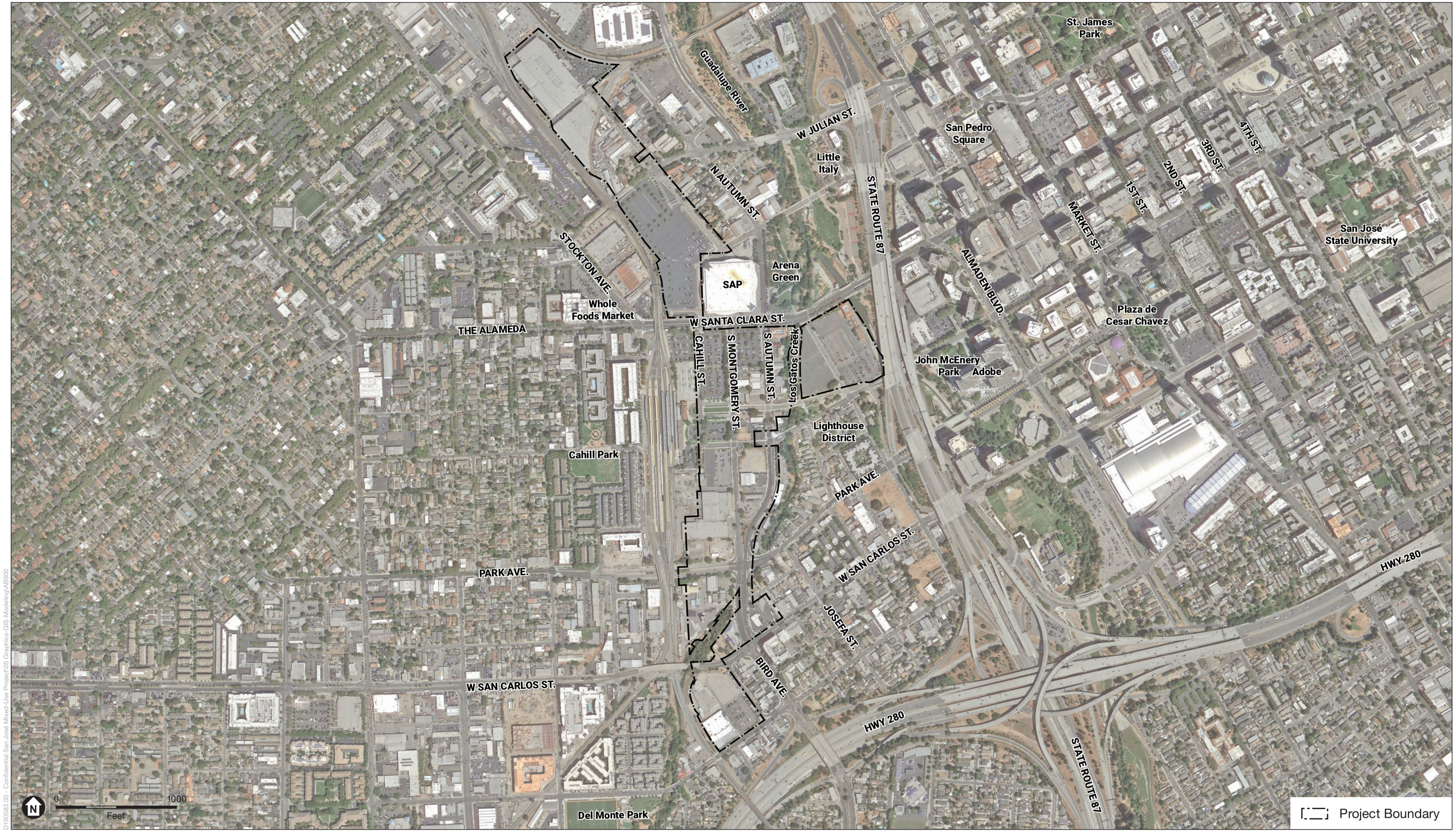

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SOURCE: Google Maps, 2019

Diridon Mixed Use Project

Figure 2
Aerial

ESA

Project Variants

The proposed project's mix of land uses are represented by two variant site plans ("Variant A" and "Variant B"), both with similar overall programs, but distinct distribution of uses across the project area (**Table 1,** *Program Variants*).

TABLE 1
PROGRAM VARIANTS

	Variant A	Variant B
Development Program		
Residential Units	3,000 - 5,900	3,000 - 5,700
Retail GSF	300k - 500k	300k - 500k
Hotel (rooms)	200-300	200-300
Limited-term Corporate Accommodations (rooms)	Up to 800	Up to 800
Office GSF	5.5 M- 7.3M	5.5 M- 7.1M
Event Center GSF	100k	100k
Central Utility Plant (District Systems) GSF	100k	100k
Logistics/Warehouse GSF	100k	100k
Parking/Loading		
Public Parking (stalls)	3,650	3,550
Residential Parking (stalls)	2,360	2,280
Total Parking Stalls	6,010	5,830

Assumptions:
1. All GSF rounded to the nearest 100k.
2. Retail uses include a variety of active ground-floor uses, including but not limited to retail, restaurant, arts and cultural uses, and educational and institutional uses.
3. Approximately 150k-200k of Office GSF could become standalone amenity, hotel, or retail.
4. Parking reflects assumed ratio of 0.4 stalls/unit for residential. All parking stall counts reflect upper bound.

Variant A

Variant A assumes residential uses, open space, and office uses clustered in the northern zone (north of Santa Clara Street) (**Figure 3**, *Variant A*). Office would be sited along the eastern edge of the rail right-of-way. Cahill Street would be extended from its current terminus at West Santa Clara Street to North Montgomery Street in the north (and to Park Street in the south) to enhance connectivity. An event center is anticipated to front a landscaped plaza/assembly area, in the vicinity of the SAP Center, a hotel with up to 300 guest rooms is planned in the vicinity to complement the event center.

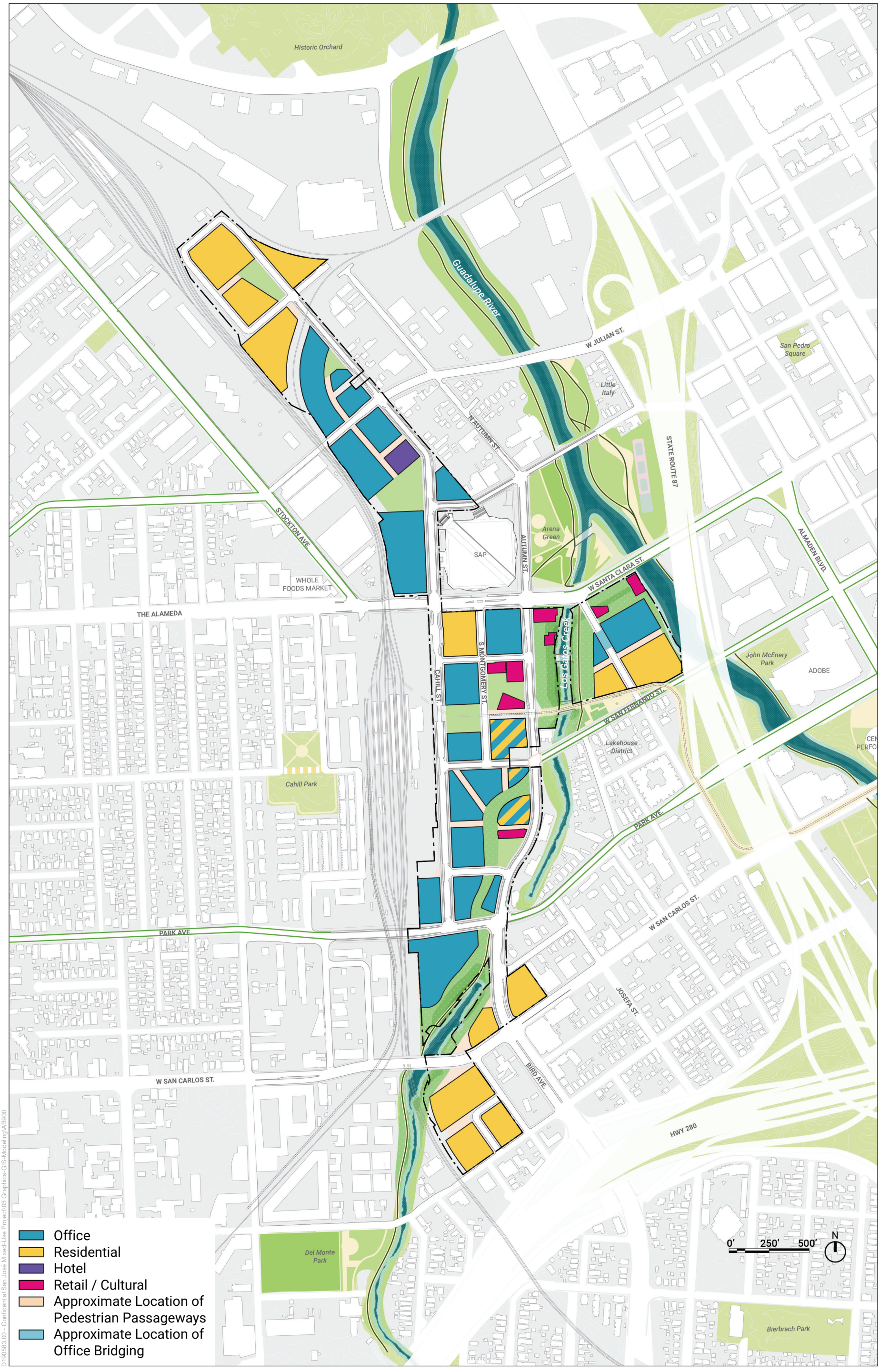
The project's central core, generally bounded by West Santa Clara Street to the north and Park Avenue to the south, would contain a mix of all the project's program uses and is intended to function as a destination and vibrant focal point for the project area. The area's activity would be pedestrian-

focused, and be anchored by Montgomery and Autumn streets, which would contain a variety of ground-floor, civic-oriented uses, including but not limited to arts and cultural uses, educational and institutional uses, and retail and restaurant establishments amongst residential buildings. In this central zone, the project proposes enhanced landscaping and improved open space amenity and access to Los Gatos Creek to the east of Autumn Street and possible reuse and new programming of existing structures on Autumn Street.

The project area's proposed southern zone (south of Park Avenue) would include a mix of office and residential buildings. Residential buildings developed south of Los Gatos Creek are envisioned as extensions of existing adjacent residential neighborhoods. Access to Los Gatos Creek would be enhanced within the southern zone. New buildings adjacent to the riparian zone would be set back up to 50 feet from the edge of the creek embankment. A new multi-use pathway would follow the creek edge.

Variant B

Overall, Variant B (**Figure 4**, *Variant B*) would maintain a similar mix of uses compared to Variant A. However, Variant B would have a different geographic distribution of land uses north of West Santa Clara Street, in the project's northern zone. Variant B assumes that a cluster of parcels immediately north of West Santa Clara Street would be developed as residential, rather than office, while the northernmost parcels on the site would be developed as office, rather than residential. In Variant B, the parcel immediately west of the SAP Center could be developed either as office or as residential.

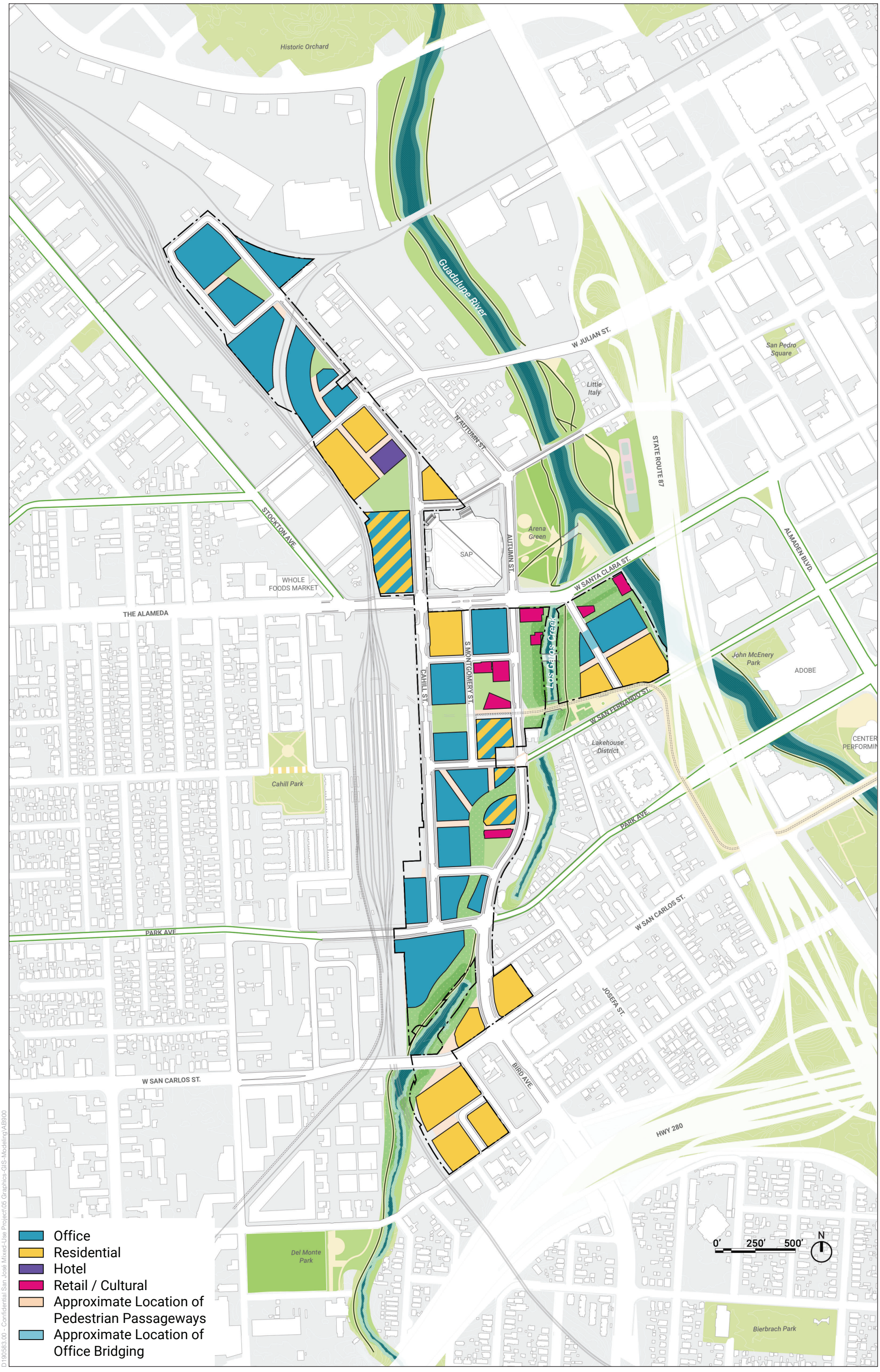


SOURCE: SITELAB urban studio, 2019

Diridon Mixed Use Project

Figure 3
Variant A

ESA



SOURCE: SITELAB urban studio, 2019

Diridon Mixed Use Project

Figure 4
Variant B

ESA

Project Construction and Phasing

The project would remove existing buildings across a range of uses, as well as existing parking uses. The SAP Center (a large sports and events arena) is outside of the project boundary and would remain in place and continue to operate business as usual.

Construction would be split into three phases, depending on the variant, starting as early as 2021. The first phase would open in 2024. Phasing for Variants A and B is described below, although these phasing tables are illustrative (**Table 2**, *Variant A Construction Phasing*; **Table 3**, *Variant B Construction Phasing*). Some phases may adjust, may occur in a different order, or occur concurrently. However, the entire development program is expected to take at least ten years. All analysis has made the most aggressive and impactful assumptions to be conservative.

TABLE 2
VARIANT A CONSTRUCTION PHASING

	Phase			
Development Program	**1 2021-2024**	**2 2024-2027**	**3 2027-2030**	**Total**
Residential Units	2,000	2,300	1,600	5,900
Retail GSF	100,000	280,000	120,000	500,000
Hotel (rooms)	0	0	300	300
Limited-term Corporate Accommodations (rooms)	250	250	300	800
Office GSF	2,600,000	2,600,000	2,100,000	7,300,000
Event Center GSF	0	0	100,000	100,000
District Systems GSF	100,000	0	0	100,000
Logistics/Warehouse GSF	50,000	0	50,000	100,000
Parking				
Public Parking (stalls)	1,300	1,300	1,050	3,650
Residential Parking (stalls)	800	920	640	2,360
Total Parking Stalls	2,100	2,220	1,690	6,010

Note: Parking stall counts are average anticipated number to be delivered per phase.

TABLE 3
VARIANT B CONSTRUCTION PHASING

Development Program	Phase 1 2021-2024	Phase 2 2024-2027	Phase 3 2027-2030	Total
Residential Units	1,300	3,100	1,300	5,700
Retail GSF	60,000	320,000	120,000	500,000
Hotel (rooms)	0	0	300	300
Limited-term Corporate Accommodations (rooms)	250	250	300	800
Office GSF	2,600,000	2,600,000	1,900,000	7,100,000
Event Center GSF	0	0	100,000	100,000
District Systems GSF	100,000	0	0	100,000
Logistics/Warehouse GSF	50,000	0	50,000	100,000
Parking				
Public Parking (stalls)	1,300	1,300	950	3,550
Residential Parking (stalls)	520	1,240	520	2,280
Total Parking Stalls	1,820	2,540	1,470	5,830

Note: Parking stall counts are average anticipated number to be delivered per phase.

Permitting

The applicant is requesting approval for anticipated amendments to the General Plan, Diridon Station Area Plan, Planned Development Zoning, and a Master Planned Development Permit, zoning map amendments, development agreement, tentative and final maps, and ministerial permits. The applicant will additionally coordinate with the Valley Water, Santa Clara County Airport Land Use Commission, Department of Toxic Substances Control, Regional Water Quality Control Board, and any other state or federal agencies with regulatory oversight for notices, permits, and other related environmental compliance requirements.

Consistency with Statutory Requirements for CEQA Streamlining

This application was prepared in accordance with the Governor's Guidelines for Streamlining Judicial Review under CEQA, which is provided on the Governor's Office of Planning and Research Website (http://opr.ca.gov/ceqa/california-jobs.html).

The following information (in addition to all figures and appendix materials) is submitted to establish that the project satisfies the statutory requirements for CEQA streamlining as further informed by the criteria set forth in the Governor's Guidelines under California Public Resources Code Section 21178 et seq.

1. Information to show the project is residential, retail, commercial, sports, cultural, entertainment, or recreational in nature.

The project includes office, retail, arts and cultural uses, residential, hotel, an event facility, district systems, logistics/warehouse, open space, and public parking. As described above, the project would contain 5.5 to 7.3 million GSF of office, 300,000 to 500,000 GSF of retail, up to 300 hotel rooms, up to 800 rooms of limited-term corporate accommodations, 3,000 to 5,900 dwelling units, 100,000 GSF of an event center, 100,000 GSF of district systems, 100,000 GSF of logistics/warehouse, and approximately 15 acres of open space. Up to a total of 6,010 parking spaces would be provided for residential units and the public.

Land use diagrams for the two project variants are included as **Figure 3**, *Variant A*, and **Figure 4**, *Variant B*.

2. Information to show the project will qualify for LEED Gold Certification. The application shall specify those design elements that make the project eligible for LEED Gold Certification, and the applicant shall submit a binding commitment to delay operating the project until it receives LEED Gold Certification. If, upon completion of construction, LEED Gold Certification is delayed as a result of the certification process rather than a project deficiency, the applicant may petition the Governor to approve project operation pending completion of the certification process.

The project would incorporate design and construction standards that would reduce energy and water use, encourage compact development and more walkable neighborhoods, and create healthier indoor and outdoor environments. The project would achieve the United States Green Building Standards (USGBC) Leadership in Energy and Environmental Design (LEED) Neighborhood Development (ND) Gold Certification. The project would adhere to the LEED v4 ND rating system in which at least one building would be required to achieve LEED Gold. The project anticipates certification under LEED ND: Plan, which is designated for neighborhood-scale projects in any phase of planning and design and up to 75% constructed. Should LEED ND be superseded by LEED for Cities and Communities, a similar standard currently being

contemplated by the USGBC, the project would adhere to the applicable new standard. LEED provides a level of flexibility for projects to choose the credits and project features that would contribute to certification.

Either project variant would integrate low-impact development and transportation demand management, energy efficiency, water conservation, and other green-building practices to achieve a minimum LEED ND Gold certification. Achieving LEED ND Gold Certification requires obtaining at least 60 points across five categories, listed below with anticipated minimum strategies and possible additional strategies:

- Smart Location and Linkage (SLL): A central, urban location (10 points), access to high quality transit (7 points), bicycle facilities (2 points), and housing and jobs proximity (3 points)
- Neighborhood Pattern and Design (NPD): walkable streets (9 points), compact development (6 points), mixed-use neighborhoods (4 points), access to civic and public space (1 point), transportation demand management (2 points)
- Green Infrastructure and Buildings (GIB): certified green buildings (5 points), optimized building energy performance (2 points), indoor water use reduction (1 point), outdoor water use reduction (2 points), rainwater management (4 points), and district heating and cooling (2 points)
- Innovation (IN): to be studied
- Regional Priority (RP): to be studied

The above anticipated strategies would result in up to 60 out of the required 60 points needed for LEED ND Gold. Other strategies that are currently under study, or may be studied as part of further design investigation, totaling up to 30 additional points, include:

- Neighborhood Pattern and Design (NPD): housing types and affordability (7 points), reduced parking footprint (1 point), connected and open community (2 points), transit facilities (1 point), access to recreation facilities (1 point), visitability and universal design (1 point), community outreach and involvement (2 points), and tree-lined and shaded streetscapes (2 points)
- Green Infrastructure and Buildings (GIB): building reuse (1 point), historic resource preservation and adaptive reuse (2 points), heat island reduction (1 point), solar orientation (1 point), renewable energy production (3 points), infrastructure energy efficiency (1 point), wastewater management (2 points), solid waste management (1 point), and light pollution reduction (1 point)

Under LEED ND: Plan, final LEED certification is anticipated to be granted in a later phase of project planning and design. If certification is delayed as part of the certification process, the project sponsor would petition the Governor to approve project operation pending completion of the certification process, as permitted under Public Resources Code Section 21178 et seq.

3. Information to show the project will achieve at least 15 percent greater transportation efficiency than comparable projects. "Transportation efficiency" is defined as the number of vehicle trips by employees, visitors, or customers to the project divided by the total number of employees, visitors, and customers. The applicant shall provide information setting forth its basis for determining and evaluating comparable projects and their transportation efficiency, and how the project will achieve at least 15 percent greater transportation efficiency. For the purpose of this provision, comparable means a project of the same size, capacity and location.

The *AB 900 Transportation Assessment*, dated August 22, 2019, for the project provides detailed trip generation calculations for existing land uses and a range of TDM performance outcomes. The assessment compares the variants to a Comparable Project, which has the same size, mix of land uses and location, but no TDM programs, to establish at least 15 percent greater transportation efficiency. The *AB 900 Transportation Assessment* is attached to this Application as Appendix A, and is summarized below.

The project would significantly reduce automobile trips through a comprehensive design including a mix of land uses including both residential and commercial. The project benefits from a prime location in downtown San José that is close to high frequency transit, provides walkable streets and spaces, and minimizes accessory parking for on-site land uses. However, the Comparable Project is assumed to have the same location and mix of uses.

Transportation Demand Management Program

Google has a long history of successful TDM programs, achieving drive alone mode shares in Mountain View and Sunnyvale that are substantially below the average mode shares of those cities. Its programs are constantly evolving to adjust to market demands, new technologies, and employee home locations, and would continue to evolve to meet the demands of this project. The scenarios modeled in the *AB 900 Transportation Assessment* are illustrative examples of possible ways to achieve the necessary mode splits based on existing Google programs. The modeling demonstrates that there are a variety of transportation demand management strategies that can enable employees to get to work while leaving their cars at home.

Office TDM strategies are anticipated to include subsidized transit passes, market-rate workplace parking, and express buses to complement existing high-quality, high-frequency public transit. Residential TDM strategies are anticipated to include:

- Parking ratio of 0.4 spaces/unit (below city requirements and ITE assumptions)
- Unbundled parking
- An onsite transportation coordinator
- Marketing –encouragement and incentives to residents

- Technology-based services to encourage transit, walking, biking
- Transit-pass program
- Car-share subsidy
- Bike storage/parking

Project Variants Trip Generation

The project would generate a range of daily vehicle trips depending on the year (due to the phased buildout) and the TDM scenario. At full buildout, the project would generate approximately 24 million to 25 million annual vehicle trips, or 43-44% of the project's total person trips.[3]

Comparable Project Trip Generation

The Comparable Project and the project variants are assumed to have the same size, mix of land uses, and location.

At full buildout, the Comparable Project would generate 29-30 million annual vehicle trips, or 55% of the Comparable Project's total person trips.

Trip Generation Summary

The project variants are differentiated from the Comparable Project through a combination of office and residential TDM strategies, implementation of quality urban design and a fine-grained street network, and a consolidated logistics center, which would reduce delivery trips.

This difference results in a greater than 15 percent transportation efficiency for both variants of the project at every phase, compared to the Comparable Project (**Table 4**, *Transportation Efficiency by Phase*).

[3] A person trip is defined as a trip by one person in any mode of transportation.

TABLE 4
TRANSPORTATION EFFICIENCY BY PHASE

Project	Phase 1 Transportation Efficiency	Phase 2 Transportation Efficiency	Phase 3 Transportation Efficiency
Variant A	0.447	0.459	0.444
Variant A Comparable	0.568	0.558	0.552
Reduction from Comparable Project	**21.2%**	**17.8%**	**19.5%**
Variant B	0.430	0.459	0.445
Variant B Comparable	0.569	0.558	0.553
Reduction from Comparable Project	**24.4%**	**17.7%**	**19.4%**

4. Information to show the project is located on an infill site, defined at Public Resources Code Section 21061.3, and in an urbanized area, as defined at Public Resources Code Section 21071.

The project site is largely located within the Diridon Station Area Plan portion of downtown San José. An infill site is defined in Public Resources Code Section 21061.3 as a site that "has been previously developed for qualified urban uses." A "qualified urban use" is defined in Public Resources Code Section 21072 as "any residential, commercial, public institutional, transit or transportation passenger facility, or retail use, or any combination of those uses." The project site meets this definition as it includes various uses such as residential, entertainment, cultural, commercial, and office. The project site is located in an urbanized area as defined in Public Resources Code Section 21071, as it is in "an incorporated city" that has a population of at least 100,000 persons. The City of San José is an incorporated city that has an estimated population of 1.03 million according to the 2018 estimates prepared by the United States Census Bureau.[4] Therefore, either project variant would be considered an urban infill development because of the location on an infill site previously developed with a qualified urban uses in an urbanized area.

[4] U.S. Census Bureau. *San José City.* Accessed August 3, 2019. Available at: https://www.census.gov/quickfacts/fact/table/sanjosecitycalifornia,US/PST045218.

5. For a project that is within a metropolitan planning organization for which a sustainable communities strategy or alternative planning strategy is in effect, information to show the project is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, for which the State Air Resources Board, pursuant to subparagraph (H) of paragraph (2) of subdivision (b) of Section 65080 of the Government Code, has accepted a metropolitan planning organization's determination that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve the greenhouse gas emission reduction targets. For the purposes of this provision, "in effect" means that the sustainable communities strategy or the alternative planning strategy has been adopted by the metropolitan planning organization, and that the Air Resources Board has accepted the metropolitan planning organization's determination that the sustainable communities strategy or alternative planning strategy meets the adopted greenhouse gas reduction targets and is not the subject of judicial challenge.

The Project meets this requirement because it is in a transit priority area and a Priority Development Area, and meets the strategies in the Plan Bay Area 2040, as discussed below.

Senate Bill (SB) 375 was adopted by the legislature in August 2008 and signed into law by the Governor in September 2008. This legislation links regional planning for housing and transportation with the greenhouse gas (GHG) reduction goals in Assembly Bill 32. Each Metropolitan Planning Organization is required to adopt a Sustainable Communities Strategy to encourage compact land development to reduce passenger vehicle miles traveled and vehicle trips so that the region will meet targets established by the California Air Resources Board (CARB) for reducing GHG emissions. In September 2010, CARB adopted regional GHG targets for passenger vehicles and light trucks for the years 2020 and 2035 for the various Municipal Planning Organizations in California. Two climate protection targets were established for the San Francisco Bay Area by CARB: a per capita reduction of GHG emissions by 7 percent by year 2020 and 15 percent by year 2035.[5]

The project is within the jurisdiction of the Association of Bay Area Governments (ABAG). ABAG and the Metropolitan Transportation Commission (MTC) adopted Plan Bay Area 2040, the region's updated long-range Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS), in July 2017. The Plan updates the population and employment forecasts, but keeps the land use and transportation strategies set forth in the 2013 SCS. These strategies include promoting high density infill development, building more multi-family housing

[5] California Air Resources Board. *SB 375 Regional Greenhouse Gas Emissions Reduction Targets.* Available at: https://ww3.arb.ca.gov/cc/sb375/finaltargets2018.pdf Accessed on July 15, 2019.

in mixed use communities, and improving mobility and accessibility with non-single occupancy vehicle (SOV) options. The Environmental Impact Report (EIR) for the Plan Bay Area 2040 (Plan) shows that the Plan would achieve a 14.3 percent per capita carbon dioxide emissions reduction from passenger vehicles by 2020 and a 15.5 percent per capita reduction by 2035, thereby exceeding the SB 375 targets.[6] Furthermore, the *Performance Assessment Report* for the Plan demonstrates an 18 percent reduction by 2040.[7]

The Plan focuses on where the region is expected to grow and what transportation investments would support that growth. It encourages infill development and multifamily development particularly close to public transit and in walkable neighborhoods. The project variants, once approved, would be consistent with the "general use designation, density, building intensity, and applicable policies specified for the project area in …a sustainable communities strategy" as required in Public Resources Code Section 21180(b)(1). The development program provides for reasonable-density infill development in a transit priority area (TPA) as defined in Public Resources Code Section 21099(a)(7). A TPA is defined as an area within one-half mile of a major transit stop that existing or planned. Section 21064.3 of the PRC defines a "major transit stop" as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. With the Diridon Station adjacent to the project, the project fulfills this definition of a TPA. The project site is also located in a Priority Development Area per the Plan. Priority Development Areas (PDAs) focus growth in transit-rich communities so as to leverage existing infrastructure and reduce greenhouse gas emissions by lowering vehicle miles traveled. The project fulfills the PDAs definition by being located within an existing community, within a half mile of frequent transit, and in an area planned for future housing and job growth.

6. Information to show that for a multifamily residential project, evidence that 1) private vehicle parking spaces are priced and rented or purchased separately from dwelling units; or 2) the dwelling units are subject to affordability restrictions that prescribe rent or sale prices, and the cost of parking spaces cannot be unbundled from the cost of dwelling units.

For the residential portion of either project variant, unbundled parking would be provided for all market rate dwelling units.

7. Information to show that the project will result in a minimum investment of $100 million in California through the time of completion of construction.

The project site encompasses approximately 80 acres and includes a range of 3,000 to 5,900 residential units; 300,000 to 500,000 GSF of retail, cultural, and arts uses; up to 300 rooms of

6 Association of Bay Area Governments and Metropolitan Transportation Commission. *Plan Bay Area 2040*. Available at: http://2040.planbayarea.org/reports Accessed on July 15, 2019.

7 Association of Bay Area Governments and Metropolitan Transportation Commission. *Final Performance Assessment Report*. Available at: http://2040.planbayarea.org/reports Accessed on July 15, 2019.

hotel; up to 800 rooms of limited-term employee accommodation; 5.5 to 7.3 million GSF of office; 100,000 GSF of event center, 100,000 GSF of district systems; 100,000 GSF of logistics/warehouse; up to approximately 6,010 parking spaces; and approximately 15 acres of open space. Development would total over 10 million new GSF. Based on anticipated project costs, either of the two project variants would significantly exceed the minimum investment of $100 million described in Public Resources Code Section 21183(a). Either project variant would be constructed over the course of three or more phases, accounting for at least ten years of construction, and including over 30 new-construction buildings and a number of retained and rehabilitated buildings. In addition, with a range of approximately 500 to 1,500 construction workers on a typical day during construction, based on current prevailing wages, construction labor costs alone would be over $1 billion.

8. Information to show that the project will satisfy the prevailing and living wage requirements of Public Resources Code Section 21183(b).

Public Resources Code Section 21183(b) requires that a project to be certified by the Governor must create "high-wage, highly skilled jobs that pay prevailing wages for construction jobs and living wages and provide construction jobs and permanent jobs for Californians, and help reduce unemployment." Public Resources Code Section 21183(b) defines “jobs that pay prevailing wages” as “all construction workers employed in the execution of the project will receive at least the general prevailing rate of per diem wages for the type of work and geographic area, as determined by the Director of Industrial Relations pursuant to Sections 1773 and 1773.9 of the Labor Code.” The applicant would include the prevailing wage requirement in either project variants and all construction contracts.

With 500 to 1,500 construction jobs estimated on-site at any given time during construction, and construction anticipated to total a cumulative of at least ten years, the proposed project is expected to generate well over 10,000 construction jobs over the course of its buildout.

The project will also create tens of thousands of permanent jobs across a range of skill and income levels, including high wage, highly skilled jobs.

Jobs associated with Google office buildings could include workers across a range of business units, including but not limited to engineering, legal, and finance. They would also include a range of jobs in Google’s extended workforce such as retail, cafe workers, security, facilities, hotel and the like, who would be paid market-rate wages and provided with a minimum benchmark of benefits, including 12 weeks of paid family leave, tuition reimbursement, and comprehensive healthcare.

Lastly, in the Memorandum of Understanding (MOU) Between the City of San Jose and Google LLC, entered into December 4, 2018, Google and the City of San Jose jointly committed to “create broad job opportunities … for San Jose residents of all skill and educational levels and diverse backgrounds to prepare for and secure jobs that provide wages that enable families to thrives in this high cost region.” Both construction and permanent jobs generated by this project are a part of the joint commitment described in the MOU, which is attached as Appendix B.

9. Information establishing that the project will not result in any net additional greenhouse gas emissions. This information includes (1) a proposed methodology for quantifying the project's net additional greenhouse gas emissions, and (2) documentation that quantifies both direct and indirect greenhouse gas emissions associated with the project's construction and operation, including emissions from the project's projected energy use and transportation related emissions; and quantifies the net emissions of the project after accounting for any mitigation measures. This information is subject to a determination signed by the Executive Officer of the Air Resources Board that the project does not result in any net additional greenhouse gas emissions, following the procedures set forth in section 6 of the Governor's Guidelines.

CARB must review the analysis of GHG from construction and operation of the project variants. The analysis should include the technical basis for characterizing and analyzing GHG emissions and for identifying and quantifying the GHG reduction potential of proposed strategies to fully offset any GHG emissions generated by a proposed Project. A GHG Report prepared by Arup presents the technical methodology for and results of quantifying the GHG emissions from the existing activities on the project site and the GHG emissions from construction and operation of the project or project variants. The *GHG Emissions Methodology and Report* is attached as Appendix C.

Construction activities include demolition of existing onsite structures, site preparation, grading, shoring and excavation, structural work, exterior skin and interior finishes, and paving. Construction activities generate GHG emissions from heavy-duty construction equipment, material-hauling trucks, and construction-worker vehicles. These emissions were calculated using the most current version of the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. Total GHG emissions from construction activities are estimated at 97,189 $MTCO_2e$ for the project.

Operational GHG emissions sources included in the analysis were: on-road motor vehicles (mobile sources), building energy (electricity and natural gas), water and wastewater, solid waste, as well as area and stationary emissions sources. Trip generation and the corresponding vehicle miles travelled (VMT) were based on a project-specific analysis by Nelson\Nygaard Consulting Associates. As described in Appendix A, *AB 900 Transportation Assessment*, the analysis included a range of TDM measures depending on the land use type. The analysis estimated the proposed daily trips from residents, employees, and visitors to the project site. Operational GHG emissions are estimated at 217,572 $MTCO_2e$ annually for the project in 2032 (full buildout), but varies based on the project variant, phasing schedule and level of development.

To offset the increase in GHG emissions from project construction beginning in 2021 and operations through 2062, the applicant commits to measures to ensure there would be no net additional GHG emissions associated with the project. Measures such as installing on-site solar

panels, additional electric vehicle charging stations, and additional local or regional renewable power would be explored as a means to achieve GHG mitigation. For remaining emissions, the project sponsor currently provides offsets for all business activities through the purchase of renewable power and retirement of the associated renewable energy credits as well as purchase of verifiable, permanent GHG offsets. The applicant commits to extend these activities to cover all scopes of emissions related to construction and operation of this project.

10. Information establishing that the project will comply with requirements for commercial and organic waste recycling in Chapters 12.8 (commencing with Public Resources Code Section 42649) and 12.9 (commencing with Public Resources Code Section 42649.8) of Part 3 of Division 30, as applicable.

California has had statutory and regulatory requirements related to solid waste recycling for well over 10 years requiring local governments to reduce solid waste in landfills with waste diversion programs. The two more recent statutes, in Chapters 12.8 and 12.9 of Division 30 of the Public Resources Code related to waste management, require recycling of solid waste and organic waste.

Chapter 12.8 requires that businesses that generate more than four cubic yards of commercial solid waste per week or is a multi-family dwelling with five units or more shall arrange for recycling services, consistent with state or local laws or requirements, including a local ordinance or agreement, applicable to the collection, handling, or recycling of solid waste, to the extent that these services are offered and reasonably available from a local service provider.

Chapter 12.9 requires that businesses generating four cubic yards or more of organic waste per week arrange for recycling services for that organic waste. As of January 1, 2020, if the State determines that statewide disposal of organic waste has not been reduced to 50 percent of the level of disposal during 2014, a business that generates two cubic yards or more per week of commercial solid waste shall arrange for the organic waste recycling services. This requirement for waste reduction increases to 75 percent of the 2014 level by 2025 per SB 1383. These statutes also require local jurisdictions to establish a commercial solid waste recycling program if it did not already have one as of July 2012, and an organic solid waste recycling program by January 2016 if it did not already have one.

The project would be subject to these statutory requirements and will comply by following all applicable requirements of San José’s local recycling and composting ordinances. On October 30, 2007, the San José City Council adopted Resolution 74077 establishing a goal of reducing the amount to be landfilled by 75 percent by 2013 and zero waste by 2022. In San José, "zero waste" is defined as landfilling no more than 10 percent of waste, or recycling 90 percent. San José's overall recycling rate was 73 percent in 2013 and 66 percent in 2015.

The designated waste hauler for the City of San José, Republic Services, works toward optimizing diversion rates by simply requiring residents and businesses to separate waste into two categories - dry and wet. These waste streams are further separated and diverted at the Newby Island Resource Recovery Park and Zero Waste Energy facilities

Google waste operations in the Bay Area typically practice the separation of waste into landfill, mixed recycling, compost, and cardboard. With optimal operations and appropriate segregation, a diversion rate of 80-90% from landfill could be achieved.

To further improve the diversion rate from landfill in furtherance of the City of San José's goals, feasibility of the following strategies may be investigated across the project, including multifamily residential buildings as applicable:

1. Revising waste streams: Align with Republic Services' waste separation scheme and transition from four streams (landfill, mixed recycling, compost, and cardboard) to two streams (dry and wet).

2. Implementing technology that monitors waste volumes and trends: Incorporate smart technology that helps to increase the purity of waste streams and captures waste data.

3. Culture and procurement change: Implement changes that reduce day-to-day waste generation such as normalizing reusable utensils and removing single-serving snacks in workplace café areas.

4. Mindful partnerships: Source from vendors that complement zero-waste-to-landfill goals (such as those that use reduced packaging), and sourcing from local and ethical vendors. Work with local government to ensure that resources, such as the right technology to process waste, is available for optimal diversion. Purchase restroom paper towels that may be recycled.

5. Supporting educational campaigns that improve the purity of waste streams: Explore educating and training employees on good waste separation practices.

6. Incentivize employees and residents: Employ incentives to improve purity of each stream.

Construction of the project would generate an estimated 380,000 cubic yards of debris, and an estimated 1.3 million net cubic yards of soil from excavation of the site. The City of San José Environmental Services Department has a Construction and Demolition Diversion (CDD) Program consistent with Part 15, Chapter 9 of the San José Municipal Code. The CDD program offers financial incentives to encourage recycling and requires a recycling rate of 75 percent or more. The CDD program is more stringent than the 65 percent recycling rate set by CALGreen regulations.

Thus, the applicant would be required to comply not only with the Public Resources Code requirements for commercial and organic waste recycling, but also with the requirements of San José's local ordinances requiring recycling and composting solid waste both during construction and during operation of the project.

11. Information documenting a binding agreement between the project proponent and the lead agency establishing the requirements set forth in Public Resources Code Sections 21183(e) (applicant will comply with all mitigation measures and that environmental mitigation measures will be monitored and enforced by the Lead Agency for the life of the obligation), (f) (applicant will pay costs for hearing by Court of Appeal), (g) (applicant will pay costs of preparing the administrative record).

Written acknowledgement from the project sponsor containing commitments regarding Public Resources Code Sections 21183(e)(f) and (g) is attached as Appendix D, *Project Sponsor Letter*. The applicant is committed to comply with all Mitigation Monitoring and Reporting Program measures from the EIR included as conditions of approval and that those conditions would be fully enforceable by the San José Planning, Building, and Code Enforcement Department and the Environmental Services Department. The applicant agrees to pay the costs for hearing by the Court of Appeal, and would pay the costs of preparing the record of proceedings.

Appendix A

AB 900 Transportation Assessment for San José Downtown West Mixed-Use Plan

AB 900 Transportation Assessment
San Jose Downtown West Mixed-Use Plan
Draft

August 2019

NELSON
NYGAARD

Executive Summary **3**

Project Location **4**
Existing Land Uses on Project Site 5

Project Description **6**
Office 6
Residential 6
Hotel 6
Retail 6
Event center 6
Non-Trip Generating Land Uses 7
Comparable Project 9

Trip Generation **10**
Annual Person and Vehicle Trips 10

Trip Reduction **12**
Mix of Land Uses (Internal Trip Capture) 13
Mix of Land Uses 13
Employees and Visitors Staying Onsite 14
Proximity to Transit 14
Consolidated Logistics Center 14
Transportation Demand Management Modeling 15
Transportation Demand Management Strategies 15
Transit Passes 15
Market-Rate Workplace Parking 16
Express Buses 16
Residential Transportation Demand Management 16

Transportation Efficiency **18**
Summary 18

Vehicle Miles Traveled **20**
Methodology 20
Trip Distances 20
Vehicle Miles Traveled by Project Year 21

Appendix A **23**
Appendix B **31**

Executive Summary

The Project is a development comprising a mix of land uses including offices, residences, retail (including arts, cultural, educational, and institutional uses), hotel, limited-term corporate accommodations, and an event center. The Project site is immediately adjacent to the San Jose Diridon station in downtown San Jose.

This report describes the modeling undertaken to determine the number of trips and vehicle miles traveled per year over the lifetime of the project. The modeling incorporated trip reductions associated with a variety of location and land use features inherent to the site, and a range of transportation demand management programs. In addition to the Project, a "Comparable Project" was studied in order to compare the project's transportation efficiency.

Through a combination of high quality walkable urbanism, a logistics center, and investment in a comprehensive transportation demand management program, the Project significantly reduces vehicle trips in comparison to the Comparable Project and exceeds the transportation efficiency requirement under AB 900 to achieve a standard of 15 percent or greater for transportation efficiency than comparable projects. The transportation efficiency is determined by the number of vehicle trips generated by the project in relation to the total number of person trips. As shown in Figure 1, the Project achieves a range of 17.7% to 24.4% reduction from a Comparable Project.

Figure 1: Transportation Efficiency by Phase

Project	Phase 1 Transportation Efficiency	Phase 2 Transportation Efficiency	Phase 3 Transportation Efficiency
Variant A	0.447	0.459	0.444
Variant A Comparable	0.568	0.558	0.552
Reduction from Comparable Project	21.2%	17.8%	19.5%
Variant B	0.430	0.459	0.445
Variant B Comparable	0.569	0.558	0.553
Reduction from Comparable Project	24.4%	17.7%	19.4%

Figure 2: Vehicle Miles Traveled by Phase

Project	Phase 1 Vehicle Miles Traveled	Phase 2 Vehicle Miles Traveled	Phase 3 Vehicle Miles Traveled
Variant A	67,306,186	165,908,475	220,737,109
Variant B	54,756,862	166,602,375	216,898,479

See Appendix B for complete table of vehicle miles traveled by year

Project Location

The Project is located immediately adjacent to San Jose Diridon Station in downtown San Jose. The project location is in an area generally bounded by Lenzen Avenue and the Union Pacific railroad tracks to the north; North Montgomery Street, Los Gatos Creek, the Guadalupe River, South Autumn Street, and Royal Avenue to the east; Auzerais Avenue to the south; and Sunol Avenue, Diridon Station and rail tracks to the west.The project also includes the area generally bounded by Los Gatos Creek to the west, San Fernando Street to the south, the Guadalupe River to the east, and Santa Clara Street to the north. As shown in Figure 3, the majority of the site is within a 10-minute walk of the Diridon station, on parcels totaling approximately 80 acres extended almost 1.5 miles in length from north to south and between 500 and 1,800 feet in width.

Diridon Station is San Jose's main transportation hub, bringing together regional rail services (Caltrain, ACE), light rail, and local and regional bus services. In the future the BART system will connect to Diridon from Warm Springs (Fremont) via Berryessa and Alum Rock. These services provide a wide range of transportation choices for people working or living nearby.

Figure 3: Project Location and Conceptual Site Plan

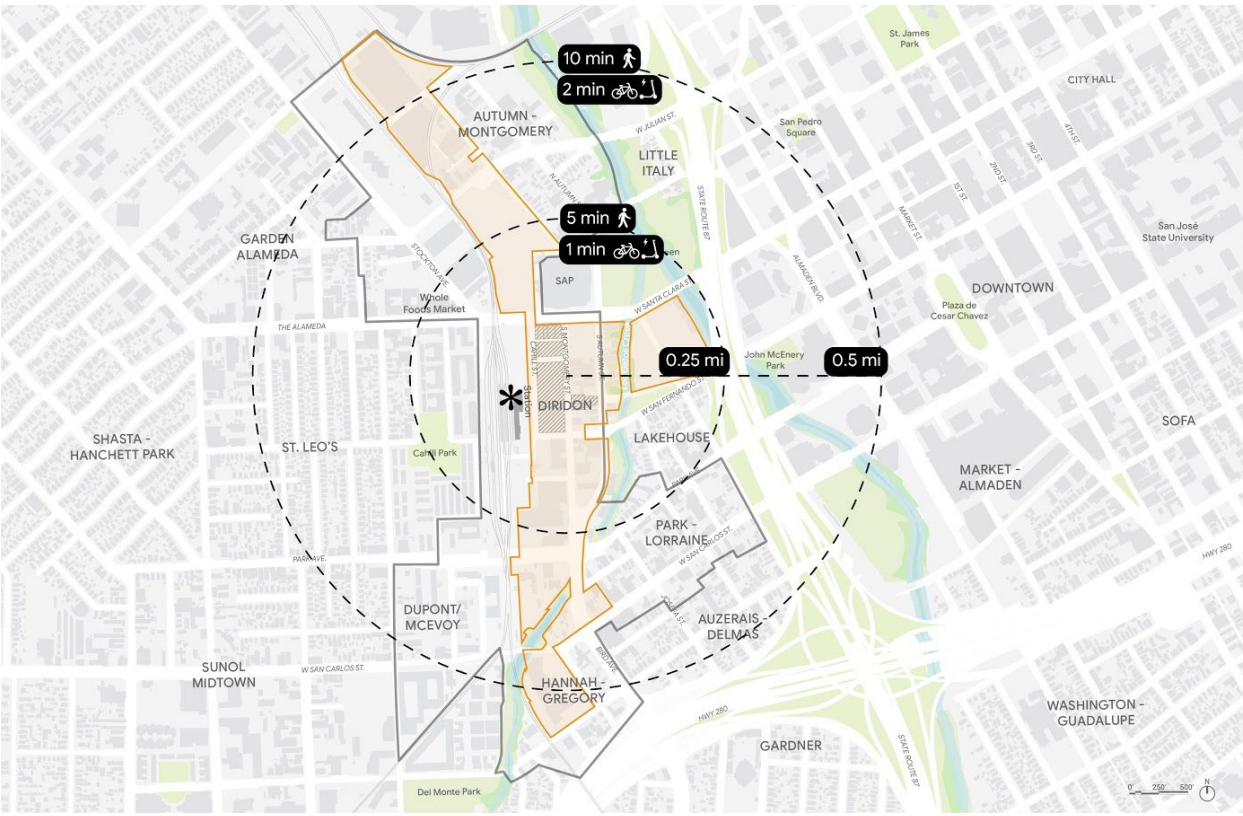


Image: SITELAB Urban Studio

Existing Land Uses on Project Site

The project site contains a mix of existing land uses including mostly light industrial uses, interspersed with smaller amounts of retail, restaurants, and residential.

The existing street network is typical of its low density, light industrial heritage, with many wide, high-speed streets, large block sizes, and large surface parking lots. While some streets have been retrofitted with bicycle facilities, overall street design and low-density creates a less walkable landscape that emphasizes vehicle throughput.

The table in Figure 4 shows the annual trips and vehicle miles traveled associated with existing development, based on City of San Jose trip generation rates and trip lengths by land use and trip type from CalEEMod.

Figure 4: Existing Trips and Vehicle Miles Traveled

Land Use	Annual Trips	Annual VMT
Multifamily buildings	28,470	203,447
Single family homes	10,841	77,466
Commercial	1,417,591	10,856,759
Office	58,333	468,184
Light Industrial	575,941	4,951,943
Land	0*	0*
Surface parking	0**	0**

* Vacant land does not generate any trips.
** Surface parking is assumed not to generate trips. See “Non-Trip Generating Land Uses” below.

Project Description

Two variants of the Project were evaluated, each with similar, but slightly differing, amounts of the following land uses. A table following the land use descriptions summarizes the amounts and phasing of each land use (see Figure 5).

Office

The project includes a range of 5.5 million, up to 7.1 or 7.3 million square feet of office space at full buildout, depending on the variant.

Residential

The residential component includes a range of 3,000, up to 5,700 or 5,900 housing units at full buildout, depending on the variant.

Hotel

The project includes a 300-room hotel on site, in proximity to the office, event center and residential land uses, in addition to offsite land uses such as the SAP center. The project will also include up to 800 rooms of limited-term corporate accommodations. Terms of stay for such accommodations are anticipated to range from short-term (one day, up to a week), to longer-term stays (over a week). For purposes of this analysis, limited-term employee accommodations are conservatively analyzed as hotel use, which generates more trips than residential use.

Retail

The project includes up to 500,000 square feet of active, ground-floor uses to support the office and residential land uses. Active ground-floor uses may include retail, restaurant, arts, cultural, institutional, educational, and small-format office uses. For purposes of this analysis, these uses are conservatively analyzed together as retail use.

Event center

The event center will be a year-round, flexible facility to accommodate a variety of event functions that support Google businesses and local partnerships. Typical events could include: product launches/announcements, corporate meetings, conferences, seminars, small conventions, and screenings. The venue will be located proximal to a large population of the Google San Jose workforce, be in proximity to the SAP Center, and have convenient access to

multiple modes of transportation. Trip assumptions for the event center are based on Google data for a similar event center in Sunnyvale, California.

Non-Trip Generating Land Uses

The site consolidates several services into stand-alone facilities, including a district systems facility (thermal/water utilities) and a consolidated logistics hub for receiving deliveries. These facilities are both anticipated to be 100,000 square feet each. Trip generation rates include all trip types to a given land use, including service and delivery trips. While service and delivery functions are typically integrated into the land use, we have conservatively assumed that consolidated facilities would generate an equal number of trips to integrated facilities. Through efficiencies of scale the actual number of trips generated could be lower for centralized facilities than for distributed systems. The logistics hub is described in greater detail under Project Related Trip Reduction.

In addition, vacant lots and surface parking in the study area are assumed not to generate trips. Trip generation rates are drawn from the City of San Jose Transportation Impact Analysis Guidelines and the Institute of Transportation Engineers Trip Generation Manual. In both of these sources, parking is not considered a trip generating land use because its only function is to serve the associated land use and accommodate the vehicle trips generated by that land use. As part of the project's development, there would be a comprehensive removal and replacement effort for existing parking spaces on-site, resulting in the provision of up to 3,650 public parking stalls. These parking stalls will be public, and are anticipated to continue serving existing offsite uses, in addition to the new uses proposed. The project will have no impact on SAP center operations.

Transportation impacts were modeled based on the project being constructed in three phases, shown below in Figure 5. The phasing is illustrative, and could occur in a different order or concurrently. In order to be conservative, the modeled land use program was selected to be as aggressive and impactful as possible.

Figure 5: Table of Land Uses by Phase

Land Use		Variant A	Variant B	Units
Office	Phase 1 (4 years)	2,600	2,600	thousand gsf
	Phase 2 (4 years)	2,600	2,600	thousand gsf
	Phase 3 (4 years)	2,100	1,900	thousand gsf
Residential	Phase 1 (4 years)	2,000	1,300	Units
	Phase 2 (4 years)	2,300	3,100	Units
	Phase 3 (4 years)	1,600	1,300	Units
Hotel	Phase 1 (4 years)			rooms
	Phase 2 (4 years)			rooms
	Phase 3 (4 years)	300	300	rooms
Limited-term Corporate Accommodations	Phase 1 (4 years)	250	250	rooms
	Phase 2 (4 years)	250	250	rooms
	Phase 3 (4 years)	300	300	rooms
Retail	Phase 1 (4 years)	100	60	thousand gsf
	Phase 2 (4 years)	280	320	thousand gsf
	Phase 3 (4 years)	120	120	thousand gsf
Event Facility	Phase 1 (4 years)			thousand gsf
	Phase 2 (4 years)			thousand gsf
	Phase 3 (4 years)	100	100	thousand gsf

Comparable Project

In order to assess the project's transportation efficiency, a baseline scenario called the Comparable Project was created. The Comparable Project and the Project are assumed to have the same size, mix of land uses, and location. What differentiates the Project from the Comparable Project are Google's commitment to providing its employees with transportation alternatives through transportation demand management programs and support for public transit, its commitment to quality urban design and creating a more fine grained street network, and a consolidated logistics center that would reduce delivery trips.

How each of these features influence travel patterns is explained in the Trip Reduction section below.

Figure 6: Project and Comparable Project Features

Features	Project	Comparable Project
Size	=	=
Land Uses	=	=
Location	=	=
Proximity to transit	=	=
Transportation Demand Management	+	
Quality urban design	+	
Fine-grained street network	+	
Consolidated logistics/district systems	+	

Trip Generation

The Trip Generation Manual by the Institute of Transportation Engineers (ITE) is the industry standard for trip generation rates. However, ITE's trip generation rates are based on sites throughout the country, many of them in suburban locations with no transportation choices beyond driving. These rates give a baseline for the total number of trips generated, but in locations with more transportation choices the ITE recommends adjusting for the presence of transportation alternatives using local mode choice data in order to obtain vehicle trips. Baseline project trip generation was based on the City of San Jose's Transportation Impact Guidelines (2009) to harmonize with the Environmental Impact Analysis. Where the City of San Jose's Transportation Guidelines did not have data, the sources are indicated below.

Figure 7: Trip Generation Rates by Land Use

Land Use	Source	Trip Generation Rates (daily)	Units
Office	San Jose TIA Guidelines 2009	11	trips/1,000 sq.ft.
Residential	San Jose TIA Guidelines 2009	6	trips/unit
Hotel	ITE 310 Hotel, dense multi-use urban, extrapolated from PM peak hour, typically 10% of daily	3.9	trips/room
Retail	San Jose TIA Guidelines 2009	120	trips/1,000 sq.ft.
Event facility	Based on data from an existing Google event space in Sunnyvale	7.5	trips/1,000 sq.ft.

Annual Person and Vehicle Trips

Total person trips were generally modeled in the following way:

$$APT = \Sigma_i(TripGenRate_i \times Units_i) \times Days$$

Where:

- APT = Annual Person Trips, total trips to a land use using all transportation modes
- $TripGenRate_i$ = the trip generation rate for land use i, as described above
- Units = the trip generation rate denominator, typically square feet for commercial uses or units for residential uses
- i = summation index
- Days = Annual working days (240) for non-residential uses, or 365 for residential uses

The total annual vehicle trips were calculated in a similar fashion, but subtracting the various trip reductions as described in the following Trip Reduction section.

$$AVT = \Sigma_i(TripGenRate_i \times Units_i \times (1\text{-}PercentReductions_i) - FixedReductions_i) \times Days$$

Where:

- APT = Annual Person Trips, total trips to a land use using all transportation modes
- $TripGenRate_i$ = the trip generation rate for land use i, as described above
- Units = the trip generation rate denominator, typically square feet for commercial uses or units for residential uses
- $PercentReductions_i$ = reductions applicable to land use i. E.g. internal trip capture, proximity to transit, TDM. See summary in Figure 7 of which reductions apply to which land uses.
- FixedReductions = Reductions where the specific number of trips reduced is known, such as number of employees living onsite in limited term accommodations, or logistics center trips eliminated
- i = summation index
- Days = Annual working days (240) for non-residential uses, or 365 for residential uses

Figure 8: Summary Overview of Trip Generation

Project	Annual Trips Phase 1	Annual Trips Phase 2	Annual Trips Phase 3
Existing Person	1,903,311		
Variant A Person	15,858,000	40,257,000	55,302,600
Variant A Auto	7,095,159	18,470,107	24,573,045
Com. Project A Person	15,858,000	40,257,000	55,302,600
Comp. Project A Auto	9,001,016	22,458,893	30,520,610
Variant B Person	12,573,000	40,476,000	54,336,600
Variant B Auto	5,409,934	18,567,211	24,192,862
Comp. Project B Person	12,573,000	40,476,000	54,009,000
Comp. Project B Auto	7,157,950	22,571,070	29,849,037

See Appendix A for complete annual person and vehicle trips by project year.

Trip Reduction

The Project location, immediately adjacent to the Diridon station and downtown San Jose, leads to a large reduction in auto trips. Diridon station is San Jose's largest transit hub, providing a wide range of regional and local bus and rail transit providers. Further trip reductions are associated with characteristics inherent to the site such as density, the mix of complementary land uses, and pedestrian-friendly urban design. The planned logistics hub to consolidate delivery trips is also captured.

In addition to the trip reduction associated with location and site characteristics, office and residential trips would be reduced through transportation demand management programs. Google's commitment to reducing trips is exemplified at its headquarters in Mountain View. There, in a completely suburban and car-centric context, Google's shuttles attract 31% mode share, a key part of reducing drive-alone rates from an expected 85% to 45%.

The modeling of both types of trip reduction is described in the following sections.

Figure 9 summarizes the total trip reduction from all sources compared to the existing condition auto mode share in the Project's zip code, including reductions from land-use related features of the project, the project's logistics center, and the project's transportation demand management programs.

Figure 9: Summary of Trip Reduction

Type of Reduction	Trip Reduction*
Total Reduction, all sources, Project	44-48%
Total Reduction, all sources, Comparable Project	31-33%

* Varies by phase and land use variant

The table in Figure 10 shows which trip reduction measures apply to the various land use types. Note that the mix of land uses and proximity to transit also apply to the comparable project, but are still included since the Project's attention to urban design and walkability result in greater reductions.

Figure 10: Trip Reductions by Land Use Type

Trip Reduction	Office	Residential	Hotel	Retail	Event Facility
Mix of Land Uses (Internal Trip Capture)	✔ (✔)	✔ (✔)	✔ (✔)	✔ (✔)	✔ (✔)
Proximity to Transit	✔ (✔)	✔ (✔)	✔ (✔)	✔ (✔)	✔ (✔)
TDM	✔	✔			
Limited-term corporate accommodations/ hotel	✔		✔*		✔
Delivery Consolidation	✔				✔

✔ = Project, (✔) = Comparable Project
* reduction for weekday trips only

Mix of Land Uses (Internal Trip Capture)

Internal trip capture refers to vehicle trips avoided through facets of a project development, for example through a mix of compatible land uses within walking distance. The Project achieves internal trip capture both through its mix of land uses, physical design, and provision of on site housing.

Mix of Land Uses

Where a single development contains a mix of different land uses within walking distance, the total number of trips generated by the development may be lower than the sum of trips generated by each land use. The number of trips reduced depends on the exact mix of land uses, since some land uses in combination result in greater efficiency than others. The reduction between land uses also depends on quality urban design and a fine grained network of streets - short blocks with safe and welcoming pedestrian facilities will reduce trips more than a low density area with limited pedestrian facilities. The Project would subdivide some of the existing large blocks with new internal streets, adding up to 16 new intersections to the project area.

The model uses a percentage reduction calculated using the Mixed-Use Trip Generation Tool developed by the EPA[1]. The tool indicates a reduction of 18% in phase 1, 20% in phase 2, and 22% in phase 3.

[1] https://www.epa.gov/smartgrowth/mixed-use-trip-generation-model

For the Comparable Project, which retains the existing low-density parcels and grid, and is less pedestrian friendly, the tool indicates a reduction of 14% in phase 1, 16% in phase 2, and 17% in phase 3.

Employees and Visitors Staying Onsite

In addition to the mix of land uses, it is anticipated that the hotel uses, as well as limited-term corporate accommodations, will largely support the offices and event space on site. Employees and visitors staying at these locations would be within a short walk of their destinations, and therefore would not need to drive to work. No vehicle trips are assumed for these uses.

Proximity to Transit

A walkable development with a mix of uses in close proximity to high-frequency regional transit will see significant reductions in auto trips. According to the CAPCOA quantification report[2], possible trip reduction is strongly correlated with walking distance to the station and ranges from 0.5 - 24.6%. Given the Project's distribution parallel to the north-south rail alignment, the majority of the development is within 0.5 miles of the station. The development closest to the station will experience the greatest reduction, with the uses furthest away seeing less reduction. For the purposes of the analysis, the average distance to the station was taken to be 0.25 mile resulting in an average trip reduction of 17.1%.

Consolidated Logistics Center

The majority of deliveries to the project's office and associated uses will not be delivered directly to the site, but to a nearby logistics center where deliveries from multiple vendors will be consolidated into combined shipments to reduce the number of delivery vehicles to the site. From the onsite delivery hub, deliveries to individual offices would be carried out using small natural gas or electric trucks. According to modeling carried out by Arup, the impact of the consolidated logistics center will be to reduce the number of truck deliveries by approximately 50%, from 1,200 deliveries per day to 600 at full buildout.

This effect was incorporated in the model by subtracting the number of truck trips eliminated from total office trips, prorated by the amount of office provided in each phase, up to a total of 600 trips eliminated.

[2] LUT-5 Transit Proximity, "Quantifying Greenhouse Gas Mitigation Measures", California Air Pollution Control Officers Association, 2010. Note that per introductory language in the report, in applications where trip length is constant, percentage trip reductions equal the percentage reductions in greenhouse gas emissions.

Transportation Demand Management Modeling

Google has a long history of successful transportation demand management programs, achieving drive alone mode shares substantially below the average mode shares at existing campuses in Mountain View and Sunnyvale. Its programs are constantly evolving to adjust to market demands, new technologies, and employee home locations, and will continue to evolve to meet the demands of this project.

The trip reduction potential for each strategy was modeled using data and methodology from the California Air Pollution Officers Association (CAPCOA) “Quantifying Greenhouse Gas Mitigation Measures” (2010). The range of strategies modeled here are illustrative examples of possible ways to achieve the necessary mode splits based on existing Google programs. The modeling demonstrates that there are a variety of transportation demand management strategies that can enable employees to get to work while leaving their cars at home.

Transportation Demand Management Strategies

Office Transportation Demand Management

Strategies that were evaluated and may be part of a future transportation demand management program for office uses include three highly impactful strategies: subsidized transit passes, market-rate workplace parking, and express buses. These core strategies would result in a combined trip reduction of 33%[3]. Beyond the three most impactful strategies studied: additional TDM strategies listed below have had extremely successful results in other Google locations. These are anticipated to be explored at the project. Though are not modeled in this analysis, Google is committed to bringing a full suite of strategies beyond those modeled in this analysis.

- Park + Ride
- Waze carpool
- Commuter bike on-ramp programs
- Emergency Ride Home
- Bikesharing programs
- TDM coordinator
- Reduced parking supply

There are additional supporting strategies, such as TDM program marketing and end-of-trip facilities for cyclists, that might be part of a comprehensive program but their effects are more limited and not included here. The core office TDM strategies are further described below:

[3] Note that trip reduction is not additive, because each strategy reduces the baseline from which the next strategy begins. Hence the total reduction is: 1 - (1-12%)*(1-19.7%)*(1-4.7%) = 33%. (Rather than 12% + 19.7% + 4.7% = 36.4%)

- Transit Passes: Providing subsidized transit passes can be particularly effective for locations such as that of the Project, which is in immediate proximity to high frequency transit and where a large number of employees live within a reasonable distance of transit stops. Based on an analysis of projected employee home locations it would be possible for a large number of employees to commute using transit - around 20% would live within walking distance, and up to 60% live within convenient range if transit passes are combined with subsidized coverage of first/last mile trips. Based on CAPCOA[4], this strategy would result in a 12% reduction in drive alone commute trips.

- Market-Rate Workplace Parking: Free workplace parking, commonplace in the United States, is particularly effective at encouraging employees to drive to work. The project would provide public parking charged at market rates, a powerful trip reduction measure in urban locations with a plethora of transportation choices (a small amount of employer parking is nevertheless anticipated for such uses as expectant mother parking, accessible parking, and the like). Based on CAPCOA[5], this strategy would result in a 19.7% reduction in drive alone commute trips.

- Express Buses: Rapid bus transit could be implemented in several different ways, either through shuttles or through public/private partnerships. Implementing express bus services between Diridon and areas with high densities of employee home locations not easily accessible to existing high-frequency transit could result in up to 4.7% reduction in drive-alone rates[6]. This implementation assumes that express bus routes would not duplicate existing high quality transit options such as BART or Caltrain.

Residential Transportation Demand Management

The residential component of the project will include the following transportation demand management measures:

- Parking ratio of 0.4 spaces/unit (below city requirements and ITE assumptions)
- Unbundled parking
- On-site transportation coordinator
- Marketing - encouragement and incentives to residents

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[4] TRT-4 Subsidized Transit Program, “Quantifying Greenhouse Gas Mitigation Measures”, California Air Pollution Control Officers Association, 2010. Note that per introductory language in the report, in applications where trip length is constant, percentage trip reductions equal the percentage reductions in greenhouse gas emissions.
[5] TRT-14 Price Workplace Parking, “Quantifying Greenhouse Gas Mitigation Measures”, California Air Pollution Control Officers Association, 2010. Note that per introductory language in the report, in applications where trip length is constant, percentage trip reductions equal the percentage reductions in greenhouse gas emissions.
[6] TRT-11 Provide Employer-Sponsored Vanpool/Shuttle, “Quantifying Greenhouse Gas Mitigation Measures”, California Air Pollution Control Officers Association, 2010. Note that per introductory language in the report, in applications where trip length is constant, percentage trip reductions equal the percentage reductions in greenhouse gas emissions.

- Technology-based services to encourage transit, walking, biking
- Transit-pass program
- Car-share subsidy
- Bike storage/parking
- Access to bike share & scooter share

Utilizing the CAPCOA methodologies for parking supply reduction (PDT-1), unbundled parking (PDT-2) and commute trip reduction incentives (TRT-1), the residential transportation demand management program would result in a combined residential trip reduction of 19%.

Transportation Efficiency

Transportation efficiency is a measure of the number of vehicle trips generated by a project in relation to the total number of person trips generated by the project, and is used as a way to compare how successful different projects have been at reducing vehicle trips through programs such as transportation demand management. Transportation efficiency is defined by Assembly Bill 246, the "Environmental Quality: Jobs and Economic Improvement Through Environmental Leadership Act" of 2011 as follows:

> *Section 1, 21180 "(b)(1) A residential, retail, commercial, sports, cultural, entertainment, or recreational use project that is certified as LEED gold or better by the United States Green Building Council and, where applicable, that achieves a 15-percent greater standard for transportation efficiency than for comparable projects."*
>
> *Section 1, 21180 "(c) Transportation efficiency" means the number of vehicle trips by employees, visitors, or customers of the residential, retail, commercial, sports, cultural, entertainment, or recreational use project divided by the total number of employees, visitors, and customers."*[7]

Summary

Figures 11-13, below, summarize the resulting transportation efficiencies for project variants A and B, and the comparable project, through each phases of the project. Note that both variants A and B achieve transportation efficiencies more than 15% below that of the comparable project through all phases of the project.

Figure 11: Transportation Efficiency of Project and Comparable Project, Phase 1

Project	Annual Vehicle Trips	Annual Person Trips	Transportation Efficiency
Variant A	7,095,159	15,858,000	0.447
Comp. Project A	9,001,016	15,858,000	0.568
Reduction from Comp. Project A			21.2%
Variant B	5,409,934	12,573,000	0.430
Comp. Project B	7,157,950	12,573,000	0.569
Reduction from Comp. Project B			24.4%

[7] https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB246

Figure 12: Transportation Efficiency of Project and Comparable Project, Phase 2

Project	Annual Vehicle Trips	Annual Person Trips	Transportation Efficiency
Variant A	18,470,107	40,257,000	0.459
Comp. Project A	22,458,893	40,257,000	0.558
Reduction from Comp. Project A			17.8%
Variant B	18,567,211	40,476,000	0.459
Comp. Project B	22,571,070	40,476,000	0.558
Reduction from Comp. Project B			17.7%

Figure 13: Transportation Efficiency of Project and Comparable Project, Phase 3

Project	Annual Vehicle Trips	Annual Person Trips	Transportation Efficiency
Variant A	24,573,045	55,302,600	0.444
Comp. Project A	30,520,610	55,302,600	0.552
Reduction from Comp. Project A			19.5%
Variant B	24,192,862	54,336,600	0.445
Comp. Project B	29,849,037	54,009,000	0.553
Reduction from Comp. Project B			19.4%

Vehicle Miles Traveled

Annual vehicle miles traveled was calculated for each project year based on the above trip generation analysis, and the following methodology. The vehicle miles traveled were utilized by ARUP to calculate annual mobile source greenhouse gas emissions for the Project.

Methodology

Annual vehicle miles traveled was generally calculated as follows for each land use and trip type:

$$VMT = \Sigma_i(AAT \times Dtrip_i)$$

- AAT = Average Annual Trips (trips/year), as described above
- Dtrip = Trip Distance (miles/trip), as described in the following section
- i = summation index for each land use/trip type

Trip Distances

Trip distances for different trip purposes were taken from CalEEMod, however employee commute distances were taken from the Metropolitan Transportation Commission's Plan Bay Area 2040 regional model[8] because they more closely match employee commute patterns to existing offices, and Google will continue to be an employer that attracts employees from the entire region. The Metropolitan Transportation Commission (MTC) model provided trip distance projections for 2020, 2030 and 2040. Linear interpolation was assumed for intermediate years, and years beyond 2040. The MTC model also assumes gradually reduced trip distances as the Bay Area grows and becomes denser over the coming decades.

Figure 14: Plan Bay Area 2040 Trip Distances

Trip Type	2020 (Existing)	2030	2040
Work trips (VMT_Workers)	25.7385	24.69721	24.44823
Residential trips (VMT_Capita)	18.31556	17.26181	17.10044

Source: MTC Plan Bay Area 2040

[8] Metropolitan Transportation Commission, "Plan Bay Area 2040: Final Supplemental Report," accessed July 29, 2019, https://github.com/BayAreaMetro/modeling-website/wiki/PlanBayArea2040)

These distances are significantly longer than those used in the CalEEMod model, however they more closely resemble actual employee commute distances from existing office sites that attract employees from throughout and beyond the Bay Area.
In the following tables, the following trip types are abbreviated as follows: Home - Work (H-W), Home - Shop (H-S), Home - Other (H-O), Commercial - Work (C-W), Commercial - Customer (C-C), and Commercial - Nonwork (C-NW).

Figure 15: CalEEMod Trip Distances

	Miles			Trip %		
Land Use	**H-W or C-W**	**H-S or C-C**	**H-O or C-NW**	**H-W or C-W**	**H-S or C-C**	**H-O or C-NW**
Apartments Mid Rise	10.8	4.8	5.7	31	15	54
General Office Building	9.5	7.3	7.3	33	48	19
Regional Shopping Center	9.5	7.3	7.3	16.3	64.7	19
Hotel	9.5	7.3	7.3	19.4	61.6	19
Event Center	9.5	7.3	7.3	33	48	19

Source: CalEEMod 2016.3.2

Figure 16: Trip Distances as Modeled

	Miles			Trip %		
Land Use	**H-W or C-W**	**H-S or C-C**	**H-O or C-NW**	**H-W or C-W**	**H-S or C-C**	**H-O or C-NW**
Apartments Mid Rise	10.8	4.8	5.7	31	15	54
General Office Building	**25.7385***	7.3	7.3	33	48	19
Regional Shopping Center	9.5	7.3	7.3	16.3	64.7	19
Hotel	9.5	7.3	7.3	19.4	61.6	19
Event Center	9.5	7.3	7.3	33	48	19

Source: CalEEMod 2016.3.2 and *MTC Plan Bay Area 2040

Vehicle Miles Traveled by Project Year

Vehicle miles traveled were calculated for each project year using the methodology described above. See Appendix B for vehicle miles traveled by project year.

Appendix A

Annual Person and Project Trips by Year

Annual Person & Project Trips by Year

Variant A, Total Annual Person Trips						
	Office	Residential	Hotel	Retail	Event facility	Total
2024	6,864,000	4,380,000	234,000	4,380,000	0	15,858,000
2025	6,864,000	4,380,000	234,000	4,380,000	0	15,858,000
2026	6,864,000	4,380,000	234,000	4,380,000	0	15,858,000
2027	6,864,000	4,380,000	234,000	4,380,000	0	15,858,000
2028	13,728,000	9,417,000	468,000	16,644,000	0	40,257,000
2029	13,728,000	9,417,000	468,000	16,644,000	0	40,257,000
2030	13,728,000	9,417,000	468000	16,644,000	0	40,257,000
2031	13,728,000	9,417,000	468000	16,644,000	0	40,257,000
2032	19,272,000	12,921,000	1029600	21,900,000	180000	55,302,600
2033	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2034	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2035	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2036	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2037	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2038	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2039	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2040	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2041	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2042	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2043	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2044	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2045	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2046	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2047	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2048	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2049	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2050	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2051	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2052	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600
2053	19,272,000	12,921,000	1,029,600	21,900,000	180,000	55,302,600

2054	12,408,000	8,541,000	795,600	17,520,000	180,000	39,444,600
2055	12,408,000	8,541,000	795,600	17,520,000	180,000	39,444,600
2056	12,408,000	8,541,000	795,600	17,520,000	180,000	39,444,600
2057	12,408,000	8,541,000	795,600	17,520,000	180,000	39,444,600
2058	5,544,000	3,504,000	561,600	5,256,000	180,000	15,045,600
2059	5,544,000	3,504,000	561,600	5,256,000	180,000	15,045,600
2060	5,544,000	3,504,000	561,600	5,256,000	180,000	15,045,600

Variant A Annual Auto Trips						
	Office	**Residential**	**Hotel**	**Retail**	**Event facility**	**Total**
2024	2,501,244	1,990,616	132,027	2,471,272	0	7,095,159
2025	2,501,244	1,990,616	132,027	2,471,272	0	7,095,159
2026	2,501,244	1,990,616	132,027	2,471,272	0	7,095,159
2027	2,501,244	1,990,616	132,027	2,471,272	0	7,095,159
2028	4,875,266	4,175,439	257,613	9,161,790	0	18,470,107
2029	4,875,266	4,175,439	257,613	9,161,790	0	18,470,107
2030	4,875,266	4,175,439	257,613	9,161,790	0	18,470,107
2031	4,875,266	4,175,439	257,613	9,161,790	0	18,470,107
2032	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2033	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2034	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2035	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2036	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2037	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2038	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2039	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2040	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2041	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2042	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2043	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2044	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2045	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2046	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045

2047	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2048	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2049	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2050	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2051	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2052	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2053	6,584,385	5,585,863	552,581	11,753,612	96,605	24,573,045
2054	4,198,363	3,692,350	426,994	9,402,889	96,605	17,817,202
2055	4,198,363	3,692,350	426,994	9,402,889	96,605	17,817,202
2056	4,198,363	3,692,350	426,994	9,402,889	96,605	17,817,202
2057	4,198,363	3,692,350	426,994	9,402,889	96,605	17,817,202
2058	1,812,341	1,514,810	301,408	2,820,867	96,605	6,546,031
2059	1,812,341	1,514,810	301,408	2,820,867	96,605	6,546,031
2060	1,812,341	1,514,810	301,408	2,820,867	96,605	6,546,031

Variant B Annual Person Trips						
	Office	**Residential**	**Hotel**	**Retail**	**Event facility**	**Total**
2024	6,864,000	2,847,000	234,000	2,628,000	0	12,573,000
2025	6,864,000	2,847,000	234,000	2,628,000	0	12,573,000
2026	6,864,000	2,847,000	234,000	2,628,000	0	12,573,000
2027	6,864,000	2,847,000	234,000	2,628,000	0	12,573,000
2028	13,728,000	9,636,000	468,000	16,644,000	0	40,476,000
2029	13,728,000	9,636,000	468,000	16,644,000	0	40,476,000
2030	13,728,000	9,636,000	468,000	16,644,000	0	40,476,000
2031	13,728,000	9,636,000	468,000	16,644,000	0	40,476,000
2032	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2033	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2034	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2035	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2036	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2037	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2038	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2039	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600

2040	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2041	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2042	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2043	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2044	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2045	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2046	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2047	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2048	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2049	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2050	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2051	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2052	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2053	18,744,000	12,483,000	1,029,600	21,900,000	180,000	54,336,600
2054	11,880,000	9,636,000	795,600	19,272,000	180,000	41,763,600
2055	11,880,000	9,636,000	795,600	19,272,000	180,000	41,763,600
2056	11,880,000	9,636,000	795,600	19,272,000	180,000	41,763,600
2057	11,880,000	9,636,000	795,600	19,272,000	180,000	41,763,600
2058	5,016,000	2,847,000	561,600	5,256,000	180,000	13,860,600
2059	5,016,000	2,847,000	561,600	5,256,000	180,000	13,860,600
2060	5,016,000	2,847,000	561,600	5,256,000	180,000	13,860,600

Variant B Annual Auto Trips						
	Office	Residential	Hotel	Retail	Event facility	**Total**
2024	2,501,244	1,293,900	132,027	1,482,763	0	5,409,934
2025	2,501,244	1,293,900	132,027	1,482,763	0	5,409,934
2026	2,501,244	1,293,900	132,027	1,482,763	0	5,409,934
2027	2,501,244	1,293,900	132,027	1,482,763	0	5,409,934
2028	4,875,266	4,272,542	257,613	9,161,790	0	18,567,211
2029	4,875,266	4,272,542	257,613	9,161,790	0	18,567,211
2030	4,875,266	4,272,542	257,613	9,161,790	0	18,567,211
2031	4,875,266	4,272,542	257,613	9,161,790	0	18,567,211
2032	6,393,553	5,396,512	552,581	11,753,612	96,605	24,192,862

2033	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2034	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2035	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2036	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2037	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2038	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2039	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2040	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2041	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2042	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2043	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2044	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2045	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2046	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2047	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2048	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2049	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2050	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2051	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2052	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2053	6,239,953	5,396,512	552,581	11,753,612	96,605	24,039,262
2054	3,853,931	4,165,728	426,994	10,343,178	96,605	18,886,436
2055	3,853,931	4,165,728	426,994	10,343,178	96,605	18,886,436
2056	3,853,931	4,165,728	426,994	10,343,178	96,605	18,886,436
2057	3,853,931	4,165,728	426,994	10,343,178	96,605	18,886,436
2058	1,467,908	1,230,783	301,408	2,820,867	96,605	5,917,571
2059	1,467,908	1,230,783	301,408	2,820,867	96,605	5,917,571
2060	1,467,908	1,230,783	301,408	2,820,867	96,605	5,917,571

Appendix B

Vehicle Miles Traveled by Year

Vehicle Miles Traveled by Project Year

Variant A VMT						
	Office	Residential	Hotel	Retail	Event facility	Total
2024	33,134,613	14,224,942	1,020,145	18,926,485	0	67,306,186
2025	33,048,664	14,224,942	1,020,145	18,926,485	0	67,220,237
2026	32,962,714	14,224,942	1,020,145	18,926,485	0	67,134,287
2027	32,876,765	14,224,942	1,020,145	18,926,485	0	67,048,338
2028	63,913,781	29,837,684	1,990,527	70,166,482	0	165,908,475
2029	63,746,255	29,837,684	1,990,527	70,166,482	0	165,740,948
2030	63,578,728	29,837,684	1,990,527	70,166,482	0	165,573,422
2031	63,538,671	29,837,684	1,990,527	70,166,482	0	165,533,365
2032	85,759,289	39,916,576	4,269,681	90,016,211	775,352	220,737,109
2033	85,705,189	39,916,576	4,269,681	90,016,211	775,352	220,683,009
2034	85,651,090	39,916,576	4,269,681	90,016,211	775,352	220,628,910
2035	85,596,990	39,916,576	4,269,681	90,016,211	775,352	220,574,810
2036	85,542,891	39,916,576	4,269,681	90,016,211	775,352	220,520,711
2037	85,488,791	39,916,576	4,269,681	90,016,211	775,352	220,466,611
2038	85,434,691	39,916,576	4,269,681	90,016,211	775,352	220,412,512
2039	85,380,592	39,916,576	4,269,681	90,016,211	775,352	220,358,412
2040	85,326,492	39,916,576	4,269,681	90,016,211	775,352	220,304,312
2041	85,272,393	39,916,576	4,269,681	90,016,211	775,352	220,250,213
2042	85,218,293	39,916,576	4,269,681	90,016,211	775,352	220,196,113
2043	85,164,194	39,916,576	4,269,681	90,016,211	775,352	220,142,014
2044	85,110,094	39,916,576	4,269,681	90,016,211	775,352	220,087,914
2045	85,055,995	39,916,576	4,269,681	90,016,211	775,352	220,033,815
2046	85,001,895	39,916,576	4,269,681	90,016,211	775,352	219,979,715
2047	84,947,796	39,916,576	4,269,681	90,016,211	775,352	219,925,616
2048	84,893,696	39,916,576	4,269,681	90,016,211	775,352	219,871,516
2049	84,839,596	39,916,576	4,269,681	90,016,211	775,352	219,817,417
2050	84,785,497	39,916,576	4,269,681	90,016,211	775,352	219,763,317
2051	84,731,397	39,916,576	4,269,681	90,016,211	775,352	219,709,217
2052	84,677,298	39,916,576	4,269,681	90,016,211	775,352	219,655,118

2053	84,623,198	39,916,576	4,269,681	90,016,211	775,352	219,601,018
2054	53,923,300	26,385,533	3,299,299	72,012,969	775,352	156,396,453
2055	53,888,805	26,385,533	3,299,299	72,012,969	775,352	156,361,958
2056	53,854,310	26,385,533	3,299,299	72,012,969	775,352	156,327,463
2057	53,819,815	26,385,533	3,299,299	72,012,969	775,352	156,292,968
2058	23,217,939	10,824,834	2,328,917	21,603,891	775,352	58,750,933
2059	23,203,048	10,824,834	2,328,917	21,603,891	775,352	58,736,042
2060	23,188,157	10,824,834	2,328,917	21,603,891	775,352	58,721,151

Variant B VMT						
	Office	**Residential**	**Hotel**	**Retail**	**Event facility**	**Total**
2024	33,134,613	9,246,213	1,020,145	11,355,891	0	54,756,862
2025	33,048,664	9,246,213	1,020,145	11,355,891	0	54,670,913
2026	32,962,714	9,246,213	1,020,145	11,355,891	0	54,584,963
2027	32,876,765	9,246,213	1,020,145	11,355,891	0	54,499,014
2028	63,913,781	30,531,584	1,990,527	70,166,482	0	166,602,375
2029	63,746,255	30,531,584	1,990,527	70,166,482	0	166,434,848
2030	63,578,728	30,531,584	1,990,527	70,166,482	0	166,267,321
2031	63,538,671	30,531,584	1,990,527	70,166,482	0	166,227,264
2032	83,273,763	38,563,472	4,269,681	90,016,211	775,352	216,898,479
2033	81,221,908	38,563,472	4,269,681	90,016,211	775,352	214,846,624
2034	81,170,638	38,563,472	4,269,681	90,016,211	775,352	214,795,354
2035	81,119,369	38,563,472	4,269,681	90,016,211	775,352	214,744,085
2036	81,068,099	38,563,472	4,269,681	90,016,211	775,352	214,692,815
2037	81,016,830	38,563,472	4,269,681	90,016,211	775,352	214,641,546
2038	80,965,560	38,563,472	4,269,681	90,016,211	775,352	214,590,276
2039	80,914,291	38,563,472	4,269,681	90,016,211	775,352	214,539,006
2040	80,863,021	38,563,472	4,269,681	90,016,211	775,352	214,487,737
2041	80,811,751	38,563,472	4,269,681	90,016,211	775,352	214,436,467
2042	80,760,482	38,563,472	4,269,681	90,016,211	775,352	214,385,198
2043	80,709,212	38,563,472	4,269,681	90,016,211	775,352	214,333,928
2044	80,657,943	38,563,472	4,269,681	90,016,211	775,352	214,282,659
2045	80,606,673	38,563,472	4,269,681	90,016,211	775,352	214,231,389

2046	80,555,404	38,563,472	4,269,681	90,016,211	775,352	214,180,119
2047	80,504,134	38,563,472	4,269,681	90,016,211	775,352	214,128,850
2048	80,452,864	38,563,472	4,269,681	90,016,211	775,352	214,077,580
2049	80,401,595	38,563,472	4,269,681	90,016,211	775,352	214,026,311
2050	80,350,325	38,563,472	4,269,681	90,016,211	775,352	213,975,041
2051	80,299,056	38,563,472	4,269,681	90,016,211	775,352	213,923,772
2052	80,247,786	38,563,472	4,269,681	90,016,211	775,352	213,872,502
2053	80,196,517	38,563,472	4,269,681	90,016,211	775,352	213,821,232
2054	49,499,449	29,768,294	3,299,299	79,214,266	775,352	162,556,659
2055	49,467,783	29,768,294	3,299,299	79,214,266	775,352	162,524,994
2056	49,436,118	29,768,294	3,299,299	79,214,266	775,352	162,493,329
2057	49,404,453	29,768,294	3,299,299	79,214,266	775,352	162,461,664
2058	18,805,407	8,795,178	2,328,917	21,603,891	775,352	52,308,744
2059	18,793,346	8,795,178	2,328,917	21,603,891	775,352	52,296,683
2060	18,781,285	8,795,178	2,328,917	21,603,891	775,352	52,284,623

Appendix B

Memorandum of Understanding between the City of San José and Google LLC

MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF SAN JOSE AND GOOGLE LLC

THIS MEMORANDUM OF UNDERSTANDING ("MOU"), entered into as of December 4, 2018, is by and between the CITY OF SAN JOSE, a California charter city ("City"), and Google LLC, a Delaware limited liability company ("Developer" or "Google"). The City and Developer shall each be referred to herein as a "Party" and collectively as the "Parties."

The Parties intend that the aspirations set forth herein in this MOU will form the basis for negotiations of a future development agreement regarding Google development in and around the Diridon Station Area.

RECITALS

Whereas, the City Council of the City adopted the Envision San José 2040 General Plan ("General Plan") in 2011 setting forth a vision and comprehensive road map to guide the City's continued growth through the year 2040;

Whereas, the General Plan includes land use policies to shape the transformation of strategically identified "Growth Areas" into higher density, mixed-use, urban districts or "Urban Villages" which can accommodate employment and housing growth and reduce environmental impacts of that growth by promoting transit use and walkability;

Whereas, the Diridon Station Area, located generally within the San José Downtown, is identified as a "Growth Area" and "Urban Village" in the General Plan;

Whereas, the City Council of the City adopted the Diridon Station Area Plan in 2014 to establish a land use plan and policy framework that will guide future development and redevelopment toward land uses that support transit ridership and economic development, and create a world-class urban destination, among many other objectives;

Whereas, the City and Google intend to collaborate on development in and around the Diridon Station Area to aid implementation of the planned expansion of San José's Downtown, the Diridon Station Area Plan, and the General Plan;

Whereas, Google has acquired or controls properties within or proximate to the Diridon Station Area Plan area (hereafter, the "Google Properties") that the Developer intends to develop in conjunction with certain City-owned properties in the Diridon Station Area as a master-planned, cohesive urban development proximate to the Diridon Station;

Whereas, the City is considering selling to Google certain City properties proximate to the Diridon Station (hereafter, the "City Properties") because of potential benefits to San José and the

South Bay from integrating future development in the Diridon Station Area with improved public transit access, broadly expanding economic opportunity, enhancing the natural and built environment, and creating a transit-oriented urban destination;

Whereas, on June 20, 2017, the City Council of the City adopted a resolution authorizing the City Manager to negotiate and execute an Exclusive Negotiations Agreement ("ENA") between the Parties, and the executed ENA was fully executed on June 30, 2017;

Whereas, the City and Google aspire to partner in the planning and design of office, retail, residential, and public amenity projects that maximize use and support of public transit;

Whereas, the City and Google have a shared goal of timely implementation of development projects in the Diridon Station Area to maximize integration with planned transit projects and successful implementation of the Diridon Station Area Plan;

Whereas, the City and Google agree that it is imperative that development of City Properties and the Google Properties maximize development density consistent with the General Plan and the Diridon Station Area Plan, as may be amended in conjunction with Google's future development proposals, integrate development of the property into the urban fabric of the City, and allow for Google to build a work environment that is conducive for its business;

Whereas, the City and Google intend to continue developing a comprehensive approach to identify and deliver community benefits that is informed by input gained from continuation of the community engagement process that is underway;

Whereas, the City and Google affirm that the ideas and concepts expressed in this MOU will be a basis for negotiating a future Development Agreement to identify elements of future development that are intended to be vested and to memorialize community benefits, the terms and details of which will be determined and refined during the negotiation process;

Whereas, Google understands that by execution of this MOU, the City is not committing to or agreeing to undertake (a) any disposition of land to the Developer; or (b) any other acts requiring the subsequent independent exercise of discretion by the City or its departments, and this MOU does not imply any obligation on the part of City or the Developer to enter into any agreement that may result from the aspirations and intentions set forth herein;

Whereas, this MOU does not commit City to a definite course of action with regard to any project, including approval of any project that may be proposed, the execution and approval of this MOU is not a "project" under the California Environmental Quality Act ("CEQA");

NOW, THEREFORE, based on the recitals set forth above, the Parties hereby agree as follows:

SCOPE OF AGREEMENT

I. Effective Date; Term

This MOU shall become effective on the date on which a) City Council approves this MOU, and b) the Parties execute an agreement for the sale of at least one of the City Properties to Google ("Effective Date"). The term of this MOU shall begin on the Effective Date and shall terminate upon the Parties' execution of a Development Agreement approved by the City Council of the City or on December 31, 2022, whichever occurs first.

II. Vision

The Parties' shared vision is to create a vibrant, welcoming, and accessible urban destination consisting of a mix of land uses and that are well-integrated with the intermodal transit station, adjacent neighborhoods, and Downtown. This shared vision embodies a commitment to place making, social equity, economic development, environmental sustainability, and financially-viable private development.

The Parties intend to collaborate and innovate in the development of this urban destination to bring opportunity to the local community and create new models for urban and workplace design and development.

III. Shared Goals

In the development of the Diridon Station Area, the City and Google aspire to:

A. **Create a Balanced Development.** Balance and address the objectives of the City, Google and the community in creating a vibrant urban destination advancing economic opportunity, social equity, and environmental sustainability with a financially-viable private development.

B. **Capitalize on Transit Synergy.** Create a "whole greater than the sum of the parts" in the Diridon Station Area with new urban development, expanded transit service, and a new intermodal station in conjunction with transit partners Valley Transportation Authority, Caltrain, and the California High Speed Rail Authority.

C. **Optimize Density and Mix of Uses.** Optimize development density and create a complementary mix of uses in order to create a vibrant, transit-oriented urban neighborhood and destination.

D. **Grow and Preserve Housing.** Contribute funding - through a community benefits contribution and/or a Downtown-wide linkage fee and/or a financing district - which may be combined with other services to develop and preserve housing in the City to help address rising

housing costs and displacement. Housing in the Diridon Station Area should include on-site units affordable to incomes ranging from extremely low income to "missing middle" households in combination with market rate homes. Affordable units can be built both integrated into market-rate developments and as stand-alone affordable housing projects. The Parties, as a goal but not a requirement, strive for 25% of the housing developed in the Diridon Station Area to be affordable housing with a mix of affordability levels to be negotiated in a future development agreement.

E. **Create Broad Job Opportunities.** Promote opportunities for San José residents of all skill and educational levels and diverse backgrounds to prepare for and secure jobs that provide wages that enable families to thrive in this high cost region. Provide opportunities for existing and new small, local businesses to benefit from and/or integrate into the new development. The Parties, as a goal but not a requirement, strive for 35% of hiring to be local hiring, with a further emphasis on hiring individuals with identified barriers to job entry. Further, the City should proceed with the process for public and Council consideration of the proposed Local Hiring Ordinance, currently scheduled for consideration at the January 28, 2019 Community and Economic Development meeting.

F. **Pursue Equitable Development.** Develop the Diridon Station Area with intent to minimize potential negative impacts on people and place, and to maximize opportunity for local youth and adults to participate and benefit from job opportunities in the Diridon Station Area, through partnerships among the City, Google, and others.

G. **Design for Human Scale.** Design buildings and spaces that are oriented to the human-scale to support an active street life and accessibility for people of all abilities.

H. **Enhance and Connect the Public Realm.** Develop robust, publicly accessible amenities, including parks, open space, plazas, and trails, and create attractive, vibrant, and safe experiences for pedestrians and bicyclists. Integrate public art and preserve cultural and historical assets. Assure that development provides and enables multi-modal access and connections to the Guadalupe River, Los Gatos Creek, and other public spaces, with an emphasis on ecological restoration and preservation.

I. **Pursue Excellence in Design.** Create a new-model urban tech workplace that is appropriately open to the public, and well-integrated with the surrounding community. Support Google to create workplaces that serve its needs to create healthy, secure and productive workplace for its employees. Explore innovative and replicable building design, construction, and operation to demonstrate new, scalable models of urban development.

J. **Maximize Use of Public Transit and Minimize Parking.** The City acknowledges and supports Google's desire to minimize parking for its own use and to maximize use of public transit by employees and visitors. Plan and develop parking for the Diridon Station Area that is

not visually prominent and is conducive to adaptive re-use as transportation modes change in the future.

K. **Pursue Excellence in Transit Access and Operations.** Collaborate with the transit agencies Caltrain, Valley Transportation Authority, and California High Speed Rail Authority to provide design input for the new Diridon Station that optimizes the traveler experience, demonstrates and incorporates state-of-the-art sustainability features, and enables place making, private development, and investment in the area.

L. **Optimize Sustainability.** Advance the City's sustainability goals as outlined in the City's "Climate Smart San José" Plan, including reducing greenhouse gas emissions aligned with the Paris Agreement to combat climate change. Enhance the wildlife habitat, water quality, public access, and flood protection of the creek corridors.

M. **Be Open to Innovation.** The City and Google envision an open-to-innovation approach for any proposed development plans, review of those plans, and approaches to achieving place making, economic, social equity, and environmental objectives for the community.

N. **Proceed with Timely Implementation.** Implement development projects in a timely manner.

O. **Participate in Fair Share Development.** Ensure that all projects in the Diridon Station Area and adjacent areas contribute their fair share of investment to support amenities, infrastructure, improvements, and mitigations that benefit all properties.

P. **Pursue Progressive Hiring and Wage Practices.** The Developer, Contractors, and Subcontractors should pay construction workers a prevailing hourly wage and benefit rate for Office and R&D development. Further progressive hiring practices that reflect the values of San José such as "ban the box" and hiring of apprentices from local vulnerable areas should be advocated.

Q. **Community Engagement regarding Community Benefits.** Community Engagement should be prioritized in the drafting of a Community Benefits Plan. As the project matures, reconvening the Station Area Advisory Group (SAAG) and conducting meaningful engagement with advocates may be appropriate, including an opportunity for the SAAG to review and provide feedback before finalization of any community benefits agreement or development agreement(s).

R. **Support and Collaborate with Local Schools.** Develop partnerships with local schools, such as San José State University, that increase access to quality education, enrichment opportunities, internships, and pathways to careers in STEM fields.

IV. Project Work Product

A. Applications for Land Use Entitlements. Following its acquisition of the City Properties, Google intends to prepare plans for its proposed development of the Google Properties and City Properties consistent with the Vision and Shared Goals set forth in Sections II and III above, and submit planning applications in a timely manner to the City for processing.

B. Revisions and Plan Updates. Google and City desire to collaborate on the preparation, review, and ultimate adoption of any and all documents or plans necessary to effectuate the implementation of an agreed upon development project. It is anticipated that review and approval of a development project will likely include at minimum the following legislative acts by the City Council: amendments of the General Plan, Diridon Station Area Plan, and Zoning Code, and the related certification of an Environmental Impact Report ("EIR") prepared pursuant to CEQA. In addition, the Council may consider revisions to the One Engine Inoperable ("OEI") practices regarding allowable building heights in and around the Diridon Station Area.

C. Diridon Station Area Plan Amendment. The City intends to update and amend the Diridon Station Area Plan ("DSAP") adopted in 2014 to reflect changed conditions, including but not limited to a proposed Google development. In addition to preparing plans for its proposed development, Google may prepare masterplan concepts for the Diridon Station Area (250 acres) for consideration by the City. The City will independently review any submitted masterplan concepts for potential inclusion in the DSAP revisions recommended to the City Council.

D. Development Agreement. Google seeks to enter into a Development Agreement with the City to memorialize community benefits and secure vested development rights aligned with any proposed development masterplan. The Parties agree that a primary goal of this MOU is to provide a reference for negotiating a future Development Agreement. The Development Agreement is expected to provide certainty with regard to the rules and regulations that will govern the future development in addition to other terms, a time frame for delivery of development projects, a description of the specific project types and densities, and a schedule of payment or delivery of community benefits.

The Development Agreement should include provisions related to effective date and term of the agreement, vested project approvals, uses of the property, the density or intensity of use, the maximum height and size of proposed buildings, dedications of land, project mitigations, timing and phasing of development, timing and phasing of community benefits, allocation of funds for community benefits by category, applicable laws and requirements, required subsequent City approvals, Developer obligations, City obligations and mutual obligations.

The Parties recognize that the Development Agreement negotiations shall take into account the financial viability of any project developed by Google, and the development-related priorities of the City and community.

E. Community Benefits Plan.

The Parties intend to include a specific Community Benefits Plan in the Development Agreement.

The Parties expect that private investment in new commercial and residential development in the Diridon Station Area—aligned with the Envision 2040 General Plan and DSAP--will bring substantial positive benefits for the City, and that these benefits will outweigh the various impacts accompanying the potential development. The benefits may include substantial contributions to achieving the City's jobs and housing goals for Downtown, positive impact on the City's budget and service provision, improved ability to create affordable housing, serving as a catalyst for broader economic development in the City, significant improvement and investment in the public realm, and substantial increases in transit riders and associated fares.

The City and Google acknowledge that development of the Diridon Station Area may contribute to rising housing costs, potential business and residential displacement, and other impacts on people and place. The Parties intend to develop approaches to equitable development that are effective, replicable, and leverage resources of the City, Google, and other partners.

The City's expectation of a community benefit contribution would be premised on, among other factors, the additional value Google receives as a result of the legislative changes that may be approved by the City Council that enhance the value of both the City Properties and the Google Properties, and the certainty that could be provided to Google through a Development Agreement. The City would expect Google to share a portion of the value created by the City Council's actions with the City through a Community Benefits Plan. The base for estimating the value created would be the price Google paid for both the City Properties and the Google Properties.

In developing the Community Benefits Plan, the parties intend to consider the input provided to date through the City's community engagement process (Diridon Station Area Civic Engagement Report) and subsequent input, including as to the amount and use of community benefits funds, provided by the community, key stakeholders, and City Council through a process mutually acceptable to the Parties, as well as addressing the shared goals in this MOU. In developing the Community Benefits Plan, consideration will be given to major categories of community priorities identified to date, including the following:

- Affordable housing, displacement prevention and mitigation
- Education, workforce training, and career opportunities
- Small business opportunity
- Historic and cultural preservation, public art
- Public space, trails, and mobility
- Community nonprofit support, including homeless services
- Habitat and environmental sustainability

The following costs will not be considered Community Benefits: costs required to mitigate impacts under CEQA; costs associated with project design, project elements, or other improvements proposed by Google as part of its development; and costs incurred to meet City standard requirements, conditions of approval, fees, or taxes.

F. Financing of Shared Infrastructure and Services. The Parties contemplate that Google will participate in the future comprehensive financing plan for the Diridon Station Area Plan and certain surrounding areas in the Downtown ("Diridon Financing Plan") to fund public improvements, affordable housing, and other amenities and services. The future Diridon Financing Plan may include the creation of (i) Community Facilities District(s); (ii) Enhanced Infrastructure Financing District(s); (iii) Property Based Improvement District(s); (iv) Mitigation Impact Fee program(s); (v) Commercial linkage fee program; and/or (vi) other financing mechanisms. Google and other affected property owners will be subject to, fully participate in, and pay any and all charge, fee, assessment or tax included in the City Council approved Diridon Financing Plan, as may be amended, which may include one or more of the financing mechanisms identified above.

G. Commercial Linkage Fee. Google supports the City's study of a potential Commercial Linkage Fee on development in the Downtown, including but not limited to the Diridon Station Area, to support investment in affordable housing and infrastructure.

H. District Utilities. The Parties seek to collaborate in the study and evaluation of a district wide program of shared utilities, such as electricity, data, water, storm water, waste and sewer that allows for necessary City easements.

I. Parking. The City and Google will work to develop a parking plan for the Diridon Station Area that addresses initial and long-term goals in order to balance the need for parking and the desire to minimize parking in the long-term. The parking plan is expected to include elements such as available physical spaces and tools/processes (such as Transportation Management Plan) necessary to support efficient operation of the Diridon Station Area.

J. Consideration of Street Closures/Vacations. The Parties intend to collaborate on a pedestrian friendly master plan that will consider opportunities that may be created by the closure, narrowing and/or abandonment of certain existing streets to fully optimize the Diridon Station Area redevelopment potential consistent with the General Plan, DSAP, and other City requirements. The Parties will also explore opportunities to provide Developer offsets for the use of the vacated streets in exchange for equal areas for publicly accessible open space within the Diridon Station Plan Area.

K. Ongoing Community Engagement. The Parties contemplate that in addition to the public process as may be legally required for specific development applications, at minimum periodic reports will be provided by the City to the Station Area Advisory Group, or its successor, until such time as a Development Agreement is executed.

L. Planned Parkland on Fire Training Site. The General Plan and DSAP currently identify certain open space areas. If the General Plan and DSAP are amended to change the open space allocations, the Parties intend that the total amount of public open space identified in the DSAP would not be decreased.

V. No City Funds or Tax Subsidies for Private Development

A. No Subsidy or Waiver. Google shall fully pay the City all applicable fees, charges, and taxes in accordance to the City's standard payment requirements for any development project that it proposes. Google will purchase the City Properties at fair market value and will not be paid for in whole or in part out of public funds.

B. No City Funds. No City funds shall be expended on private development or private construction any development project that Google proposes.

C. No Tax Dollars. No City tax revenue will be expended by the City directly for private development or private construction of any development project that Google proposes.

VI. General Conditions

A. Nonbinding. This MOU shall not be binding upon the Parties and creates no legal obligations on either Party, including any obligation to negotiate or continue negotiations at any stage. No development applications have been submitted by Google to the City for any possible development referenced herein.

B. Governing Law. The law governing this MOU shall be that of the State of California.

C. Venue. In the event that suit shall be brought by either party, the Parties agree that trial of such action shall be exclusively vested in a state court in the County of Santa Clara, or where appropriate, in the United States District Court for the Northern District of California, San José, California.

D. No Third Party Beneficiaries. This MOU is not intended nor shall it be construed to create any third-party beneficiary rights in any person or entity other than the Parties.

E. No Assignment. The MOU is intended to be between the City and Google. Neither City nor Google may not assign the MOU, or any portion of the MOU to another party.

F. Extension. The City's City Manager shall have the authority to extend the term of this MOU, in one or more extensions, by a maximum total period of no more than one year through December 31, 2023.

G. Counterparts. This MOU may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same non-binding instrument.

WITNESS THE EXECUTION HEREOF the day and year first hereinabove set forth.

THE CITY

CITY OF SAN JOSE, a municipal corporation

By: _____

Toni J. Taber, CMC
City Clerk

DEVELOPER

GOOGLE LLC
a Delaware Limited Liability Company

Legal Dept. SV/JG Google

By: _____

Mark Golan,
VP-REWS Bay Area

APPROVED AS TO FORM:

By: _____

Johnny V. Phan
Senior Deputy City Attorney

Appendix C

Analysis of GHG Impacts for the Downtown West Mixed-Use Plan

Google

Analysis of GHG Impacts for the Downtown West Mixed-Use Plan

Final Draft | August 23, 2019

Contents

1 Introduction 5
2 Project Description 5
2.1 Existing Conditions 5
2.2 Proposed Project 6
3 GHG Emissions Overview 8
4 GHG Emissions Methodology Summary 8
4.1 Construction-Related GHG Emissions 10
4.2 Mobile Sources 12
4.3 Building Energy 13
4.4 Water and Wastewater Sources 16
4.5 Municipal Solid Waste 17
4.6 Landscaping/Area Sources 19
4.7 Generator Emissions 19
4.8 Carbon Sequestration 20
5 GHG Emissions Results 21
5.1 Baseline Emissions Results 21
5.2 Proposed Construction Emissions Results 22
5.3 Proposed Mobile Emissions Results 23
5.4 Proposed Energy Emissions Results 24
5.5 Proposed Water Emissions Results 26
5.6 Proposed Waste Emissions Results 30
5.7 Proposed Emissions from Stationary Sources 32
5.8 Proposed Sequestration from Vegetation 33
5.9 Summary of Proposed Operational GHG Emissions 34
5.10 Overall Year-By-Year Emissions 35
6 GHG Offsetting Measures 37
Appendix A: Supporting Tables 38

Tables

Table 1: Existing Land Uses 5
Table 2: Proposed Project (Variant A) Land Uses 6
Table 3: Development Phasing 7
Table 4: Operational GHG Emissions Quantification Methodologies 9
Table 5: Construction & Operational Periods by Phase 10
Table 6: Construction Schedule 11
Table 7: PG&E Electricity Emissions Factors 14
Table 8: Summary of baseline emissions 21
Table 9: Project Construction-Related GHG Emissions 22
Table 10: Annual Emissions from Mobile Sources 23
Table 11: Annual Emissions from Electricity 24
Table 12: Annual Emissions from Water & Wastewater for Proposed Phase 1 26
Table 13: Annual Emissions from Water & Wastewater for Proposed Phase 2 27
Table 14: Annual Emissions from Water & Wastewater for Proposed Phase 3 27
Table 15: Annual Emissions from Water & Wastewater 28
Table 16: Annual Emissions from Municipal Solid Waste 30
Table 17: Annual Emissions from Stationary Sources 32
Table 18: Annual GHG Sequestration from Vegetation 33
Table 19: Operational GHG Emissions Summary for 2030 (full build-out) 34
Table 20: Overall Year-by-Year Emissions 35
Table 21: Overall Year-by-Year Increase in Emissions 36
Table 22: Solid Waste Landfill Annual Generation 45

Equations

Equation 1: Mobile Sources Annual Emissions Calculation 13
Equation 2: Building Electricity Annual Emissions Calculation 15
Equation 3: Building Natural Gas Annual Emissions Calculation 16
Equation 4: Water & Wastewater Annual Emissions Calculation 17
Equation 5: Waste Gas Capture and Escape Calculation 18
Equation 6: Municipal Solid Water Annual Emissions Calculation 18
Equation 7: Landscaping Annual Emissions Calculation 19
Equation 8: Generator Annual Emissions Calculation 19
Equation 9:Vegetation Annual Sequestration Calculation 20

1 Introduction

Arup conducted an analysis of both direct and indirect greenhouse gas (GHG) emissions associated with the proposed Downtown West Mixed-Use Plan in San Jose, California. This analysis was performed to meet the requirements of Assembly Bill (AB) 900, the Jobs and Economic Improvement through Environmental Leadership Act. The analysis was further informed by the criteria described in the Governor's Guidelines for Streamlining Judicial Review under the California Environmental Quality Act (CEQA) (Public Resources Code Section 21178 et seq.). The analysis includes both construction-related emissions and ongoing operational emissions associated with transportation, building energy usage, and other sectors. While the project contemplates a number of on-site or local emissions-reducing strategies, the analysis relies on more conservative assumptions as these strategies are further studied. The analysis shows that the project meets the requirement for no "net additional emission of GHGs, including GHGs from employee transportation" [California PRC Section 21183(c)].

2 Project Description

2.1 Existing Conditions

The Downtown West Mixed-Use Plan is an approximately 80-acre site, which currently includes an assortment of existing land uses. These uses are described in Table 1 below.

Table 1: Existing Land Uses[1]

LAND USE TYPE	UNIT AMOUNT	UNIT METRIC
Single family condo/townhouse	11	Dwelling Unit
Single family detached	2	Dwelling Unit
Specialty retail/strip commercial	38,203	Sq.ft.
Regional Shopping Center	85,000	Sq.ft.
Auto repair	7,779	Sq.ft.
General office building	45,988	Sq.ft.
Warehouse (unrefrigerated, no	137,172	Sq.ft.
General manufacturing	42,570	Sq.ft.
Warehouse (unrefrigerated, no	196,181	Sq.ft.
Worship	9,000	Sq.ft.
Parking	469,371	Sq.ft.

[1] Note that the "Land Use Subtype" designation is sourced from the CalEEMod list of 63 available land use subtypes. Where a specific subtype for the existing site was not available, the CalEEMod subtype with the closest use pattern was selected.

2.2 Proposed Project

The proposed project is composed of a mix of uses, which primarily includes office and residential space. In the current planning stage there are two variations of the project, Variant A and Variant B, which are comprised of substantially similar land use mixes. Variant A includes slightly higher GHG emission intensity overall and per phase. For this reason, Variant A is used for purposes of analyzing a single, conservative greenhouse gas emissions scenario in this document.

The proposed project under Variant A includes up to 7.3 million sq.ft. of office space and up to 5,900 dwelling units. In addition, the proposed project includes up to 500,000 sq.ft. of retail, an up to 300-room hotel, up to 800 rooms of limited-term corporate accommodation, an up to 100,000 sq.ft. event facility, two logistics hubs (each approximately 50,000 sq.ft.), a 100,000 sq. ft. central utility plant, and approximately 15 acres of open space. This program description is summarized in Table 2 below. For the purposes of this analysis, the upper end of each range is used, and workers associated with the project's office uses are assumed to be net new.

Table 2: Proposed Project (Variant A) Land Uses

LAND USE TYPE	UNIT AMOUNT	UNIT METRIC
General Office Building	7,300	1,000 sq.ft.
Retail	500	1,000 sq.ft.
Hotel	300	Rooms
Apartments (high-rise)	5,900	Dwelling units
Limited-term corporate accommodation	800	Rooms
Event facility	100	1,000 sq.ft.
Logistics Center	100	1,000 sq.ft.
Central Utility Plant	100	1,000 sq.ft.
Open space	15	Acres

Construction is assumed to occur in three phases from years 2021 to 2024, 2024 to 2027, and 2027 to 2030. Table 3 shows planned development for the proposed project by phase. The anticipated phasing for the project's Variant A is described below, although these phasing tables are illustrative. Some phases may occur in a different order or occur concurrently. However, the entire development program is expected to take at least ten years. All analysis has made the most aggressive and impactful assumptions to be conservative.

Table 3: Development Phasing

LAND USE SUBTYPE	UNIT METRIC	PHASE 1	PHASE 2	PHASE 3
Office	1,000 sq.ft.	2,600	2,600	2,100
Retail	1,000 sq.ft.	100	280	120
Hotel	Rooms	0	0	300
Apartments	Dwelling units	2,000	2,300	1,600
Limited-term corporate accommodation	Rooms	250	250	300
Event facility	1,000 sq.ft.	0	0	100
Logistics Center	1,000 sq.ft.	50	0	50
Central Utility Plant	1,000 sq.ft.	100	0	0
Open space	Acres	5	5	5

3 GHG Emissions Overview

GHGs in the atmosphere have a large effect on the earth's surface temperature. There are several sources of GHGs in the atmosphere. Natural sources include the respiration of humans, plants, and animals, evaporation from oceans, and the decomposition of organic matter. Anthropogenic sources include agricultural processes, the combustion of fossil fuels, and emissions from waste treatment. The primary anthropogenic sources of GHGs, which are included in this analysis are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)

Global warming potential (GWP) compares the ability of each GHG to trap heat in the atmosphere relative to CO_2. CO_2 has a GWP of 1, while CH_4 has a GWP of 25 and N_2O has a GWP of 298. This means that one ton of methane makes the same contribution to the greenhouse effect as 25 tons of carbon dioxide.

4 GHG Emissions Methodology Summary

To qualify as an Environmental Leadership and Design Project under AB 900, the Project must result in zero net new operational emissions of GHGs, as determined by the California Air Resources Board (CARB). According to CARB, the analysis and accompanying documentation must quantify: (1) Baseline operational emissions; (2) Proposed project construction and operational annual emissions, including both direct and indirect emissions; (3) Proposed project net new construction and operational emissions.

Operational GHG emissions sources included in the analysis were: on-road motor vehicles (mobile sources), building energy (electricity and natural gas), water and wastewater, solid waste, as well as area and stationary emissions sources. GHG emissions quantification methodologies are broadly outlined in Table 4 below. In order to calculate emissions from the various sources, the California Emissions Estimator Model (CalEEMod) was used. CalEEMod assumptions are listed in Table A. 1 of Appendix A.

Table 4: Operational GHG Emissions Quantification Methodologies

CATEGORY	UNITS	BASELINE ACCOUNTING METHOD	PROPOSED ACCOUNTING METHOD
MOBILE SOURCES	$MTCO_2e/yr$	Calculation via CalEEMod.	VMT/trip generation calculation, incorporating TDM strategies, translated to emissions using fleet mix and vehicle type-specific emissions factors from CalEEMod.
ELECTRICITY	$MTCO_2e/yr$		Preliminary energy model with Title 24 and proposed central utility plant strategies, translated to emissions using eGRID emissions factors from CalEEMod.
NATURAL GAS	$MTCO_2e/yr$		Combustion is not anticipated in the proposed project at this time. If combustion is required further along in design, energy would be modeled in accordance with Title 24.
WATER + WASTEWATER	$MTCO_2e/yr$		Water use calculation, including anticipated reductions, translated to electricity use and corresponding emissions using eGRID emissions factors from CalEEMod. Wastewater calculation additionally includes direct emissions from wastewater treatment processes, calculated using emissions factors from CalEEMod to match the state of California's average utility treatment split.
SOLID WASTE	$MTCO_2e/yr$		Based on known waste generation rates at Google for commercial spaces and CalRecycle rates for other use types, translated to emissions using solid waste emissions factors from CalEEMod.
LANDSCAPING/AREA SOURCES	$MTCO_2e/yr$		Calculation via CalEEMod.
STATIONARY SOURCES	$MTCO_2e/yr$		Calculation via CalEEMod.
SEQUESTRATION	$MTCO_2e/yr$	CalEEMod using existing tree survey	Calculation via CalEEMod using proposed landscape design.

To meet these minimum requirements, this analysis defines the baseline operational emissions as those of the existing site. These baseline emissions are considered for the final year of operations, which are the existing land use operational emissions for the year 2020. Baseline emissions were calculated using the existing land uses as noted in Section 2.1 with default values for CalEEMod, using the methodology outlined in the following sections.

Baseline emissions are compared to the proposed project, with emissions calculated for construction and operational activities. Annual construction and operational emissions are calculated using the methodology that is detailed in subsequent sections of this report. Operational emissions are estimated from 2024 to 2060 to capture a sliding window of 30 years of operations for each build-out phase. As each phase reaches its 30-year operational horizon, the associated emissions are removed, leaving only the subsequent phase emissions. For example, in 2057 the emissions from Phase 2 will have run their 30-year operational horizon, leaving only Phase 3 emissions for 2057-2060. These year-by-year emissions are compared to the baseline emissions over the same period to determine the requirement for offsets or renewable energy certificate purchases.

Table 5: Construction & Operational Periods by Phase

PHASE	CONSTRUCTION PERIOD	OPERATIONAL PERIOD (30 YEARS)
Phase 1	2021 - 2024	2024 - 2054
Phase 2	2024 - 2027	2027 - 2057
Phase 3	2027 - 2030	2030 - 2060

The remainder of this section addresses the methodology for performing this comparison.

4.1 Construction-Related GHG Emissions

The proposed project will generate one-time emissions from construction. These emissions are separate from those associated with ongoing operation of the project. Methodologies for quantifying construction-related GHG emissions are detailed below. Broadly, construction activities include demolition of existing onsite structures, site preparation, grading, shoring and excavation, structural work, exterior skin and interior finishes, and paving.

Construction activities generate GHG emissions from heavy-duty construction equipment, material-hauling trucks, and construction-worker vehicles. These emissions were calculated using the most current version of CalEEMod; Version 2016.3.2. Project-specific construction information including equipment types and the construction schedule was entered in CalEEMod. CalEEMod defaults were used for the type, quantity, operational hours per days, and horsepower of construction equipment and number and length of off-site vehicle trips. For the

total worker days associated with the proposed construction, see Table A. 2 through Table A. 4 of Appendix A. Table 6 shows the off-road equipment used by construction phase, including equipment type, number of pieces of equipment, and hours of operation per day.

Table 6: Construction Schedule

PHASE	EQUIPMENT TYPE	NUMBER OF PIECES	OPERATING HOURS PER DAY
Demolition	Concrete/Industrial Saws	1	8
Demolition	Excavators	3	8
Demolition	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
Site Preparation	Tractors/Loaders/Backhoes	4	8
Grading/shoring/excavation	Excavators	2	8
Grading/shoring/excavation	Graders	1	8
Grading/shoring/excavation	Rubber Tired Dozers	1	8
Grading/shoring/excavation	Scrapers	2	8
Grading/shoring/excavation	Tractors/Loaders/Backhoes	2	8
Building Construction	Cranes	1	7
Building Construction	Forklifts	3	8
Building Construction	Generator Sets	1	8
Building Construction	Tractors/Loaders/Backhoes	3	7
Building Construction	Welders	1	8
Paving	Pavers	2	8
Paving	Paving Equipment	2	8
Paving	Rollers	2	8
Architectural coating	Air Compressors	1	6

The project construction includes equipment that is powered by electricity. As such, GHG emissions for these off-road pieces of equipment were estimated as indirect GHG emissions due to electricity consumption. Electricity consumption was estimated based on the type and usage of each piece of equipment.

4.2 Mobile Sources

Trip generation and the corresponding vehicle miles travelled (VMT) for the existing site uses were calculated from default values in CalEEMod. It is important to note that the site includes several existing parking lots; however, parking is not considered a trip-generating land use. To the extent that existing parking is associated with land uses on the proposed project site, those uses are captured in the baseline analysis. Further discussion is included in Section 5.3 Proposed Mobile Emissions Results, as well as in the accompanying document, AB 900 Transportation Assessment for San Jose Downtown West Mixed-Use Plan.

Trip generation and the corresponding VMT for the proposed site were based on a project-specific analysis by Nelson Nygaard Consulting Associated. This analysis estimated the proposed daily trips from residents, employees, and visitors to the project site. These trip generation rates and corresponding VMT are shown in Table A. 5 of Appendix A.

The Project location, immediately adjacent to the Diridon Caltrain station and downtown San Jose, leads to a large reduction in auto trips. Further trip reductions are associated with characteristics inherent to the site such as a mix of complementary land uses in close proximity and pedestrian-friendly urban design.

In addition to these site characteristics, Nelson Nygaard developed a comprehensive transportation model to determine likely employee commute behavior with varying levels of transportation demand management investment and measures for reducing single-occupancy vehicle commute trips. This allows a range of likely trip reduction to be determined.

The default fleet mix in CalEEMod was used to define the fleet mix for vehicle trips for both the existing site and the proposed project.

Annual mobile source emissions for vehicle starts, vehicle miles travelled, and idling were estimated in CalEEMod using emissions factors from EMFAC 2014 for both the existing and proposed scenarios. This analysis is conservative, as it does not currently account for future decreases in vehicle emissions. Realistically, emissions factors for mobile source emissions for the project will decrease in future years based on the implementation of Pavley I and II, electrification of vehicles, and fleet turnover.

Emissions were calculated over the period 2024 through 2060 for a mix of TDM strategies that could include, for office uses: providing each employee with a monthly mobility stipend and/or transit pass, continuing a shuttle service, and running supplemental shuttle service to complement existing high-quality, high-frequency public transit. Residential TDM strategies could include: lower parking ratios, unbundled parking, onsite transportation coordinator, and secure bicycle storage.

Equation 1: Mobile Sources Annual Emissions Calculation

$$\text{Annual emissions } [\text{MTCO}_2\text{e}] = \sum_i \left(\text{VMT} \times (\text{P}_{\text{mix}} \times \text{EF}_{\text{RunEx}}) + \text{T}_{\text{Starts}} \times (\text{P}_{\text{mix}} \times \text{EF}_{\text{StrEx}} + \text{P}_{\text{mix}} \times \text{EF}_{\text{IdlEx}})\right)_i$$

Where:

VMT	=	Vehicle miles traveled [miles]
P_{mix}	=	Percent mode of total vehicle mix [%]
T_{Starts}	=	Number of vehicle starts [trips]
EF_{RunEx}	=	GHG emissions factor, running emissions [gCO_2e/mile]
EF_{StrEx}	=	GHG emissions factor, starting emissions [gCO_2e/trip]
EF_{IdlEx}	=	GHG emissions factor, idling emissions [gCO_2e/trip]

4.3 Building Energy

Energy emissions include indirect emissions from electricity used by buildings and direct emissions from natural gas combustion on site. Indirect GHG emissions are the result of electricity generation from offsite power plants.

Energy emissions for the existing uses are calculated using default values in CalEEMod, which are based on the 2005 Title 24 Building Energy Efficiency Standards. This is conservative, considering the majority of the existing buildings were built well before 2005.

Energy emissions for the proposed project are estimated assuming buildings are constructed to comply with Title 24 2019 Building Energy Efficiency Standards. This is a conservative assumption, as San Jose reach code is anticipated in 2020 and will have higher energy standards than Title 24[2]. Consumption for the project was generated using hourly energy models scaled by square footage for each use. Occupancy was assumed based on Title 24 occupancy schedules for residential and retail uses. For office, measured data of occupancy and assumed plug load per employee were based on measured values from similar Google offices.

These represent conservative assumptions for the proposed project at this stage of design and will be refined as design of the buildings progresses to include additional energy saving and renewable energy systems. This includes exploring the incorporation of high performance building design strategies such as improved building envelope design, passive systems, and energy efficient plug and process loads. The incorporation of on-site renewable energy is also under investigation, as discussed in Section 6. It should be noted that all buildings will be required to comply with the City of San Jose Green Building Requirements, which at a minimum require LEED Silver compliance for each building. Achieving these benchmarks will likely require

[2] For more information on the San Jose reach code: http://www.sanjoseca.gov/index.aspx?NID=6357

additional energy savings measures. The project anticipates meeting the AB 900 requirement of LEED Gold through LEED for Neighborhood Development for the entire mixed-use plan, which will require that at least one building be certified LEED Gold.

Thermal service for the buildings was modeled with a central utility plant as currently anticipated in the project design. As noted above, the project is investigating the option to be all-electric for all building uses, including heating. The central utility plant therefore would incorporate centralized cooling and heating with distribution to all buildings. Energy use for cooling and heating generation and distribution was calculated on an hourly basis and summed to create the total energy consumption for the thermal systems. This was added to the baseline building loads to generate the total electricity use for the proposed project.

4.3.1 Electricity

While the project is investigating sourcing its energy from providers with a higher proportion of renewable energy, such as San Jose Clean Energy, modeling conservatively assumes electricity is provided by Pacific Gas and Electric (PG&E). Emissions associated with on-site electricity usage for both the existing and proposed projects are estimated by multiplying the anticipated usage for each scenario by the carbon intensity emission factor of the electrical grid. Carbon intensity emission factors are GHG emissions rates for a given electricity source. Table 7 shows the currently reported annual average emission factors for three GHGs (CO_2, CH_4, and N_2O) for the PG&E grid based on their electricity generation profile.

Table 7: PG&E Electricity Emissions Factors

GREENHOUSE GAS	EMISSIONS FACTOR [lb/MWh]
CO_2	641.35
CH_4	0.029
N_2O	0.006

Using these emissions factors, the annual emissions for the period 2024 through 2062 were calculated using Equation 2.

Equation 2: Building Electricity Annual Emissions Calculation

$$\text{Annual Emissions } [\text{MTCO}_2\text{e}] = \left(\text{D}_\text{E} \times \sum_i (\text{EF}_\text{E} \times \text{GWP})_\text{i}\right) \div 2204.62$$

Where:

D_E	=	Annual electricity consumption [MWh/year]
EF_E	=	GHG emissions factor, electricity [$MTCO_2e$/MWh]
GWP	=	Global warming potential [CO_2=1, CH_4=25, N_2O=298]
2204.62	=	Conversion factor [lb/MT]
i	=	Summation index

PG&E's average carbon intensity is anticipated to change over time due to the California Renewable Portfolio Standard (RPS), which mandates that 33% of electricity come from renewable sources by 2020, 60% from renewable sources by 2030, and 100% from renewable sources by 2045. A three-year average of PG&E's 2014-2016 emissions rates[3] was used as the baseline from which future electricity intensities were projected. The projection assumes the utility achieves the RPS targets. The progress toward the RPS targets is assumed to be linear, year over year. The results of this decarbonization calculation are tabulated in Table A.3 in Appendix A.

4.3.2 Natural Gas

GHG emissions from natural gas combustion are generated from residential, commercial, and industrial usage in the baseline condition. Both natural gas usage rates and natural gas emissions factors reflect CalEEMod default assumptions for the baseline condition.

For the proposed project, the design may preclude use of on-site combustion from new development within the site. Currently, this is the assumed design, and therefore, all thermal systems (including heating, domestic hot water, and cooking) are anticipated to be all-electric. Therefore, zero natural gas consumption is assumed for the proposed scenario. If this proves infeasible, natural gas consumption will be modeled and accounted for in emissions calculations.

In order to calculate the baseline emissions from natural gas, Equation 3 was used.

[3] Source: http://www.pgecorp.com/corp_responsibility/reports/2018/en02_climate_change.html

Equation 3: Building Natural Gas Annual Emissions Calculation

$$\text{Annual Emissions } [\text{MTCO}_2\text{e}] = \left(\sum_i \left((\text{EI}_{\text{T24}} + \text{EI}_{\text{NT24}}) \times \text{A}_{\text{use}} \times 1000 \times \text{EF}_{\text{NG}} \times \text{GWP}\right)_i\right)$$

Where:

EI_{T24}	=	Natural gas energy intensity, Title 24 [kBtu/ sq.ft./year]
EI_{NT24}	=	Natural gas energy intensity, non-Title 24 [kBtu/ sq.ft./year]
A_{use}	=	Area per land use sub type [sq.ft.]
1000	=	Conversion factor [kBtu/MMBtu]
EF_{NG}	=	GHG emissions factor, natural gas [$MTCO_2e$/MMBtu]
GWP	=	Global warming potential [CO_2=1, CH_4=25, N_2O=298]
2204.62	=	Conversion factor [lb/MT]
i	=	Summation index

4.4 Water and Wastewater Sources

GHG emissions are generated from water and wastewater sources in several ways. These include indirect water utility emissions generated from the supply, distribution, and treatment of water and wastewater, as well as the direct emissions released throughout the wastewater treatment process, and inclusive of anticipated use of the recycled water provided by the City of San Jose.

Water consumption estimates for both the existing land uses and the proposed project were calculated in CalEEMod. The data source for most of these estimates is the Pacific Institute's "Waste Not Want Not" report. It is noted that this approach of using CalEEMod defaults for the proposed projects is considered conservative. Strategies that could further reduce water- and wastewater-related emissions are currently being investigated such as the use of an efficient on-site water treatment system.

The annual water use (V_W) and electricity factor for water utility emissions (EI_W) were calculated separately for indoor water use and outdoor water use. Direct emissions from indoor water use treatment was also accounted for. The project is currently investigating multiple options for treatment processes, however to be conservative in this analysis the state's average treatment process split between septic tank (10%), aerobic (88%), and facultative lagoon (2%) was used.

Equation 4: Water & Wastewater Annual Emissions Calculation

$$\text{Annual Emissions } [\text{MTCO}_2\text{e}] = \left(\left(\sum_i \left(V_{W_I} \times \left(\text{EI}_{\text{W}_{\text{IU}}} \div 1000\right) \times \text{EF}_{\text{W}} \times \text{GWP}\right)_{\text{i}}\right) + \left(\sum_i \left(V_{W_O} \times \left(\text{EI}_{\text{W}_{\text{OU}}} \div 1000\right) \times \text{EF}_{\text{W}} \times \text{GWP}\right)_{\text{i}}\right) + \left(\sum_i \left(V_{W_I} \times R_T \times EF_T \times GWP \times 0.9072\right)_i\right)\right) \div 2204.62$$

Where:

V_{W_I}	=	Annual indoor water use [gal/year]
V_{W_O}	=	Annual outdoor water use [gal/year]
$EI_{W_{IU}}$	=	Intensity factor for indoor water utility emissions [kWh/Mgal]
$EI_{W_{OU}}$	=	Intensity factor for outdoor water utility emissions [kWh/Mgal]
1000	=	Conversion factor [kWh/MWh]
EF_W	=	GHG emissions factor [$MTCO_2e$/MWh]
GWP	=	Global warming potential [CO_2=1, CH_4=25, N_2O=298]
R_T	=	Percent of total water per treatment [%]
EF_T	=	GHG emissions factor per treatment process [$MTCO_2e$/MWh]
0.9072	=	Conversion factor [ton/MT]
2204.62	=	Conversion factor [lb/MT]
i	=	Summation index

4.5 Municipal Solid Waste

GHG emissions associated with municipal solid waste (MSW) disposal for the existing land uses were based on CalEEMod defaults. CalEEMod uses annual waste disposal rates sourced from CalRecycle for individual land uses. Corresponding emissions are the result of decomposition of the generated waste. Waste generation rates for the proposed project were based on a project-specific analysis[4]. Assumptions are given in Table A. 7 in Appendix A. These waste generation rates were translated to GHG emissions using the default emissions factors provided by CalEEMod.

For the proposed project, landfill diversion rates of 84%[5] for commercial uses was used from the site-specific analysis. Diversion rates of 82% for residential and 83% for retail from CalRecycle were used. Annual emissions for landfilled waste was calculated for the period 2024

[4] Note: Waste from logistics hubs has not been calculated at this time as there are too many unknowns surrounding the supply chain and if waste will actually be generated in significant quantities at this site. For the Central Utility Plant, no operation waste is likely to be produced at this site. Waste will be generated during routine maintenance and servicing and all components that are replaced will be removed by the engineer undertaking the servicing etc.

[5] Google-specific data via Arup Logistics

to 2060. Emission factors (EF_{CH_4} and EF_{CO_2}) were calculated based on assumed gas capture rated consistent with the CalEEMod baseline; with 94% of gas captured and flared, and 6% of gas not captured.

Equation 5: Waste Gas Capture and Escape Calculation

$$\mathrm{EF_{CH_4}} = \left(\mathrm{R_{NC}} \times \mathrm{IF_{CH_4,NC}} + \mathrm{R_{C\&F}} \times \mathrm{IF_{CH_4,C\&F}}\right)$$
$$\mathrm{EF_{CO_2}} = \left(\mathrm{R_{NC}} \times \mathrm{IF_{CO_2,NC}} + \mathrm{R_{C\&F}} \times \mathrm{IF_{CO_2,C\&F}}\right)$$

Where:

R_{NC}	=	Capture rate [%] of gas not captured
$R_{C\&F}$	=	Capture rate [%] of gas captured and flared
$IF_{CH_4,NC}$	=	Intensity factor for CH_4 not captured [$MTCH_4$/ton waste]
$F_{CH_4,C\&F}$	=	Intensity factor for CH_4captured and flared [$MTCH_4$/ton waste]
$IF_{CO_2,NC}$	=	Intensity factor for CO_2 not captured [$MTCO_2$/ton waste]
$IF_{CO_2,C\&F}$	=	Intensity factor CO_2 captured and flared [$MTCO_2$/ton waste]

Equation 6: Municipal Solid Water Annual Emissions Calculation

$$\text{Annual emissions } [\mathrm{MTCO_2e}] = \left(\sum\left((\mathrm{W_C} + \mathrm{W_R}) \times (\mathrm{EF_{CH_4}} + \mathrm{EF_{CO_2}}) \times \mathrm{GWP}\right)_{\mathrm{i}}\right)$$

Where:

W_C	=	Commercial waste [tons/year]
W_R	=	Residential waste [tons/year]
EF_{CH_4}	=	GHG emissions factor for $\mathrm{CH_4}$ [$MTCH_4$/ton waste]
EF_{CO_2}	=	GHG emissions factor for $\mathrm{CO_2}$ [$MTCO_2$/ton waste]
GWP	=	Global warming potential [CO_2=1, CH_4=25, N_2O=298]
2204.62	=	Conversion factor [lb/MT]
i	=	Summation index

4.6 Landscaping/Area Sources

Maintenance of the project site results in emissions from landscaping and related equipment. Additional area emissions include those associated with hearths and consumer product consumption. These maintenance and area emissions for both the existing land uses and the proposed project were estimated in CalEEMod using the default values. Hearth-related emissions were assumed to be zero for the proposed project, as wood stoves and fireplaces are not planned. For landscaping emissions, the following equation was used.

Equation 7: Landscaping Annual Emissions Calculation

$$Annual\ emissions\ [\ MTCO_2e] = \left(\sum_i (Units \times EF_{LE} \times A_{LE} \times GWP)_i\right) \div 10^6$$

Where:

Units	=	Number of land use units [DU or 1000 sq.ft]
EF_{LE}	=	GHG emissions factor [gCO_2e/DU/day or gCO_2e/1000 sq.ft./day]
A_{LE}	=	Landscaping equipment operating days per year [days/year]
GWP	=	Global warming potential [CO_2=1, CH_4=25, N_2O=298]
10^6	=	Conversion factor [g/MT]
i	=	Summation index

4.7 Generator Emissions

GHG emissions result from the operation of backup generators. The proposed project includes approximately one 300 kW generator per building (assumed to be one generator per 500,000 sq.ft.). CalEEMod default assumptions were used to calculate the emissions associated with generator use. These assumptions include an annual operation limit of 50 hours for routine maintenance and testing.

Equation 8: Generator Annual Emissions Calculation

$$\text{Annual emissions } [\text{MTCO}_2\text{e}] = \sum \left(\text{EF} \times \text{Q}_{\text{gen}} \times \text{HP} \times \text{Load} \times \text{Activity}\right)_{\text{i}}$$

Where:

EF	=	GHG emissions factor [$MTCO_2e$/hp-hr]
Q_{gen}	=	Quantity of generators
HP	=	Maximum rated horsepower [hp]
Load	=	Load factor [dimensionless]
Activity	=	Hours of operation [hours per day, hours per year]
i	=	Summation index

4.8 Carbon Sequestration

Carbon sequestration from vegetation on the project site is based on the vegetation type and quantity. A tree assessment was undergone to identify the types and number of trees on the current site, and to account for which trees may be removed during development. In addition, an inventory of proposed trees has been developed to account for future sequestration potential on the site. Quantities of existing and proposed trees can be found in Table A.5 and Table A.6 in Appendix A, respectively. CalEEMod default sequestration factors were used. The following approach was used to quantify sequestration potential for both the baseline and proposed cases.

Equation 9:Vegetation Annual Sequestration Calculation

$$\text{Annual Sequastration } [\text{MTCO}_2\text{e}] = \sum_{\text{i}} (\text{C}_\text{T} * \text{SF}_\text{T})_\text{i}$$

Where:

C_T	=	Count of trees per species
SF_T	=	Sequestration factor per species [$MTCO_2$/tree/year]

5 GHG Emissions Results

This section quantifies the results of the emissions analysis based on the project's design. The emissions calculations will be updated throughout design with emissions calculated at project completion for final certification.

5.1 Baseline Emissions Results

Annual baseline emissions were calculated using the land program in Table 2 and the default inputs for each use type within CalEEMod. These inputs represent state averages for each use and emissions category. A preliminary tree assessment on the current site was also incorporated to estimate sequestration using CalEEMod default factors. Annual baseline operational emissions are quantified in Table 8 below.

Table 8: Summary of baseline emissions

CATEGORY	EMISSIONS [$MTCO_2e/yr$]
Electricity	1,753
Natural gas	250
Mobile sources	5,639
Solid waste	393
Water + wastewater	324
Landscaping/area	1.3
Stationary sources	0
Sequestration	-11
TOTAL	**8,350**

5.2 Proposed Construction Emissions Results

Construction related emissions are applicable only to the proposed project. Construction emissions are based currently on default assumptions based on the project size in CalEEMod. Table 9 presents the project's annual and total construction-related emissions. Total GHG emissions from construction activities are estimated at 97,189 $MTCO_2e$ for the proposed project.

Table 9: Project Construction-Related GHG Emissions

PHASE	CONSTRUCTION YEAR	GHG EMISSIONS [$MTCO_2e$]
1	2021	6,695
1	2022	18,363
1	2023	17,302
1 & 2	2024	18,917
2	2025	18,301
2	2026	17,697
2 & 3	2027	18,536
2	2028	15,352
3	2029	15,129
3	2030	10,954
TOTAL		**157,247**

5.3 Proposed Mobile Emissions Results

Mobile emissions are based on anticipated vehicle travel to and from the site generated by the uses on-site. Additional trips generated by proximal but offsite uses (e.g. SAP Center or other downtown commercial uses) which may utilize the streets within the proposed project are not included in either the baseline or the proposed emissions. Further discussion of this assumption is included in the accompanying document, AB 900 Transportation Assessment for Downtown West Mixed-Use Plan, under the section Non-Trip Generating Land Uses. Additionally, assumptions on TDM impacts are based on the strategies outlined in the TDM report. Table 10 below provides the results of mobile emissions and impacts from TDM packages.

Table 10: Annual Emissions from Mobile Sources

YEAR	MOBILE SOURCE GHG EMISSIONS [$MTCO_2e/yr$]
2024	17,734
2025	17,713
2026	17,691
2027	43,861
2028	43,861
2029	43,819
2030	58,355
2031	58,355
2032	58,355
2033	58,342
2034	58,328
2035	58,315
2036	58,302
2037	58,288
2038	58,275
2039	58,261
2040	58,248
2041	58,235
2042	58,221

YEAR	MOBILE SOURCE GHG EMISSIONS [$MTCO_2e/yr$]
2043	58,208
2044	58,194
2045	58,181
2046	58,168
2047	58,154
2048	58,141
2049	58,127
2050	58,114
2051	58,101
2052	58,087
2053	58,074
2054	58,074[6]
2055	41,398
2056	41,389
2057	41,381[7]
2058	15,533
2059	15,529
2060	15,525

[6] End of Phase 1 30-year operational reporting period
[7] End of Phase 2 30-year operational reporting period

5.4 Proposed Energy Emissions Results

The proposed project currently is designed without combustion. Therefore, energy emissions are solely due to electricity for the proposed project; should this be changed, natural gas emissions will be accounted for in the proposed project. The estimated annual emissions from electricity consumption during the period calculated are provided in Table 11:

Table 11: Annual Emissions from Electricity

YEAR	ELECTRICITY [MWh/yr]	GHG EMISSIONS (DECARBONIZED) [$MTCO_2e$/yr]
2024	69,927	9,586
2025	69,927	9,126
2026	69,927	8,665
2027	153,717	18,036
2028	153,717	17,024
2029	153,717	16,011
2030	219,403	21,408
2031	219,403	19,963
2032	219,403	18,518
2033	219,403	17,073
2034	219,403	15,628
2035	219,403	14,183
2036	219,403	12,738
2037	219,403	11,293
2038	219,403	9,848
2039	219,403	8,403
2040	219,403	6,958
2041	219,403	5,513
2042	219,403	4,068
2043	219,403	2,622
2044	219,403	1,177
2045	219,403	0[8]
2046	219,403	0

[8] PG&E Grid becomes decarbonized in 2045 in line with CA RPS

2047	219,403	0
2048	219,403	0
2049	219,403	0
2050	219,403	0
2051	219,403	0
2052	219,403	0
2053	219,403	0
2054	219,403	0
2055	149,465	0
2056	149,465	0
2057	149,465	0
2058	65,681	0
2059	65,681	0
2060	65,681	0

5.5 Proposed Water Emissions Results

Water emissions for the proposed project are based on the anticipated water use including anticipated use of recycled water currently provided by the City of San Jose as well as treatment from the municipal wastewater treatment network. Given the three phases of use, annual emissions for proposed phases 1, 2 and 3 are shown in Table 12,

Table 13, and

Table 14, respectively. The project will be exploring options for on-site wastewater treatment, coupled with the beneficial reuse of recycled water as a means to improve resource efficiency from a water and carbon perspective.

Table 12: Annual Emissions from Water & Wastewater for Proposed Phase 1

LAND USE SUBTYPE	CO2 EMISSIONS [$MTCO_2$/yr]	CH4 EMISISONS [$MTCH_4$/yr]	N20 EMISSIONS [MTN_2O/yr]	GHG EMISSIONS [$MTCO_2e$/yr]
General Office Building	1,161.84	15.10	0.37	1,648.30
Retail	18.62	0.24	0.01	26.42
Hotel	0.00	0.00	0.00	0.00
Apartments High Rise	329.95	4.26	0.10	467.13
Limited-term corporate accommodation	41.24	0.53	0.01	58.39
Event facility - Arena	0.00	0.00	0.00	0.00
Logistics Center	21.86	0.38	0.01	34.00
Central Utility Plant	0.00	0.00	0.00	0.00
Open space	6.06	0.00	0.00	6.09
TOTAL	**1,579.58**	**20.52**	**0.50**	**2,240.34**

Table 13: Annual Emissions from Water & Wastewater for Proposed Phase 2

LAND USE SUBTYPE	CO2 EMISSIONS [$MTCO_2$/yr]	CH4 EMISISONS [$MTCH_4$/yr]	N20 EMISSIONS [MTN_2O/yr]	GHG EMISSIONS [$MTCO_2e$/yr]
General Office Building	1,161.84	15.10	0.37	1,648.30
Retail	52.15	0.68	0.02	73.98
Hotel	0.00	0.00	0.00	0.00
Apartments High Rise	379.44	4.90	0.12	537.20
Limited-term corporate accommodation	41.24	0.53	0.01	58.39
Event facility - Arena	0.00	0.00	0.00	0.00
Logistics Center	0.00	0.00	0.00	0.00
Central Utility Plant	0.00	0.00	0.00	0.00
Open space	6.06	0.00	0.00	6.09
TOTAL	**1,640.74**	**21.21**	**0.51**	**2,323.96**

Table 14: Annual Emissions from Water & Wastewater for Proposed Phase 3

LAND USE SUBTYPE	CO2 EMISSIONS [$MTCO_2$/yr]	CH4 EMISISONS [$MTCH_4$/yr]	N20 EMISSIONS [MTN_2O/yr]	GHG EMISSIONS [$MTCO_2e$/yr]
General Office Building	938.41	12.20	0.30	1,331.32
Retail	22.35	0.29	0.01	31.71
Hotel	10.16	0.17	0.00	15.50
Apartments High Rise	263.96	3.41	0.08	373.71
Limited-term corporate accommodation	49.49	0.64	0.02	70.07
Event facility - Arena	84.24	1.41	0.03	129.49
Logistics Center	21.86	0.38	0.01	34.00
Central Utility Plant	0.00	0.00	0.00	0.00
Open space	6.06	0.00	0.00	6.09
TOTAL	**1,396.53**	**18.49**	**0.45**	**1,991.87**

The above three tables combine to the annual water emissions provided in Table 15.

Table 15: Annual Emissions from Water & Wastewater

YEAR	CO2 EMISSIONS [$MTCO_2$/yr]	CH4 EMISISONS [$MTCH_4$/yr]	N20 EMISSIONS [MTN_2O/yr]	GHG EMISSIONS [$MTCO_2e$/yr]
2024	1,580	20.52	0.50	2,240
2025	1,580	20.52	0.50	2,240
2026	1,580	20.52	0.50	2,240
2027	3,220	41.73	1.01	4,564
2028	3,220	41.73	1.01	4,564
2029	3,220	41.73	1.01	4,564
2030	4,617	60.21	1.46	6,556
2031	4,617	60.21	1.46	6,556
2032	4,617	60.21	1.46	6,556
2033	4,617	60.21	1.46	6,556
2034	4,617	60.21	1.46	6,556
2035	4,617	60.21	1.46	6,556
2036	4,617	60.21	1.46	6,556
2037	4,617	60.21	1.46	6,556
2038	4,617	60.21	1.46	6,556
2039	4,617	60.21	1.46	6,556
2040	4,617	60.21	1.46	6,556
2041	4,617	60.21	1.46	6,556
2042	4,617	60.21	1.46	6,556
2043	4,617	60.21	1.46	6,556
2044	4,617	60.21	1.46	6,556
2045	4,617	60.21	1.46	6,556
2046	4,617	60.21	1.46	6,556
2047	4,617	60.21	1.46	6,556
2048	4,617	60.21	1.46	6,556
2049	4,617	60.21	1.46	6,556

2050	4,617	60.21	1.46	6,556
2051	4,617	60.21	1.46	6,556
2052	4,617	60.21	1.46	6,556
2053	4,617	60.21	1.46	6,556
2054	4,617	60.21	1.46	6,556[9]
2055	3,037	39.70	0.96	4,316
2056	3,037	39.70	0.96	4,316
2057	3,037	39.70	0.96	4,316[10]
2058	1,397	18.49	0.45	1,992
2059	1,397	18.49	0.45	1,992
2060	1,397	18.49	0.45	1,992

[9] End of Phase 1 30-year operational reporting period
[10] End of Phase 2 30-year operational reporting period

5.6 Proposed Waste Emissions Results

Table 16 below provides the current estimates for waste emissions from the proposed project. Note that the generation rates are based on implementation of anticipated waste collection and diversion strategies as well as high recycling rates within San Jose through the municipal waste collection.

Table 16: Annual Emissions from Municipal Solid Waste

YEAR	TOTAL [tons waste/yr]	CH4 EMISISONS [$MTCH_4$/yr]	CO2 EMISSIONS [$MTCO_2$/yr]	GHG EMISSIONS [$MTCO_2e$/yr]
2024	230.9	2.8	46.8	116.2
2025	230.9	2.8	46.8	116.2
2026	230.9	2.8	46.8	116.2
2027	498.9	6.0	101.2	251.0
2028	498.9	6.0	101.2	251.0
2029	498.9	6.0	101.2	251.0
2030	700.8	8.4	142.2	352.7
2031	700.8	8.4	142.2	352.7
2032	700.8	8.4	142.2	352.7
2033	700.8	8.4	142.2	352.7
2034	700.8	8.4	142.2	352.7
2035	700.8	8.4	142.2	352.7
2036	700.8	8.4	142.2	352.7
2037	700.8	8.4	142.2	352.7
2038	700.8	8.4	142.2	352.7
2039	700.8	8.4	142.2	352.7
2040	700.8	8.4	142.2	352.7
2041	700.8	8.4	142.2	352.7
2042	700.8	8.4	142.2	352.7
2043	700.8	8.4	142.2	352.7
2044	700.8	8.4	142.2	352.7
2045	700.8	8.4	142.2	352.7
2046	700.8	8.4	142.2	352.7
2047	700.8	8.4	142.2	352.7

2048	700.8	8.4	142.2	352.7
2049	700.8	8.4	142.2	352.7
2050	700.8	8.4	142.2	352.7
2051	700.8	8.4	142.2	352.7
2052	700.8	8.4	142.2	352.7
2053	700.8	8.4	142.2	352.7
2054	700.8	8.4	142.2	352.7[11]
2055	469.8	5.6	95.3	236.4
2056	469.8	5.6	95.3	236.4
2057	469.8	5.6	95.3	236.4[12]
2058	201.8	2.4	40.9	101.5
2059	201.8	2.4	40.9	101.5
2060	201.8	2.4	40.9	101.5

[11] End of Phase 1 30-year operational reporting period
[12] End of Phase 2 30-year operational reporting period

5.7 Proposed Emissions from Stationary Sources

Table 17 shows the resulting emissions by phase for emergency backup generators.

Table 17: Annual Emissions from Stationary Sources

YEAR	GHG EMISSIONS [$MTCO_2e/yr$]
2024	8
2025	8
2026	8
2027	16
2028	16
2029	16
2030	23
2031	23
2032	23
2033	23
2034	23
2035	23
2036	23
2037	23
2038	23
2039	23
2040	23
2041	23
2042	23

YEAR	GHG EMISSIONS [$MTCO_2e/yr$]
2043	23
2044	23
2045	23
2046	23
2047	23
2048	23
2049	23
2050	23
2051	23
2052	23
2053	23
2054	23[13]
2055	15
2056	15
2057	15[14]
2058	7
2059	7
2060	7

[13] End of Phase 1 30-year operational reporting period
[14] End of Phase 2 30-year operational reporting period

5.8 Proposed Sequestration from Vegetation

Table 18 shows a summary of the carbon sequestration potential of the proposed vegetation plans. Sequestration is shown as a negative number in contrast to emissions from other sources.

Table 18: Annual GHG Sequestration from Vegetation

YEAR	GHG SEQUESTRATION [$MTCO_2e/yr$]
2024	-9.91
2025	-9.91
2026	-9.91
2027	-19.12
2028	-19.12
2029	-19.12
2030	-29.21
2031	-29.21
2032	-29.21
2033	-29.21
2034	-29.21
2035	-29.21
2036	-29.21
2037	-29.21
2038	-29.21
2039	-29.21
2040	-29.21
2041	-29.21
2042	-29.21

YEAR	GHG SEQUESTRATION [$MTCO_2e/yr$]
2043	-29.21
2044	-29.21
2045	-29.21
2046	-29.21
2047	-29.21
2048	-29.21
2049	-29.21
2050	-29.21
2051	-29.21
2052	-29.21
2053	-29.21
2054	-29.21[15]
2055	-19.30
2056	-19.30
2057	-19.30[16]
2058	-10.09
2059	-10.09
2060	-10.09

[15] End of Phase 1 30-year operational reporting period
[16] End of Phase 2 30-year operational reporting period

5.9 Summary of Proposed Operational GHG Emissions

Operational emissions for the proposed project are given in Table 19 below.

Table 19: Operational GHG Emissions Summary for 2030 (full build-out)

CATEGORY	GHG EMISSIONS [$MTCO_2e/yr$]
Mobile	58,355
Electricity	21,408
Natural gas	0
Water and wastewater	6,556
Solid waste	353
Landscape/area	83
Back-up generators	23
Sequestration	-29
Total	**86,749**

5.10 Overall Year-By-Year Emissions

The gross year-by-year overall emissions for the proposed project are shown in Table 20. These values do not include the baseline emissions. Emissions were evaluated over a 30-year period for each phase. The table also includes project construction emissions. Operational emissions for the proposed project exceed those of the existing conditions for all years considered.

Table 20: Overall Year-by-Year Emissions

YEAR	CONSTRUCTION EMISSIONS [$MTCO_2e/yr$]	OPERATIONAL EMISSIONS [$MTCO_2e/yr$]	YEAR	CONSTRUCTION EMISSIONS [$MTCO_2e/yr$]	OPERATIONAL EMISSIONS [$MTCO_2e/yr$]
2021	6,695	--	2042	--	69,275
2022	18,363	--	2043	--	67,816
2023	17,302	--	2044	--	66,358
2024	18,917	29,703	2045	--	65,167
2025	18,301	29,221	2046	--	65,154
2026	17,697	28,739	2047	--	65,140
2027	18,536	66,769	2048	--	65,127
2028	15,352	65,756	2049	--	65,113
2029	15,129	64,702	2050	--	65,100
2030	10,954	86,749	2051	--	65,087
2031	--	85,304	2052	--	65,073
2032	--	83,859	2053	--	65,060
2033	--	82,401	2054	--	65,060[17]
2034	--	80,942	2055	--	46,002
2035	--	79,484	2056	--	45,993
2036	--	78,025	2057	--	45,985[18]
2037	--	76,567	2058	--	17,646
2038	--	75,109	2059	--	17,643
2039	--	73,650	2060	--	17,639
2040	--	72,192	**Total**	**157,247**	**2,275,342**
2041	--	70,733			

[17] End of Phase 1 30-year operational reporting period
[18] End of Phase 2 30-year operational reporting period

The annual net increase in GHG emissions are given in Table 21 below.

Table 21: Overall Year-by-Year Increase in Emissions

YEAR	GROSS EMISSIONS [$MTCO_2e/yr$]	NET INCREASE IN EMISSIONS [$MTCO_2e/yr$]
2021	6,695	0
2022	18,363	10,014
2023	17,302	8,952
2024	48,619	40,270
2025	47,522	39,172
2026	46,436	38,087
2027	85,305	76,955
2028	81,108	72,759
2029	79,831	71,482
2030	97,704	89,354
2031	85,304	76,955
2032	83,859	75,510
2033	82,401	74,051
2034	80,942	72,593
2035	79,484	71,134
2036	78,025	69,676
2037	76,567	68,217
2038	75,109	66,759
2039	73,650	65,300
2040	72,192	63,842
2041	70,733	62,384
2042	69,275	60,925
2043	67,816	59,467
2044	66,358	58,008
2045	65,167	56,817
2046	65,154	56,804
2047	65,140	56,791
2048	65,127	56,777
2049	65,113	56,764
2050	65,100	56,750
2051	65,087	56,737
2052	65,073	56,724
2053	65,060	56,710
2054	65,060	56,710
2055	46,002	37,652
2056	45,993	37,643
2057	45,985	37,635
2058	17,646	9,297
2059	17,643	9,293
2060	17,639	9,289
Total	**2,432,589**	**2,100,260**

6 GHG Offsetting Measures

To offset the increase in GHG emissions from project construction beginning in 2021 and operations through 2060, the project sponsor commits to measures to ensure there will be no net additional GHG emissions associated with the project during construction, and for 30 years of operations.

The analysis in this document includes various conservative assumptions: calculations were performed using the upper bound of contemplated land use program ranges, CalEEMod and other default assumptions were used where better-performing options were still under study, and energy sources as well as energy code were assumed to be those currently known or available, rather than more efficient or more renewable options anticipated in the future. Therefore, the project anticipates lower emissions than modeled in this conservative analysis.

Since 2007, Google has offset 100% of its emissions. Additionally, Google is already committed to offsetting 100% of its energy from global operations with renewable sources. In line with this goal, the project will endeavor to source 100% of its energy from renewable sources and is exploring going further toward local decarbonization through the use of on-site renewable energy generation. Studies are currently being undertaken to evaluate the potential of applying photovoltaic panels to the rooftops and facades of buildings within the district. Subscription to a local Community Choice Energy organization such as San Jose Clean Energy can also provide a strategy to achieve 100% renewable power, via the “TotalGreen” purchasing option.

In its current facilities, Google also requires electric vehicle charging stations beyond the minimum required in the State of California, and the City of San Jose is anticipated to introduce new requirements for EV infrastructure charging facilities in its 2020 reach code. The project's intent is to continue the acceleration of the transition to electric vehicles. Where possible, additional TDM measures will also be evaluated to ensure that the location’s high density of quality transit can most effectively be used to offset vehicular emissions. Electrification of mass transit in line with state and local plans will also help achieve this aim; the project sponsor continues to be aligned with these efforts.

For remaining emissions, the project sponsor currently provides offsets for business activities through the purchase of renewable power and retirement of the associated renewable energy credits as well as purchase of verifiable, permanent GHG offsets sourced through high quality market and direct mechanisms. The project sponsor commits to extend these activities to cover the scopes of emissions related to construction and operation of this project, and to require the same of partners who may deliver other components of the project.

Appendix A: Supporting Tables

Table A. 1: Project Characteristics

Project Name	**Phase 1**	**Phase 2**	**Phase 3**
Project Location	Santa Clara County	Santa Clara County	Santa Clara County
Wind Speed (m/s)	2.2	2.2	2.2
Precipitation Frequency (days)	58	58	58
Climate Zone	4	4	4
Land Use Setting	Urban	Urban	Urban
Operational Year	2024	2027	2030
Utility Company	Pacific Gas & Elec.	Pacific Gas & Elec.	Pacific Gas & Elec
CO_2 Intensity Factor (lb/MWh)	302	244	186
CH_4 Intensity Factor (lb/MWh)	0.029	0.029	0.029
N_2O Intensity Factor (lb/MWh)	0.006	0.006	0.006
CO_2e Intensity Factor (lb/MWh)	643.52	643.52	643.52

Table A. 2: Proposed Construction Schedule, Phase 1

CONSTRUCTION PHASE NAME	PHASE TYPE	TOTAL WORKER DAYS
Demolition	Demolition	200
Site Preparation	Site Preparation	120
Grading	Grading	310
Building Construction	Building Construction	3,100
Paving	Paving	220
Architectural Coating	Architectural Coating	220

Table A. 3: Proposed Construction Schedule, Phase 2

CONSTRUCTION PHASE NAME	PHASE TYPE	TOTAL WORKER DAYS
Demolition	Demolition	200
Site Preparation	Site Preparation	120
Grading	Grading	310
Building Construction	Building Construction	3,100
Paving	Paving	220
Architectural Coating	Architectural Coating	220

Table A. 4: Proposed Construction Schedule, Phase 3

CONSTRUCTION PHASE NAME	PHASE TYPE	TOTAL WORKER DAYS
Demolition	Demolition	200
Site Preparation	Site Preparation	120
Grading	Grading	310
Building Construction	Building Construction	3,100
Paving	Paving	220
Architectural Coating	Architectural Coating	220

Table A. 5: Trip Generation Rates and Vehicle Miles Travelled

YEAR	ANNUAL TRIPS	VMT (mi)
2024	7,095,159	67,306,186
2025	7,095,159	67,220,237
2026	7,095,159	67,134,287
2027	18,470,107	165,908,475
2028	18,470,107	165,908,475
2029	18,470,107	165,740,948
2030	24,573,045	220,737,109
2031	24,573,045	220,737,109
2032	24,573,045	220,737,109
2033	24,573,045	220,683,009
2034	24,573,045	220,628,910
2035	24,573,045	220,574,810
2036	24,573,045	220,520,711
2037	24,573,045	220,466,611
2038	24,573,045	220,412,512
2039	24,573,045	220,358,412
2040	24,573,045	220,304,312
2041	24,573,045	220,250,213
2042	24,573,045	220,196,113
2043	24,573,045	220,142,014
2044	24,573,045	220,087,914
2045	24,573,045	220,033,815
2046	24,573,045	219,979,715
2047	24,573,045	219,925,616
2048	24,573,045	219,871,516
2049	24,573,045	219,817,417
2050	24,573,045	219,763,317
2051	24,573,045	219,709,217
2052	24,573,045	219,655,118

2053	24,573,045	219,601,018
2054	24,573,045	219,601,018
2055	17,817,202	156,361,958
2056	17,817,202	156,327,463
2057	17,817,202	156,292,968
2058	6,546,031	58,750,933
2059	6,546,031	58,736,042
2060	6,546,031	58,721,151

Table A. 6: PG&E Grid Decarbonization Projection

YEAR	CO_2 INTENSITY PER TOTAL DELIVERED ENERGY ($lbCO_2/MWh$)	TOTAL ENERGY FROM RENEWABLES (%)	CO_2E INTENSITY PER TOTAL DELIVERED ENERGY ($lbCO_2e/MWh$)
2014-2016 3-yr avg	378	30%	378
2024	302	44%	302
2025	288	47%	288
2026	273	49%	273
2027	259	52%	259
2028	244	55%	244
2029	230	57%	230
2030	215	60%	215
2031	201	63%	201
2032	186	65%	186
2033	172	68%	172
2034	157	71%	157
2035	143	74%	143
2036	128	76%	128
2037	113	79%	113
2038	99	82%	99
2039	84	84%	84
2040	70	87%	70
2041	55	90%	55
2042	41	92%	41
2043	26	95%	26
2044	12	98%	12
2045+	0	100%	0

Table A. 7: Solid Waste Total Annual Generation

YEAR	COMMERCIAL [tons/yr]	RESIDENTIAL [tons/yr]	RETAIL [tons/yr]	HOTEL [tons/yr]	EVENT CENTER [tons/yr]	CORPORATE ACCOMODATION [tons/yr]	TOTAL WASTE [tons/yr]
2024	956	343	101	0	0	43	1,443
2025	956	343	101	0	0	43	1,443
2026	956	343	101	0	0	43	1,443
2027	1,912	737	383	0	0	86	3,118
2028	1,912	737	383	0	0	86	3,118
2029	1,912	737	383	0	0	86	3,118
2030	2,685	1,011	504	13	29	138	4,380
2031	2,685	1,011	504	13	29	138	4,380
2032	2,685	1,011	504	13	29	138	4,380
2033	2,685	1,011	504	13	29	138	4,380
2034	2,685	1,011	504	13	29	138	4,380
2035	2,685	1,011	504	13	29	138	4,380
2036	2,685	1,011	504	13	29	138	4,380
2037	2,685	1,011	504	13	29	138	4,380
2038	2,685	1,011	504	13	29	138	4,380
2039	2,685	1,011	504	13	29	138	4,380
2040	2,685	1,011	504	13	29	138	4,380
2041	2,685	1,011	504	13	29	138	4,380
2042	2,685	1,011	504	13	29	138	4,380
2043	2,685	1,011	504	13	29	138	4,380
2044	2,685	1,011	504	13	29	138	4,380
2045	2,685	1,011	504	13	29	138	4,380
2046	2,685	1,011	504	13	29	138	4,380

2047	2,685	1,011	504	13	29	138	4,380
2048	2,685	1,011	504	13	29	138	4,380
2049	2,685	1,011	504	13	29	138	4,380
2050	2,685	1,011	504	13	29	138	4,380
2051	2,685	1,011	504	13	29	138	4,380
2052	2,685	1,011	504	13	29	138	4,380
2053	2,685	1,011	504	13	29	138	4,380
2054	2,685	1,011	504	13	29	138	4,380
2055	1,728	668	403	13	29	95	2,936
2056	1,728	668	403	13	29	95	2,936
2057	1,728	668	403	13	29	95	2,936
2058	772	274	121	13	29	52	1,261
2059	772	274	121	13	29	52	1,261
2060	772	274	121	13	29	52	1,261

Table 22: Solid Waste Landfill Annual Generation

YEAR	COMMERCIAL [tons/yr]	RESIDENTIAL [tons/yr]	RETAIL [tons/yr]	HOTEL [tons/yr]	EVENT CENTER [tons/yr]	CORPORATE ACCOMODATION [tons/yr]	TOTAL WASTE [tons/yr]
2024	153	55	16	0	0	7	231
2025	153	55	16	0	0	7	231
2026	153	55	16	0	0	7	231
2027	306	118	61	0	0	14	499
2028	306	118	61	0	0	14	499
2029	306	118	61	0	0	14	499
2030	430	162	81	2	5	22	701
2031	430	162	81	2	5	22	701
2032	430	162	81	2	5	22	701
2033	430	162	81	2	5	22	701
2034	430	162	81	2	5	22	701
2035	430	162	81	2	5	22	701
2036	430	162	81	2	5	22	701
2037	430	162	81	2	5	22	701
2038	430	162	81	2	5	22	701
2039	430	162	81	2	5	22	701
2040	430	162	81	2	5	22	701
2041	430	162	81	2	5	22	701
2042	430	162	81	2	5	22	701
2043	430	162	81	2	5	22	701
2044	430	162	81	2	5	22	701
2045	430	162	81	2	5	22	701
2046	430	162	81	2	5	22	701

2047	430	162	81	2	5	22	701
2048	430	162	81	2	5	22	701
2049	430	162	81	2	5	22	701
2050	430	162	81	2	5	22	701
2051	430	162	81	2	5	22	701
2052	430	162	81	2	5	22	701
2053	430	162	81	2	5	22	701
2054	430	162	81	2	5	22	701
2055	276	107	64	2	5	15	470
2056	276	107	64	2	5	15	470
2057	276	107	64	2	5	15	470
2058	124	44	19	2	5	8	202
2059	124	44	19	2	5	8	202
2060	124	44	19	2	5	8	202
Assumes 84% landfill diversion rate (27% compost, 13% recycle, 44% other recoverable)							

Table A. 8: Existing Tree Assessment

TREE SPECIES	TOTAL QUANTITY	QUANTITY TO REMAIN	QUANTITY TO REMOVE
Jacaranda	12	12	0
Shamel Ash	44	22	22
London Plane	148	73	75
Royal Palm	42	42	0
Chinese Elm	20	0	20
Unknown[19]	47	37	10

Table A. 9: Proposed Tree Count, Phase 1

TREE SPECIES	BROAD SPECIES CLASS	NUMBER OF STREET TREES	NUMBER OF PARK TREES	TOTAL NUMBER OF TREES
London Plane	Mixed Hardwood	44	0	44
White Alder	Mixed Hardwood	11	25	36
Poplar	Mixed Hardwood	11	17	28
Fremont Cottonwood	Mixed Hardwood	9	39	48
California Sycamore	Mixed Hardwood	26	17	43
Coast Live Oak	Mixed Hardwood	9	6	15
Valley Oak	Mixed Hardwood	0	25.000	25.000
Red & Arroyo Willow	Mixed Hardwood	0	31	31

[19] Unknown trees are classified as “Miscellaneous” in CalEEMod

Table A. 10: Proposed Tree Count, Phase 2

TREE SPECIES	BROAD SPECIES CLASS	NUMBER OF STREET TREES	NUMBER OF PARK TREES	TOTAL NUMBER OF TREES
London Plane	Mixed Hardwood	68	0	68
White Alder	Mixed Hardwood	17	13	30
Poplar	Mixed Hardwood	17	8	25
Fremont Cottonwood	Mixed Hardwood	14	20	34
California Sycamore	Mixed Hardwood	41	8	49
Coast Live Oak	Mixed Hardwood	14	3	17
Valley Oak	Mixed Hardwood	0	13	13
Red & Arroyo Willow	Mixed Hardwood	0	15	15

Table A. 11: Proposed Tree Count, Phase 3

TREE SPECIES	BROAD SPECIES CLASS	NUMBER OF STREET TREES	NUMBER OF PARK TREES	TOTAL NUMBER OF TREES
London Plane	Mixed Hardwood	84	0	84
White Alder	Mixed Hardwood	21	10	31
Poplar	Mixed Hardwood	21	7	28
Fremont Cottonwood	Mixed Hardwood	17	16	33
California Sycamore	Mixed Hardwood	50	7	57
Coast Live Oak	Mixed Hardwood	17	2	19
Valley Oak	Mixed Hardwood	0	10	10
Red & Arroyo Willow	Mixed Hardwood	0	13	13

Appendix D

Letter to Rosalynn Hughey, Director, Department of Planning, Building, and Code Enforcement

Google LLC
1600 Amphitheatre
Parkway
Mountain View, CA 94043

650-253-0000 main
Google.com

August 22, 2019

Rosalynn Hughey
Director, Department of Planning, Building, and Code Enforcement
City of San Jose
200 E. Santa Clara Street
San Jose, CA 95113

Re: Downtown West Mixed Use Plan
AB 900 Application for Certification as an Environmental Leadership Development Project and Acknowledgement of Obligations under Public Resources Code §21183(e)(f) & (g)

Dear Ms. Hughey:

Google LLC (Applicant) will be submitting an application to the Governor's Office of Planning and Research as well as the California Air Resources Board for certification of the Downtown West Mixed Use Plan as an Environmental Leadership Development Project subject to streamlined review by the judiciary under the Jobs and Economic Improvement through Environmental Leadership Act of 2011 (Act), as amended.

By this letter, the Applicant acknowledges and agrees to its obligations under Public Resources Code Sections 21183(e), (f), and (g), as follows:

> The Applicant agrees that all mitigation measures required pursuant to the California Environmental Quality Act (CEQA) to certify the project under the Act shall be made conditions of approval, that these conditions will be fully enforceable by the City of San Jose Department of Planning, Building, and Code Enforcement or other agency designated by the City, and that all environmental mitigation measures will be monitored and enforced by the City for the life of the obligation. (Public Resources Code section 21183(e).)
>
> The Applicant agrees to pay the costs of the Court of Appeal in hearing and deciding any case, including payment of the costs for the appointment of a special master if deemed appropriate by the court, in a form and manner specified by the Judicial Council, as provided in the Rules of Court adopted by the Judicial Council pursuant to the Act. (Public Resources Code section 21183(f).)
>
> The Applicant agrees to pay the costs of preparing the record of proceedings for the project concurrent with review and consideration of the project pursuant to CEQA, in a form and manner specified by the Department of Planning, Building, and Code Enforcement or other City agency. (Public Resources Code section 21183(g).)

Please return a counter-signed letter to Google LLC, at the address above or electronically to Alexa Arena at arena@google.com. Thank you in advance.

Very truly yours,

Google LLC,
a Delaware limited liability company

By: _____
Alexa Arena
Director, Real Estate District Development
Google LLC

Acknowledged and agreed.

_____
Rosalynn Hughey
Director, Department of Planning, Building, and Code Enforcement
City of San Jose

ESA 50 YEARS 1969-2019

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October 23, 2019

Heather King, AICP
Air Pollution Specialist, Sustainable Transportation and Communities Division
California Air Resources Board

Subject: Supplemental Documentation for AB 900 Application

Dear Ms. King:

Google LLC is seeking AB900 Environmental Leadership Development Program (ELDP) certification for the planned Mixed Use development in Downtown West San Jose. The AB900 application was submitted on August 26, 2019 and posted on the Office of Planning and Research (OPR) website on September 3, 2019. Public review of the document closed on October 3, 2019.

On September 25, 2019, Google, its consultants, and California Air Resources Board (CARB) discussed the greenhouse gas (GHG) methodology used in the AB900 application and how to establish an upper and lower bound range related to GHG emissions. Due to the size and scope of the project, multiple project elements are still in flux at this time. Therefore, Google has developed a lower bound for the GHG emission and transportation efficiency calculations to accompany the previously provided upper bound in order to adequately describe a range of potential outcomes. Trip and vehicle miles travelled calculations, emission calculations, and procurement of carbon offsets are further described in the following attached documents:

- Technical Memorandum
- Attachment A, Lower bound retail trip generation rate supplemental methodology
- Attachment B, Supplement to the Analysis of GHG Impacts for the Downtown West Mixed-Use Plan
- Attachment C, Google's Carbon Offsets: Collaboration and Due Diligence
- Attachment D, Downtown West San José Mixed Use Plan: City Commitment to Enforce AB 900 Requirements Letter

We appreciate the time that CARB staff has spent reviewing the AB900 application and hope this supplemental documentation answers the questions raised at the September meeting.

Sincerely,

Heidi Rous

Heidi Rous
Director

CC: Jeannie Lee, AICP, Senior Counsel, Governor's Office of Planning and Research
Natalie Kuffel, JD, Land Use Counsel, Governor's Office of Planning and Research
Rosalynn Hughey, Director, Department of Planning, Building, and Code Enforcement, City of San Jose
Dr. Robert Manford, Deputy Director, Department of Planning, Building, and Code Enforcement, City of San Jose

Technical Memorandum

date	October 23, 2019
to	Heather King, AICP
from	Heidi Rous, Director
subject	Supplemental Submittal for the AB 900 Application for the Downtown West San José Mixed-Use Plan (9/3/2019)

In response to meeting with the California Air Resources Board (CARB) on September 25, 2019, Google LLC has prepared additional documentation to supplement the AB 900 Application for the Downtown West San José Mixed-Use Plan. This memorandum includes justification for the 30-year project lifetime by phase, quantification of greenhouse gas (GHG)-reducing project elements, and Google's policy for obtaining high-quality carbon offsets.

30-Year Project Lifetime

The 30-year project lifetime is an established standard used by multiple public agencies to quantify a project's GHG emissions. The proposed project uses a 30-year project lifetime in a phased approach as construction is slated to occur in three phases over a 10-year period. As such, operational emissions would sunset 30 years after construction completes by phase. The 30-year lifetime is considered reasonably foreseeable and a realistic operating period for a building. This method for quantification is supported by CARB, the Bay Area Air Quality Management District (BAAQMD), and the Office of Environmental Health Hazard Assessment.[1] As a result, it has been used in multiple California Environmental Quality Act documents and approved AB 900 applications. In particular, CARB has issued guidance to use the 30-year project lifetime in its GHG Quantification Methodology for the Affordable Housing and Sustainable Communities program. The methodology explicitly states that California Emissions Estimator Model (CalEEMod) projects must use a 30-year project lifetime to complete this methodology.[2] Therefore, the proposed project will continue to use the 30-year project lifetime in the GHG emissions calculations as supported by the aforementioned documents and agencies.

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1 BAAQMD. Air Toxics NSR Program Health Risk Assessment Guidelines. December 2016. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/permit-modeling/hra_guidelines_12_7_2016_clean-pdf.pdf?la=en

2 CARB. Greenhouse Gas Quantification Methodology for the Strategic Growth Council Affordable Housing and Sustainable Communities Program. March 17, 2015. Available at: https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/sgcahsc_quantificationmethodsv2track.pdf

Quantification of GHG-Reducing Project Elements

Through further evaluation of the land uses, the team was able to calculate a less conservative estimate for mobile emissions, energy emissions, and water emissions. For mobile emissions, a lower bound was developed by assigning a potential distribution of retail land uses with lower trip generation rates (**Attachment A**, *Lower Bound Retail Trip Generation Rate Supplemental Methodology*). Institute of Transportation Engineers trip rates were then determined for each specified land use, consistent with the City of San José Traffic Impact Analysis Handbook, and combined to formulate a weighted average. The lower bound of retail trip generation improved the transportation efficiency in all three phases of the proposed project. While AB 900 requires a minimum trip reduction of 15 percent from a comparable project, the proposed project achieves a lower bound of 20.3 percent to 23.2 percent reduction with this refinement. (The proposed project previously achieved an upper bound of 17.8 percent to 21.2 percent reduction.) In addition to the reduction in mobile trips and emissions, building emissions were also re-evaluated to identify areas of improvement.

Building energy emissions were reduced through advanced energy models that incorporated energy efficiencies and limited energy waste that met or exceeded ASHRAE 2019 in line with the LEED Gold commitment. Similarly, water demand factors were reduced from CalEEMod defaults to more appropriate site-specific factors that account for recycled water use from on-site wastewater collection. On-site solar photovoltaic generation, which had been previously been considered but not quantified, has now been included in the lower bound calculations. Combined, the refined project results in a lower bound of a gross 1.9 million metric tons of carbon dioxide equivalent (MTCO2e) including both construction and operation. This lower bound saves over half a million MTCO2e compared to the more conservative analysis, or upper bound estimate, over the project's lifetime. The emission reductions are discussed in further detail in **Attachment B**, *Supplement to the Analysis of GHG Impacts for the Downtown West Mixed-Use Plan*.

High-Quality Carbon Offsets

In 2007, Google made a commitment to be a carbon neutral company. The strategy was based on three pillars: (1) to be as efficient as possible and do more with less; (2) to source clean energy for our operations; and (3) to buy high-quality carbon offsets as a temporary solution to neutralize any remaining emissions.

As described in **Attachment C**, *Google's Carbon Offsets: Collaboration and Due Diligence White Paper*, Google has a long history of working with carbon offset projects and producers. As part of their standard practice, all carbon offset projects are verified by third-party investigators using published public standards. Once a project is verified as creating a credible reduction in GHGs, a carbon registry issues a carbon credit for each metric ton of carbon dioxide (or equivalent) reduced. Google has demonstrated a proactive approach in pursuing high-quality offset projects through direct interaction with project developers, owners, marketers, and brokers. Google performs its due diligence through documentation review, in-person site visits, and verification reports. For the proposed project, the procurement of such carbon offsets or renewable energy certificates (RECs) would be

binding and enforceable by the lead agency (**Attachment D**, *Downtown West San José Mixed Use Plan: City Commitment to Enforce AB 900 Requirements Letter*). Typically, Google allows for a 3-year window between the carbon footprint year and year of reduction given the uncertainty of the exact number of metric tons required to offset a project once implemented.

Attachment A

Lower Bound Retail Trip Generation Rate Supplemental Methodology

MEMORANDUM

To: Alexa Arena, Google LLC

From: Nelson\Nygaard Consulting Associates

Date: October 23, 2019

Subject: Lower Bound Retail Trip Generation Rate Supplemental Methodology

This memorandum provides information supplemental to the AB 900 Transportation Assessment dated August 2019 to capture the reasonably foreseeable lower bound of transportation impacts. After the discussion with the California Air Resources Board, the transportation team analyzed the average retail trip generation rate based on the potential retail breakdown to provide a more granular estimation of what the actual transportation activity could be. This resulted in a lower bound retail trip generation rate and lower vehicle-miles traveled.

As outlined in the original application, the project will include up to 500,000 sq. ft. of active ground-floor uses collectively defined as retail to support the office and residential land uses. An average retail trip generation of 120 daily trips per 1,000 sq. ft. was applied to the total projected retail area was used to calculate a conservative upper bound limit of possible project-related trips generated. In an effort to refine the analysis, Google provided a breakdown of a reasonably foreseeable distribution of this active ground-floor space, which allowed Nelson\Nygaard to provide a lower bound retail trip generation rate.

The previous 120-retail trip generation rate used was obtained from the City of San José Traffic Impact Analysis Handbook (San José TIA).[1] The San José TIA establishes that trip generation rates may be obtained from:

- The Institute of Transportation Engineers (ITE)
- The San Diego Association of Governments (SANDAG)
- The City of San José

To develop the lower bound retail trip generation, the specific anticipated active floor uses were matched with a corresponding ITE trip generation land use and its trip generation rate. Then each of the ITE trip generation rates were weighted (multiplied) by the percentage area from each proposed retail use of the total retail area. Lastly, the weighted rates were added to obtain a weighted retail trip generation rate of 74. Table 1 shows the project's anticipated retail uses, the ITE trip generation rate, and the weighted trip generation rates.

[1] City of San Jose. 2009. Traffic Impact Analysis Handbook, volume 1 Methodologies and Requirements. Available at: https://www.sanjoseca.gov/DocumentCenter/View/4366 (Accessed on October 2019)

Table 1
Trip Generation Rates for Specific Retail Land Uses

Project's potential retail land uses	Percent of total retail area	ITE trip rate* (trips per 1,000 sq. ft.)	Weighted rate by % of sq. ft.
Neighborhood Retail	35%	38	13
Food and Beverage	40%	131	52
Co-working Space	4%	10	1
Entertainment	5%	78	4
Education - Learning	10%	20	2
Fitness Center	6%	39	2
Total retail area	100%	Final weighted retail trip generation rate	74

*ITE trip generation land uses used in order: shopping center, average for food and beverage, general office building, movie theater, average for education, health/fitness club

The lower bound retail trip generation rate (74 trips per 1,000 sq. ft.) is approximately 40% lower than the previous retail rate of 120 trips per 1,000 sq. ft. The lower bound retail rate was developed by assigning specific land uses for the project's retail area that capture the scale and diversity of active floor uses. Because the ITE trip generation rates are obtained from standalone and mostly suburban land uses, some categories in the active floor area of the proposed project do not have an exact match with the ITE categories. The transportation team prioritized the selection of ITE land uses that were as similar as possible to the proposed active floor uses. For the land uses where a single category did not provide an adequate fit, an average rate of ITE categories was developed to ensure that the assigned rate includes a wide range of rates and does not underestimate the potential trip generation, this was the case for the following two land uses:

- The food and beverage land use had a wide range of ITE trip generation rates. This is because there are notable differences in the potential type of food and beverage establishments (high-turnover, fast casual, drinking place, etc.), and therefore in the resulting trip generation rates. All potential individual ITE trip generation rates for this type of land use were used to obtain an average retail rate for this active floor use (see Table 2).
- The education - learning land use proposed in the project is in part expected to be a space for training courses and short-term classes for local workers and nearby residents. ITE trip generation land uses do not have a category similar to this and most of the land uses are related to more formal education institutions. As a conservative proxy an average of the trip generation rate for those education institutions was used for this active floor use (see Table 3). Even if the resulting average trip rate for the education - learning land use might be higher than expected, the impact on the weighted retail rate and overall total trips and vehicles miles traveled (VMT) should be minimal since this space is planned for up to 10% of the total retail area.

Table 2
ITE Trip Generation Rates for Food and Beverage Land Uses
(used for evaluation purposes only)

ITE category	Trip generation rate
Drinking Place	11
High-Turnover (Sit-Down) Restaurant	112
Fast Casual Restaurant	315
Quality Restaurant	84
Average trip generation rate for food and beverage	131

Table 3
ITE Trip Generation Rates for Education - Learning Land Uses
(used for evaluation purposes only)

ITE category	Trip generation rate
Elementary school	20
Middle School/Junior High School	20
High School	15
Junior/Community College	20
University/College	26
Average trip generation rate for education	20

The retail generation trip rate was applied to the total 500,000 sq. ft. reflecting the project's lower bound transportation efficiency. Table 4 shows the supplemental results and a comparison with the transportation efficiency change in the original application. It can be observed that the lower bound retail trip generation has improved the transportation efficiency in all phases of the proposed project.

Table 4
Supplemental Transportation Efficiency by Phase

Project	Phase 1 Transportation Efficiency	Phase 2 Transportation Efficiency	Phase 3 Transportation Efficiency
Variant A[2]	0.434	0.442	0.428
Variant A Comparable	0.565	0.554	0.548
Reduction from Comparable Project (lower bound weighted retail trip generation rate = 74)	23.2%	20.3%	22.0%
Reduction from Comparable Project (upper bound general retail trip generation rate = 120)	21.2%	17.8%	19.5%

[2] Google, LLC. (August 2019). *Figure 5: Table of Land Uses by Phase*. Appendix A, AB 900 Transportation Assessment for San José Downtown West Mixed-Use Plan, Environmental Leadership Document Project Application: Downtown West Mixed Use Plan.

Attachment B

Supplement to the Analysis of GHG Impacts for the Downtown West Mixed-Use Plan

Google

Supplement to the Analysis of GHG Impacts for the Downtown West Mixed-Use Plan

October 2019

Contents

1 Introduction B-1

2 Lower Bound Mobile Emissions Results B-1

3 Lower Bound Energy Emissions Results B-3

4 Lower Bound Water Emissions Results B-5

5 Lower Bound Stationary Source Emissions Results B-7

6 Solar Photovoltaic Generation B-8

7 Summary of Lower Bound Operational GHG Emissions B-10

Appendix A: Supporting Tables

1 Introduction

The following document is submitted as a supplement to the report titled *Analysis of GHG Impacts for the Downtown West Mixed-Use Plan* submitted as part of the AB900 application in August 2019. This document shows results for the same project with more efficiency measures in place, representing a lower bound that reflects strategies currently being investigated for the project. Note that emissions from the following categories have not been changed from the original application:

- Municipal Solid Waste
- Landscaping/ Area Sources
- Carbon Sequestration

2 Lower Bound Mobile Emissions Results

As outlined in the original application, the project will include up to 500,000 sq. ft. of active, ground-floor uses collectively defined as retail to support the office and residential land uses. An average retail trip generation of 120 daily trips per 1,000 sq. ft. floor area was applied to the total projected retail area as a conservative approach to estimate the trips generated. In an effort to provide a lower bound as requested by CARB, Google provided more detail on a reasonably foreseeable distribution of this active ground-floor space, which allowed Nelson\Nygaard to recalibrate the average retail trip generation rate.

To calculate the lower bound of the retail trip generation, the proposed active floor uses were matched with an ITE trip generation land use and its correspondent trip generation rate. Then each of the ITE trip generation rates were weighted (multiplied) by the percentage area from each proposed retail use on the total retail area. Lastly, the weighted rates were added to obtain a weighted retail trip generation rate of 74. Table A. 1 shows the resultant annual trip numbers and VMT for the period 2024-2060 based on potential retail distribution. Table 1 presents the annual lower bound emissions from mobile emissions.

Table 1: Annual Lower Bound Emissions from Mobile Sources

YEAR	MOBILE SOURCE GHG EMISSIONS [$MTCO_2e/yr$]	YEAR	MOBILE SOURCE GHG EMISSIONS [$MTCO_2e/yr$]
2024	15,795	2043	48,986
2025	15,774	2044	48,973
2026	15,753	2045	48,960
2027	36,714	2046	48,946
2028	36,673	2047	48,933
2029	36,631	2048	48,919
2030	49,112	2049	48,906
2031	49,099	2050	48,893
2032	49,134	2051	48,879
2033	49,120	2052	48,866
2034	49,107	2053	48,852
2035	49,094	2054	48,8391
2036	49,080	2055	34,021
2037	49,067	2056	34,012
2038	49,053	2057	34,0042
2039	49,040	2058	13,319
2040	49,027	2059	13,316
2041	49,013	2060	13,312
2042	49,000		

[1] End of Phase 1 30-year operational reporting period

[2] End of Phase 2 30-year operational reporting period

3 Lower Bound Energy Emissions Results

Additional potential measures were analyzed to reduce the electrical load resulting in further carbon dioxide emissions associated with the site. Additional energy efficiency reductions were modelled including improved insulation of the building envelopes, changing the operation of the HVAC, reducing the plug load, and converting the lighting to occupancy-controlled LEDs, all to meet or exceed ASHRAE 2019 and in line with the LEED Gold commitment. These were all modelled in EnergyPlus and compiled into the demand forecasts. The system has also been modelled using advanced modelling methods to minimize energy waste on the system using a combination of heat recovery chillers, thermal storage, and batteries. Table 2 presents the lower bound of electrical consumption and resultant GHG emissions.

Table 2: Annual Lower Bound Emissions from Electricity

YEAR	ELECTRICITY [MWh/yr]	GHG EMISSIONS (DECARBONIZED) [$MTCO_2e$/yr]
2024	57,996	7,951
2025	57,996	7,569
2026	57,996	7,187
2027	129,287	15,170
2028	129,287	14,318
2029	129,287	13,467
2030	187,104	18,256
2031	187,104	17,024
2032	187,104	15,792
2033	187,104	14,560
2034	187,104	13,327
2035	187,104	12,095
2036	187,104	10,863
2037	187,104	9,630
2038	187,104	8,398
2039	187,104	7,166
2040	187,104	5,933
2041	187,104	4,701

2042	187,104	3,469
2043	187,104	2,236
2044	187,104	1,004
2045	187,104	0[3]
2046	187,104	0
2047	187,104	0
2048	187,104	0
2049	187,104	0
2050	187,104	0
2051	187,104	0
2052	187,104	0
2053	187,104	0
2054	187,104	0
2055	127,516	0
2056	127,516	0
2057	127,516	0
2058	56,291	0
2059	56,291	0
2060	56,291	0

[3] PG&E Grid becomes decarbonized in 2045 in line with CA RPS

4 Lower Bound Water Emissions Results

A water demand study has been conducted to quantify the anticipated water needs for the project. It appears that the CalEEMod water demand factors may not be representative of high-density urban projects. Constructing to CalGreen code requires, for example, using the most advanced low-flow fixtures and greatly reducing water-intensive land cover resulting in much lower indoor and outdoor water use than anticipated using CalEEMod. Water demand factors that are more representative of the type of project planned here have also been adopted by utilities such as San Francisco Public Utilities Commission and third-party organizations such as the US Green Building Council's LEED program. In addition, the commitment to the use of recycled water for all non-potable demands identified in the project, including toilet flushing, irrigation and cooling, will further offset potable water demand. A summary of anticipated water use has been provided in the attached table. Further information can be provided upon request.

The proposed design for wastewater collection includes a potential private, low-pressure sanitary sewer collection network which would be integrated into the proposed utility corridor alignment. Sanitary waste would be collected in a small pump station in each building basement. The pump stations would include a collection tank and a pump to feed into a low-pressure force main, routed within the proposed utility corridor. Pumps would be selected to adequately transfer wastewater solids through the network to the water reuse facility.

The proposed treatment approach for the project employs one or multiple membrane bioreactors (MBRs). The MBR will consist of an anoxic zone for nitrogen removal, an aerobic zone will be used for carbon removal and nitrification and a membrane tank will house the submerged membranes used for tertiary filtration. The secondary solids remaining in the membrane tank will be returned to the activated sludge process as well as removed from the system as waste activated sludge. Upstream of the MBR system, the wastewater will be screened to remove a large fraction of suspended solids. Sanitary solids produced as a by-product from onsite wastewater treatment may be managed onsite through anaerobic digestion, contributing to the project's waste to energy solutions. The tertiary effluent will be disinfected and stored prior to distribution for non-potable end uses. The proposed onsite water reuse facility would treat wastewater to California Code of Regulations Title 22 disinfected tertiary (unrestricted reuse) recycled water standards.

Table 3: Annual Lower Bound Emissions from Water & Wastewater

YEAR	CO_2 EMISSIONS [$MTCO_2$/yr]	CH_4 EMISISONS [$MTCH_4$/yr]	N_20 EMISSIONS [MTN_2O/yr]	GHG EMISSIONS [$MTCO_2e$/yr]
2024	268	3.14	0.08	369

2025	268	3.14	0.08	369
2026	268	3.14	0.08	369
2027	620	7.22	0.18	853
2028	620	7.22	0.18	853
2029	620	7.22	0.18	853
2030	873	10.16	0.25	1,200
2031	873	10.16	0.25	1,200
2032	873	10.16	0.25	1,200
2033	873	10.16	0.25	1,200
2034	873	10.16	0.25	1,200
2035	873	10.16	0.25	1,200
2036	873	10.16	0.25	1,200
2037	873	10.16	0.25	1,200
2038	873	10.16	0.25	1,200
2039	873	10.16	0.25	1,200
2040	873	10.16	0.25	1,200
2041	873	10.16	0.25	1,200
2042	873	10.16	0.25	1,200
2043	873	10.16	0.25	1,200
2044	873	10.16	0.25	1,200
2045	873	10.16	0.25	1,200
2046	873	10.16	0.25	1,200
2047	873	10.16	0.25	1,200
2048	873	10.16	0.25	1,200
2049	873	10.16	0.25	1,200
2050	873	10.16	0.25	1,200
2051	873	10.16	0.25	1,200
2052	873	10.16	0.25	1,200
2053	873	10.16	0.25	1,200
2054	873	10.16	0.25	1,200[4]
2055	605	7.03	0.17	831

[4] End of Phase 1 30-year operational reporting period

2056	605	7.03	0.17	831
2057	605	7.03	0.17	831[5]
2058	253	2.94	0.07	348
2059	253	2.94	0.07	348
2060	253	2.94	0.07	348

5 Lower Bound Stationary Source Emissions Results

Based upon further evaluation of resilience features of the site, listed below are the reflective quantity and sizes of diesel generators. Table 4 below shows a lower bound of annual emissions from generators from the anticipated 50 hours per year testing period.

Table 4: Annual Lower Bound Emissions from Stationary Sources

YEAR	GHG Emissions [$MTCO_2e/yr$]	YEAR	GHG Emissions [$MTCO_2e/yr$]
2024	14.1	2043	30.7
2025	14.1	2044	30.7
2026	14.1	2045	30.7
2027	27.3	2046	30.7
2028	27.3	2047	30.7
2029	27.3	2048	30.7
2030	30.7	2049	30.7
2031	30.7	2050	30.7
2032	30.7	2051	30.7
2033	30.7	2052	30.7
2034	30.7	2053	30.7

[5] End of Phase 2 30-year operational reporting period

2035	30.7	2054	30.7[6]
2036	30.7	2055	16.6
2037	30.7	2056	16.6
2038	30.7	2057	16.6[7]
2039	30.7	2058	3.4
2040	30.7	2059	3.4
2041	30.7	2060	3.4
2042	30.7		

6 Solar Photovoltaic Generation

Google will be studying the incorporation of onsite solar photovoltaic (PV) generation by utilizing both building integrated PV (BIPV) and rooftop arrays. The analysis assumes a 30% rooftop PV coverage across the site with a 0.70 utilization factor (based on a tilt angle of 10 degrees and a spacing factor of 2.5).

For BIPV, the analysis assumes up to 36% net coverage of western-facing façades. This assumption is based on early massing models and will be continuously revised as the design develops. This percent coverage is based on an initial assumption that a portion of the western façade is feasible for solar (to remove façade area too low to generate a substantial amount of electricity). There is an additional reduction that is applied to account for potential shade areas and aesthetics that may preclude BIPV installation on areas of the façade. Table 5 presents Annual Emissions Offset by On-site Solar PV.

Table 5: Annual Emissions Offset by On-site Solar PV

YEAR	OFFSET EMISSIONS FROM SOLAR PV [$MTCO_2e/yr$]	YEAR	OFFSET EMISSIONS FROM SOLAR PV [$MTCO_2e/yr$]
2024	-805	2043	-206
2025	-766	2044	-93

[6] End of Phase 1 30-year operational reporting period

[7] End of Phase 2 30-year operational reporting period

2026	-727		2045	0[8]
2027	-1,423		2046	0
2028	-1,343		2047	0
2029	-1,263		2048	0
2030	-1,682		2049	0
2031	-1,569		2050	0
2032	-1,455		2051	0
2033	-1,342		2052	0
2034	-1,228		2053	0
2035	-1,114		2054	0
2036	-1,001		2055	0
2037	-887		2056	0
2038	-774		2057	0
2039	-660		2058	0
2040	-547		2059	0
2041	-433		2060	0
2042	-320			

[8] PG&E Grid becomes decarbonized in 2045 in line with CA RPS. As such, after this time on-site solar PV no longer offsets carbon emissions from grid electricity.

7 Summary of Lower Bound Operational GHG Emissions

Given the possible lower bound GHG contributions from mobile and stationary sources, combined with a reasonably foreseeable amount of solar PV, the lower bound of the total annual operational emissions for the proposed project are given in Table 6 below. This table shows the results from 2030, the first year of full build-out for all three phases of the project. Table 7 presents the lower bound GHG emissions for all years studied.

Table 6: Lower Bound Operational GHG Emissions Summary for 2030 (full build-out)

CATEGORY	GHG EMISSIONS [$MTCO_2e/yr$]
Mobile	**49,112**
Electricity	**18,256**
Natural gas	**0**
Water and wastewater	**1,200**
Solid waste	**353**
Landscape/area	**83**
Back-up generators	**31**
Sequestration	**-30**
Solar PV	**-1,682**
Total	**67,724**

Table 7: Overall Year-by-Year Emissions

YEAR	CONSTRUCTION EMISSIONS [$MTCO_2e/yr$]	OPERATIONAL EMISSIONS [$MTCO_2e/yr$]	YEAR	CONSTRUCTION EMISSIONS [$MTCO_2e/yr$]	OPERATIONAL EMISSIONS [$MTCO_2e/yr$]
2021	6,695	--	2042	--	53,787
2022	18,363	--	2043	--	52,654
2023	17,302	--	2044	--	51,522
2024	18,917	23,458	2045	--	50,597
2025	18,301	23,094	2046	--	50,584
2026	17,697	22,729	2047	--	50,570
2027	18,536	51,632	2048	--	50,557
2028	15,352	50,819	2049	--	50,544
2029	15,129	50,006	2050	--	50,530
2030	10,954	67,324	2051	--	50,517
2031	--	66,192	2052	--	50,503
2032	--	65,108	2053	--	50,490
2033	--	63,976	2054	--	50,477[9]
2034	--	62,844	2055	--	35,141
2035	--	61,712	2056	--	35,133
2036	--	60,580	2057	--	35,124[10]
2037	--	59,447	2058	--	13,785
2038	--	58,315	2059	--	13,782
2039	--	57,183	2060	--	13,778
2040	--	56,051	Total	157,247	1,765,465
2041	--	54,919			

[9] End of Phase 1 30-year operational reporting period

[10] End of Phase 2 30-year operational reporting period

The annual net increase in GHG emissions are given in Table 8 below.

Table 8: Overall Year-by-Year Increase in Emissions

YEAR	GROSS EMISSIONS [$MTCO_2e/yr$]	NET INCREASE IN EMISSIONS [$MTCO_2e/yr$]	YEAR	GROSS EMISSIONS [$MTCO_2e/yr$]	NET INCREASE IN EMISSIONS [$MTCO_2e/yr$]
2021	6,695	0	2042	53,787	45,437
2022	18,363	10,014	2043	52,654	44,305
2023	17,302	8,952	2044	51,522	43,173
2024	42,375	34,026	2045	50,597	42,248
2025	41,395	33,045	2046	50,584	42,234
2026	40,427	32,077	2047	50,570	42,221
2027	70,168	61,819	2048	50,557	42,207
2028	66,171	57,821	2049	50,544	42,194
2029	65,135	56,786	2050	50,530	42,181
2030	78,278	69,929	2051	50,517	42,167
2031	66,192	57,842	2052	50,503	42,154
2032	65,108	56,759	2053	50,490	42,140
2033	63,976	55,626	2054	50,477	42,127
2034	62,844	54,494	2055	35,141	26,792
2035	61,712	53,362	2056	35,133	26,783
2036	60,580	52,230	2057	35,124	26,774
2037	59,447	51,098	2058	13,785	5,436
2038	58,315	49,966	2059	13,782	5,432
2039	57,183	48,833	2060	13,778	5,428
2040	56,051	47,701	Total	1,922,712	1,590,383
2041	54,919	46,569			

APPENDIX A: SUPPORTING TABLES

Table A.1: Trip Generation Rates and Vehicle Miles Travelled

YEAR	ANNUAL TRIPS	VMT (mi)
2024	6,147,838	60,051,033
2025	6,147,838	59,965,084
2026	6,147,838	59,879,135
2027	14,958,088	139,178,850
2028	14,958,088	139,011,323
2029	14,958,088	138,843,797
2030	20,053,094	186,151,302
2031	20,053,094	186,097,321
2032	20,067,494	186,230,895
2033	20,067,494	186,176,795
2034	20,067,494	186,122,696
2035	20,067,494	186,068,596
2036	20,067,494	186,014,496
2037	20,067,494	185,960,397
2038	20,067,494	185,906,297
2039	20,067,494	185,852,198
2040	20,067,494	185,798,098
2041	20,067,494	185,743,999
2042	20,067,494	185,689,899
2043	20,067,494	185,635,800
2044	20,067,494	185,581,700
2045	20,067,494	185,527,601

2046	20,067,494	185,473,501
2047	20,067,494	185,419,401
2048	20,067,494	185,365,302
2049	20,067,494	185,311,202
2050	20,067,494	185,257,103
2051	20,067,494	185,203,003
2052	20,067,494	185,148,904
2053	20,067,494	185,094,804
2054	20,067,494	185,040,705
2055	14,212,761	128,756,987
2056	14,212,761	128,722,492
2057	14,212,761	128,687,997
2058	5,464,698	50,469,441
2059	5,464,698	50,454,550
2060	5,464,698	50,439,660

Table A.2: PG&E Grid Decarbonization Projection

YEAR	CO_2 INTENSITY PER TOTAL DELIVERED ENERGY ($lbCO_2$/MWh)	TOTAL ENERGY FROM RENEWABLES (%)	CO_2E INTENSITY PER TOTAL DELIVERED ENERGY ($lbCO_2e$/MWh)
2014-2016 3-yr avg	378	30%	378
2024	302	44%	302
2025	288	47%	288
2026	273	49%	273
2027	259	52%	259
2028	244	55%	244
2029	230	57%	230
2030	215	60%	215
2031	201	63%	201
2032	186	65%	186
2033	172	68%	172
2034	157	71%	157
2035	143	74%	143
2036	128	76%	128
2037	113	79%	113
2038	99	82%	99
2039	84	84%	84
2040	70	87%	70
2041	55	90%	55
2042	41	92%	41
2043	26	95%	26
2044	12	98%	12
2045+	0	100%	0

Table A.3: Annual Water Use, Phase 1

LAND USE SUBTYPE	INDOOR WATER USE - POTABLE (gal/year)	INDOOR WATER USE - NONPOTABLE (gal/yr)	OUTDOOR WATER USE - NONPOTABLE (gal/year)	COOLING WATER - NONPOTABLE (gal/yr)
General Office Building	29,251,400	8,068,600	2,923,517	7,485,165
Retail - Free-standing Discount store	13,972,500	748,100	112,443	287,891
Hotel	0	0	0	0
Apartments High Rise	32,762,900	5,037,400	1,472,812	3,770,884
Limited-term corporate accommodation	2,369,600	438,000	140,554	359,864
Event facility - Arena	0	0	0	0
Logistics Center - refrigerated warehouse no rail	178,100	935,100	56,221	143,945
Central Utility Plant	356,200	1,870,300	112,443	287,891
Open space	0	0	4,817,990	0

Table A.4: Annual Water Use, Phase 2

LAND USE SUBTYPE	INDOOR WATER USE - POTABLE (gal/year)	INDOOR WATER USE - NONPOTABLE (gal/yr)	OUTDOOR WATER USE - NONPOTABLE (gal/year)	COOLING WATER - NONPOTABLE (gal/yr)
General Office Building	29,251,400	8,068,600	2,923,517	7,485,165
Retail - Free-standing Discount store	39,122,989	2,094,700	314,840	806,095
Hotel	0	0	0	0
Apartments High Rise	37,677,300	5,793,000	1,693,734	4,336,516

Limited-term corporate accommodation	2,369,648	438,000	140,554	359,864
Event facility - Arena	0	0	0	0
Logistics Center - refrigerated warehouse no rail	0	0	0	0
Central Utility Plant	0	0	0	0
Open space	0	0	5,072,645	0

Table A.5: Annual Water Use, Phase 3

LAND USE SUBTYPE	INDOOR WATER USE - POTABLE (gal/year)	INDOOR WATER USE - NONPOTABLE (gal/yr)	OUTDOOR WATER USE - NONPOTABLE (gal/year)	COOLING WATER - NONPOTABLE (gal/yr)
General Office Building	23,626,200	6,517,000	2,361,302	6,045,710
Retail - Free-standing Discount store	16,767,000	897,700	134,932	345,469
Hotel	5,502,400	1,051,200	224,886	575,782
Apartments High Rise	26,210,300	4,029,900	1,178,250	3,016,707
Limited-term corporate accommodation	2,843,600	525,600	168,664	431,836
Event facility - Arena	734,000	228,300	112,443	287,891
Logistics Center - refrigerated warehouse no rail	178,100	935,100	56,221	143,945
Central Utility Plant	0	0	0	0
Open space	0	0	4,236,698	0

Attachment C

Google's Carbon Offsets White Paper

Google's Carbon Offsets: Collaboration and Due Diligence

Table of Contents

Introduction 1
What are carbon offsets? 1
Carbon offset project standards 2
Types of carbon offset projects 3
Procurement and due diligence 4
Applying carbon credits to our footprint 5
Conclusion 6

Google Green

For more information visit:
www.google.com/green

Introduction

At Google, we reduce our carbon footprint through efficiency improvements, generating on-site solar power and purchasing green power. To bring our remaining footprint to zero, we buy carbon offsets.

Purchasing carbon offsets means investing in green projects that have very little to do with our core business. When we purchase a carbon offset, we rely heavily on research, collaboration, standards and due diligence to guarantee we're getting a quality offset that provides long-term global benefit. This paper describes the process we use to select carbon offset projects and apply carbon credits to our carbon footprint.

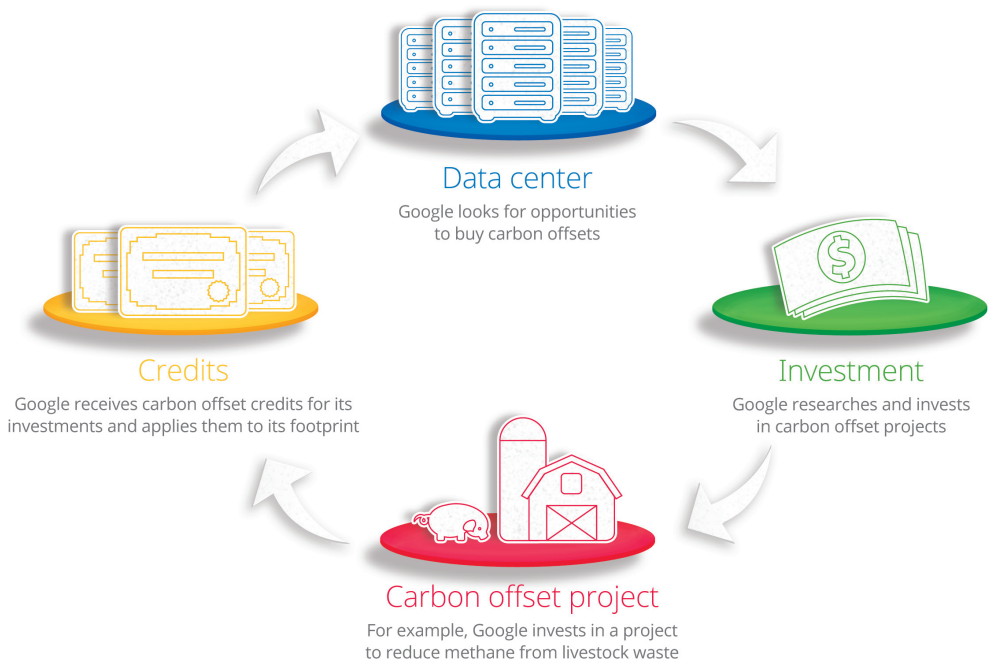
What are carbon offsets?

A carbon offset is an investment in an activity that reduces carbon emissions. The reduction in carbon emissions is represented by a carbon credit. The credit, usually verified by a third party, signifies that greenhouse gas emissions are lower than they would have been had no one invested in the offset. One credit equals one metric ton of carbon dioxide prevented from entering the atmosphere.[1] The credit purchaser can use the credit for carbon accounting.

Here's a hypothetical example: Say there is a Google data center in an area with little renewable power. First, we reduce our data center electricity usage through energy efficiency improvements. We then talk to the local power utility about purchasing more green power. Unfortunately, we discover that there aren't additional green energy sources close to our data center, nor are there plans to build more in the near future.

Until we can power our operations entirely with renewables or reduce our emissions in other ways, we can use the offsets to fund projects that reduce greenhouse gas emissions, indirectly reducing our total carbon footprint. For example, close to our data center, we discover a large farm that produces a lot of animal waste. Livestock waste produces methane — a particularly potent greenhouse gas that's more than 20 times as harmful as carbon dioxide.[2] We invest in a project that allows the farm to collect this waste and process the methane out of it, and they credit us, their fiscal sponsor, with reducing global greenhouse gas emissions.

When we apply that credit to our carbon footprint, it offsets our emissions from using non-renewable energy. We might not know much about manure, and farm operators might not know much about search engines, but through this collaboration we reduce global greenhouse gas emissions and contribute to the communities in which we operate.



Carbon offset project standards

Carbon offset producers have an incentive to pitch planned business improvements as carbon reduction projects to attract outside investment dollars and conserve their own capital. For example, if the farm in the previous example already had plans to build a methane capture system because it made financial sense or was required by law, giving them additional money through carbon offsets would not create any additional benefits for the environment. Since our goal is to offset our carbon emissions, we only support projects that would not come into being without our investment.

When Google first purchased carbon offsets in 2007, we were aware of the difficulties in buying an effective offset. To counter the information asymmetry between Google and carbon offset producers, we do rigorous research to make sure we are buying only quality offsets, based on four standards: additionality, leakage prevention, permanence and verifiability.

Additionality

As previously discussed, Google's first priority when examining a carbon offset project is proving that it provides additionality—meaning that the proposed project reduces greenhouse gas emissions that would not be reduced through other incentives. We work to guarantee additionality by examining past financial information on the project, project details, potential carbon reductions and similar projects in development. We also talk directly to project owners and operators. The goal of these assessments is to determine if our investment would lead to a carbon reduction that would not otherwise happen.

Leakage prevention

An additional criteria is leakage. A reduction of greenhouse gas emissions through one project might simply shift, or leak, to another location or activity. To prevent leakage, we closely examine the community and environment in which the project is going to take place. Identifying project risks and key stakeholders are the primary components in determining potential leakage.

Leakage typically occurs in situations where resources are being protected. For example, if a carbon offset program focuses on protecting a forest from being logged, it's entirely possible that loggers might move their operations down the road to another forest. Ensuring that reductions are more global—and not just local—is critical to preventing leakage.

Permanence

Tied into leakage prevention is the standard of permanence. Greenhouse gases prevented from entering the atmosphere should be stopped permanently. We need to be certain that the projects we invest in are not temporary methods of carbon reduction or greenhouse gas sequestration.

This is typically a concern with forestry projects or anything where greenhouse gases are being stored for a period of time. If there is significant risk that the stored carbon would be released through events such as a forest fire or a leak from sequestered carbon, the project would need to account for this, such as through insurance or a buffer of additional reductions.

Verifiability

The last requirement is verifiability. An objective third party—someone other than the project developer and Google—must be able to look at project data and confirm that the carbon reductions are real and credible. The third-party verifier determines the proper baseline for greenhouse gas reductions and verifies that the reductions adhere to strict monitoring and reporting standards.

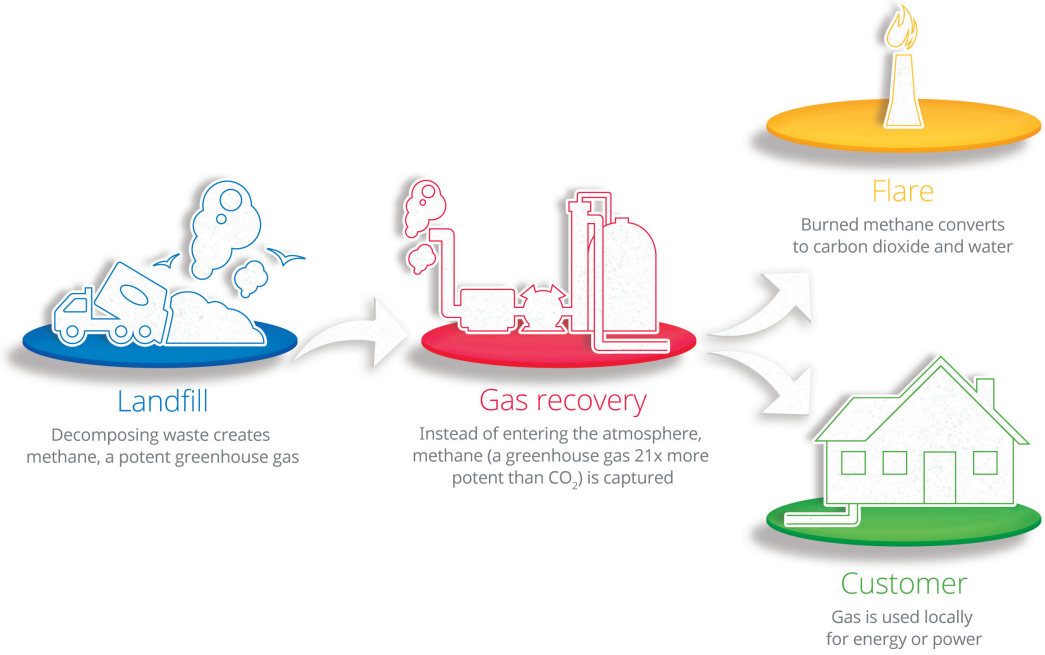
Types of carbon offset projects

A number of different project types qualify for carbon offsets, and more are becoming available as new technologies for reducing greenhouse gases are developed. The kinds of projects Google considers for carbon offsets include:

Landfill gas capture

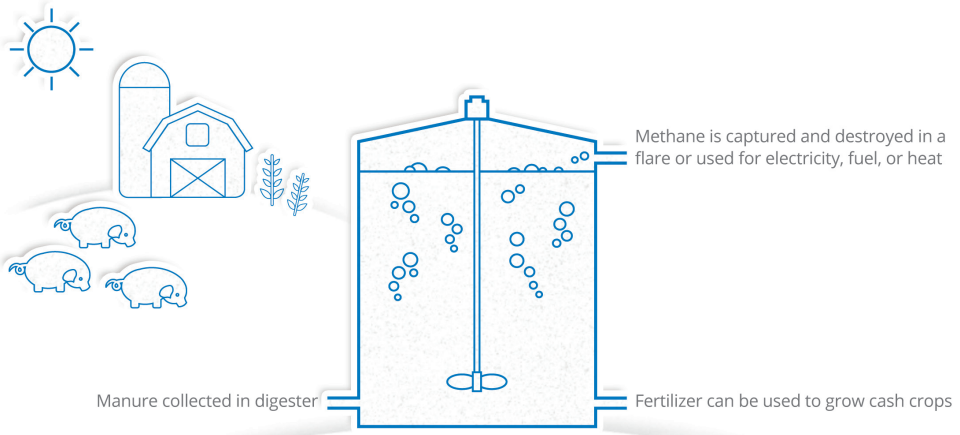
Decomposing waste creates methane gas, which is a potent greenhouse gas. Small and medium-sized landfills in many U.S. states are not required to capture or process methane, and thus the methane vents freely into the atmosphere. Capturing and destroying this gas reduces the total emissions of greenhouse gases. Captured methane can be burned to generate electricity or heat; or after treatment, it can also be injected into the nearby natural gas grid or used locally as compressed natural gas (CNG) for vehicles and other uses. When other options to use the gas aren't available—such as due to the small volume of gas created or the project's remote location—the gas might instead be burned in a flare.

It might sound counterintuitive that burning something reduces carbon emissions, but when methane is burned it converts into carbon dioxide and water. Carbon dioxide is a less potent greenhouse gas than the original methane, effectively reducing greenhouse gas emissions. Currently, the bulk of Google's carbon offsets come from investment in landfill gas projects.



Agricultural methane capture

Similar to landfill gas, agricultural methane is produced at farms from decomposing animal waste. Carbon offset projects are designed to collect this waste and process it into usable products, including energy and heat. One method involves collecting manure into a huge, circulating tank called a "digester." The digester promotes bacterial growth, which breaks down the waste into usable organic fertilizer and methane. The methane is then captured and used or burned.



Agricultural methane capture

Animal manure is broken down into usable organic fertilizer and methane, a greenhouse gas, which is destroyed or used for energy

Forestry projects

A large amount of carbon is stored in forests. As forests grow, they absorb and sequester additional carbon. However, as forests are logged, degraded or burned, carbon is released. There are various kinds of forestry projects offering carbon offsets, but the concept is either to protect forests from destruction and degradation or to enhance and develop new ones.

Procurement and due diligence

Carbon offset projects are verified by third-party investigators using published public standards. Once a project is verified as creating a credible reduction in greenhouse gases, a carbon registry issues a carbon credit for each metric ton of carbon dioxide (or equivalent) reduced.

Google takes a hands-on approach to pursuing offset projects to ensure that we're getting the highest quality offsets available. We source projects in a variety of ways, including requesting proposals from project developers and working directly with project owners, marketers and brokers. While we rely heavily on third-party standards, if we find projects that we believe meet our criteria where no standard exists, we may pursue them and develop a new standard.

When we invest in a carbon offset project, we perform due diligence by:

1. Reviewing the documentation from the offset seller and from third-party sources, including reviewing emissions data, permits and site testing results.
2. Visiting the project site and meeting people in charge of day-to-day operations.
3. Reviewing the verification reports, if a project has already been verified.

Only when we are confident of the operation's quality and have confirmed that the project meets our standards do we purchase the carbon credits associated with the project.

For example, in 2010, Google decided to purchase the offsets associated with the Berkeley County landfill gas project in South Carolina. This project involved collecting methane gas from a landfill and using the gas to generate electricity. A local electric utility, Santee Cooper, would purchase the methane from the site to fuel a nearby power plant.

With revenue from gas sales, Google had to carefully review the project's financials in order to verify additionality.[3] We took into account the costs to install the methane capture system versus the estimated revenue from the sale of landfill gas. We had to answer the following question: If there wasn't revenue from the sale of carbon offsets, would the revenue incentive from the sale of landfill gas to generate electricity be enough for the landfill to install the system anyway?

When we calculated the financial rate of return, we compared two sets of financials: One with carbon offset revenue and one without. In the case of Berkeley County, the project wasn't financially viable for the landfill based on the natural gas revenue alone—gas prices would have needed to be much higher to make the project financially feasible. Thus, the project passed our criteria for additionality, and we invested in it.

Applying carbon credits to our footprint

Once carbon credits from a project are verified by a third party and issued by a carbon registry, ownership of the credits is transferred from the project owner to Google. The carbon credits are then permanently retired and applied to our carbon footprint. When we retire a credit, the serial numbers of the credits are located in the carbon credit registry that created them and permanently designated as retired.

At the end of this long process—finding and reviewing projects, verifying the emission reductions, contracting for the offsets, taking delivery of carbon credits, and then retiring the credits—we finally apply the credits to our own carbon footprint. Until retirement, the metric tons of greenhouse gases reduced from the carbon offset project are an estimate. Once we have an exact figure from the carbon credit registry, we apply those metric tons to our footprint.

Given the uncertainty of estimating the exact number of metric tons from each project, it is difficult to apply a strict rule of offsetting our footprint year with the year the offset was created. Instead, we currently apply a window of up to three years between the footprint year and the year the reduction occurs. Considering that the global warming potential of these gases is calculated over one hundred years or more, the difference in three years is quite small.

Conclusion

In addition to improving our efficiency and investing in green power, we will continue to purchase carbon offsets to bring our carbon footprint down to zero. However, not all carbon offsets are created equal and ensuring that a carbon offset represents actual greenhouse gas reductions can be a long process.

Carbon offsets are still very new. In fact, it's entirely possible that how we offset our emissions a few years from now will be very different from how we do it today. Our offsets may be more personalized, more local and rely on emergent technologies that have a global impact. Google hopes to be part of the evolution of these new offsets, and will continue to foster current offset projects through research, collaboration and investment.

1. Or one metric ton (1,000 kg or 2,204 pounds) of carbon dioxide equivalent (CO_2e). Carbon dioxide equivalent is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO_2 that would have the same global warming potential (GWP), when measured over a specified timescale (generally, 100 years).
2. Some greenhouse gases are more potent than others. Carbon dioxide has a global warming potential of 1, since it's the baseline. Over 100 years, methane has a global warming potential of approximately 20 to 25 times more warming than carbon dioxide. Processing methane converts it to carbon dioxide, reducing it from a GWP of 20 or 25 to 1.
3. An apparent irony of methane destruction projects is that determining whether or not they are additional becomes more complicated if the gas is actually used for electricity, heat or fuel. If the only revenue is from carbon offsets, it is usually quite clear that the large investment in a gas collection system (which can cost up to $1 million) was made for the carbon offset revenue. On the other hand, with a system that has revenue from both carbon offsets and gas or electricity, it's possible that the revenue from the gas or electricity would have been enough to make the project financially attractive. Even though the analysis of carbon offset projects with "beneficial uses" is more complicated, we always prefer to buy credits from projects where the methane is used for something good, and not just burned in an open flare.

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Attachment D

Downtown West San José Mixed Use Plan: City Commitment to Enforce AB 900 Requirements Letter

CITY OF
SAN JOSE
CAPITAL OF SILICON VALLEY

Planning, Building and Code Enforcement
PLANNING DIVISION

October 22, 2019

VIA ELECTRONIC MAIL

Heather King, AICP
Air Pollution Specialist,
Sustainable Transportation and Communities Division
California Air Resources Board

Re: Downtown West San Jose Mixed Use Plan: City Commitment to Enforce AB 900 Requirements

Dear Ms. King:

This letter re-affirms the City of San Jose's ("City") commitment to impose enforceable conditions of approval on the Downtown West San Jose Mixed Use Plan ("Project") that will ensure the Project meets all requirements for AB 900 certification for the life of the obligation, including the requirement that the Project not result in any net additional greenhouse gas emissions. Google sent a letter to the City on August 22, 2019 acknowledging that all mitigation measures required for AB 900 will be conditions of approval and fully enforceable. The City acknowledged and agreed to the statements in the letter, including an acknowledgement of its ongoing obligation to enforce conditions.

With respect to the requirement that the Project not result in any net additional greenhouse gas (GHG) emissions, the City will impose a condition of approval that will require that Google monitor and verify the Project's emissions and provide periodic reports for the City's independent review. To the extent that carbon offsets are used to mitigate GHG emissions from project operations, the City will require that Google purchase voluntary carbon credits that are enforceable and verifiable, and issued by an approved registry for the net increase in construction and operational emissions, prior to issuance of the final Certificate of Occupancy for the first building constructed in each phase of the Project. If the ongoing monitoring of emissions shows that additional offset credits are necessary to maintain the net zero greenhouse gas standard, the City will require that Google timely acquires such additional credits.

Sincerely,

Dr. Robert Manford
Deputy Director - Planning

CC: Alexa Arena – Google
Bhavesh Parikh - Google

80 South Lake Avenue
Suite 570
Pasadena, CA 91101
626.204.6170 phone
626.204.6171 fax

esassoc.com

November 14, 2019

Heather King
Air Pollution Specialist, Sustainable Transportation and Communities Division
California Air Resources Board

Subject: Response to the Commitment Letter

Dear Ms. King:

Thank you for your continued efforts in reviewing Google's AB 900 Environmental Leadership Development Program (ELDP) application (submitted on August 26, 2019) and the recently submitted supplemental information (dated October 23, 2019) regarding the Downtown West San Jose Mixed Use Project. This letter was prepared to provide the additional clarification you requested in your email on November 5, 2019. Specifically, the letter addresses the carbon offset approach, verification, and enforcement; greenhouse gas (GHG) emission quantities; construction schedule; affordable housing; Leadership in Energy and Environmental Design (LEED) certification; and the Memorandum of Understanding (MOU) between the City of San Jose and Google.

1a. The application included an estimation of GHG emissions for the project and a commitment to not result in any net additional GHG emissions. This commitment is supported by a Project Sponsor Letter, Appendix D of the original application, and is further solidified through a Commitment Letter, Attachment D of the Supplemental Documentation from the City of San Jose to the California Air Resources Board (CARB).

Google LLC proposes to meet the requirement in Public Resources Code section 21183(c), which requires no net additional GHG emissions, through a three step strategy that first incorporates project design features, second, applies mitigation measures, and third, requires purchasing carbon offsets. Consistent with Public Resources Code section 21183(e), all mitigation measures will be conditions of approval and fully enforceable by the lead agency, and environmental mitigation measures will be monitored and enforced for the life of the obligation. As stated in the original application, Google is committed to complying with the Mitigation Monitoring and Reporting Program (MMRP) from the Environmental Impact Report (EIR) as conditions of approval, and that those conditions would be binding and enforceable by the City of San Jose. As the EIR is still in development and exact mitigation measures and project design features have not yet been defined, there are still a variety of potential measures that could be implemented. With that, the project will be designed to achieve LEED Gold Certification for more efficient buildings as described in Item #6 of this letter. The project will remove fossil fuel use on site where feasible and integrate district systems, such as a micro-grid, on-site wastewater treatment, a central utility plant, and renewable energy sources, which would deliver resource efficiency across water, energy, and waste flows. The project would significantly reduce vehicle trips through high-quality transit and walkable urbanism, an on-site logistics center, and a comprehensive transportation demand management program. The remainder of emissions would be mitigated by procuring 100 percent renewable energy or carbon offsets.

1b. To provide assurance that offsets will be acquired in a timely manner, Google provides the following concept for a GHG Management Plan, with details to be provided in the binding MMRP to the EIR.

i. Google shall calculate projected construction emissions, in accordance with the approved methodology agreed upon by CARB and consistent with the Assembly Bill (AB) 900 certification, for individual buildings, groups of buildings, blocks, amenities, space, or other

program element (street improvements, utilidors, etc.) requiring construction activities as appropriate, including at the time building construction or grading permits are obtained from the City.

ii. Google will enter into contracts to procure carbon offsets to sufficiently offset at least half of the projected construction emissions prior to beginning construction for each building/grading permit. Courtesy copies of any such contracts will be sent to the City of San Jose, CARB, and the Governor's Office promptly after execution of such contracts.

iii. Google shall require contractors to track fuel usage, vehicle miles traveled (VMT), energy and water consumption, and/or other metrics needed to calculate actual GHG emissions associated with construction. Upon completion of construction for a specific building, group of buildings, block, amenity, space, or program element, Google shall calculate actual emissions. Within 1 year from completion of construction, Google shall procure the remaining carbon offsets to sufficiently offset the difference between the actual emissions and the credits procured in step ii above.

This procedure will be similarly followed for operational GHG emissions for the life of the Project as determined by the CARB-approved methodology in the AB 900 application. In the case of operational GHG emissions, calculations will be submitted to CARB within 1 year following the calendar year that those emissions were emitted. Offsets would be acquired within 6 months of the finalized emission calculations. Details regarding the emission calculations and procurement of offsets will be codified in the MMRP, which is binding and enforceable by the City of San Jose.

1c. It is Google's policy to exclusively purchase carbon offsets from a CARB-accredited registry, such as the American Climate Registry, Climate Action Reserve, and Verra (formerly Verified Carbon Standard, or VCS). Google provides additional project due diligence beyond the criteria of the three accredited registries per the following publicly available carbon offset literature here: *Google's Carbon Offsets: Collaboration and Due Diligence*[1] and *10 Years of Carbon Neutrality*.[2] Google will continue this practice through the life of the project and remains committed to acquiring quality carbon offsets. As we have discussed with CARB previously, the construction and occupancy schedule that led to the GHG emissions calculations presented in the AB 900 application represents a conservative projection of emissions by calendar year, based on the best-case assumptions regarding earliest start dates and continuous, intensive construction activity. The total project emissions are expected to be generally equivalent in keeping with the totals presented in the application and supplemental submittal. Nonetheless, the pace of construction and the specific blocks and buildings to be built in each year will be reflective of the demand for such buildings and amenities and may not follow the presented progression exactly.

2. Typo: In Table 6, the value should be 67,324 MT CO2e in 2030 consistent with Table 7.

---

[1] https://static.googleusercontent.com/media/www.google.com/en//green/pdfs/google-carbon-offsets.pdf (also was included as Attachment C of the supplemental documentation)

[2] https://storage.googleapis.com/gweb-sustainability.appspot.com/pdf/10-years-carbon-neutrality.pdf

3. Typo: The correct value on page 20 of the AB 900 application should be 86,749 MTCO2e at full build-out.

4. Our analysis, in line with the CalEEMod default construction assumptions, assumes that all existing buildings on the site will be demolished in phases ahead of construction pending the results of the historic assessment. This includes demolition in the 2021–2024, 2024–2027, and 2027–2030 construction periods. As the demolition process results in emissions, this assumption is considered conservative. If, throughout the design process, the decision is later made to keep any of the buildings on-site, the resulting emissions associated with demolition will be reduced.

5. Google will, at a minimum, comply with the current City of San Jose inclusionary housing ordinance requiring that 15 percent of the total units to be set aside as affordable. Per the MOU between Google and the City of San Jose, which was previously attached to the original application, both Parties strive for 25 percent of housing developed across the Diridon Station Area to be affordable housing.

6. The project will pursue LEED-ND as identified in the original application and, subsequent to that certification, the Google office buildings will achieve LEED Gold Certification. This goes above and beyond the requirement of the previously proposed LEED ND Gold Certification, in which only one building is required to achieve LEED Gold.

7. As discussed, there is not currently a Community Benefits Plan in place. Once one is developed through a development agreement, and agreed upon by the City of San Jose and Google, the Plan will be provided to CARB and Office of Planning and Research. As noted on page 1 of the MOU, the MOU will form the basis for negotiations of a future development agreement.

Sincerely,

Heidi Rous

Heidi Rous
Director

From:	Bhavesh Parikh
To:	King, Heather@ARB
Cc:	Heidi Rous; Gray Bender; Asim Tahir; Anna Escuer; Kim, Margret@ARB; Kimura, Lezlie@ARB; Kalandiyur, Nesamani@ARB; Dolney, Nicole@ARB; Gress, Jennifer@ARB; Joe Van Belleghem; Alexa Arena; Mark Golan
Subject:	Re: DRAFT- Downtown West- Concept for GHG Emissions and Offset Verification Process
Date:	Tuesday, December 17, 2019 9:52:41 AM
Attachments:	image001.jpg

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Heather,

Although we are disappointed with the AB 900 policy limitations, we confirm the framework you have outlined. Thank you.

Bhavesh Parikh | Director, Real Estate Development | 858-750-0060

On Tue, Dec 10, 2019 at 3:09 PM King, Heather@ARB <Heather.King@arb.ca.gov> wrote:

> Hi, Bhavesh.
>
> I realized there is a typo in Table 8 (row for 2030) in the 10/23/19 Supplement to your application, so I am revising the text below to reference the corrected total and source data for the calculation. Edits to the version I sent earlier today are shown in underline, and this text should supersede the previous version.
>
> **GHG Emissions Offset Verification Process Over Three Phases for Downtown West Mixed-Use Plan:**
>
> Construction Emissions:
>
> The project Applicant will purchase voluntary GHG offsets necessary to offset construction-generated emissions on a pro-rated basis prior to obtaining the first building permit in each phase of construction, for a total of three (3) offset payments over three (3) construction phases. The total projected GHG emissions from construction are reflected in Table 9 of Appendix C to the original AB 900 application (dated August 26, 2019) and will be pro-rated into three offset purchases according to the phasing schedule in Table 2 of the original application (dated August 26, 2019), which reflects three construction phases. The total (100%) of estimated construction-generated GHG emissions (157,247 metric tons of CO2e) must be fully offset prior to the Lead Agency's issuance of the first building permit for the

third phase of construction. All voluntary GHG offsets will be purchased and retired through a CARB-accredited registry, and copies of all offset contracts will promptly be provided to CARB and OPR for verification purposes.

Operational Emissions:

The project Applicant will purchase voluntary GHG offsets necessary to offset the cumulative net increase in operational emissions over the life of the project on a pro-rated basis prior to the Lead Agency's issuance of the final Certificate of Occupancy for the first building in each phase of construction, for a total of three (3) offset payments over three (3) construction phases. The total projected net increase in GHG emissions from project operation is reflected in ~~Table 8~~ Table 7 of the Supplement to the original AB 900 application (dated October 23, 2019) less the baseline emissions reflected in Table 8 of Appendix C to the original application, and will be pro-rated according to the phasing schedule in Table 2 of the original application (dated August 26, 2019), which reflects three construction phases. The total (100%) of projected net additional operation-related GHG emissions (~~1,590,383~~ 1,456,514 metric tons of CO2e) must be fully offset prior to the Lead Agency's issuance of the final Certificate of Occupancy for the first building in the third phase of construction. All voluntary GHG offsets will be purchased and retired through a CARB-accredited registry, and copies of offset contracts will promptly be provided to CARB and OPR for verification purposes.

The total projected quantity of GHG offsets that would be required to fully offset the cumulative net increase in GHG emissions attributable to construction and operation of the project is 1,613,761 metric tons of CO2e.

The Lead Agency documented its commitment to fully enforce the provision that the project not result in any net additional GHG emissions for the life of the obligation, including the extent to which the Applicant relies on GHG offsets to mitigate the project's GHG emissions, as a condition of project approval (letter to CARB dated October 22, 2019, attached).

From: King, Heather@ARB
Sent: Tuesday, December 10, 2019 1:19 PM
To: Bhavesh Parikh <bhaveshp@google.com>; Heidi Rous <hrous@rewsprojects.com>; Gray Bender <graybender@rewsprojects.com>; Asim Tahir <asimt@google.com>; Anna Escuer <annaescuer@google.com>
Cc: Kim, Margret@ARB <Margret.Kim@arb.ca.gov>; Lezlie Kimura (Lezlie.Kimura@arb.ca.gov) <Lezlie.Kimura@arb.ca.gov>; Kalandiyur, Nesamani@ARB <nesamani.kalandiyur@arb.ca.gov>;

Dolney, Nicole@ARB <nicole.dolney@arb.ca.gov>; Gress, Jennifer@ARB <Jennifer.Gress@arb.ca.gov>
Subject: RE: DRAFT- Downtown West- Concept for GHG Emissions and Offset Verification Process

Hi, Bhavesh.

Thank you for providing the draft framework for GHG offset procurement. Per our conversation on Friday (December 6, 2019), to give CARB the certainty it needs to make the determination that the project would result in no net additional GHG emissions under Public Resources Code 21183 subsection (c), we request some clarifications to the framework for obtaining GHG offsets. I have characterized the following summary of CARB staff's understanding based on conversations with the Applicant and materials submitted as part of the AB 900 application and supplemental documentation.

In the interest of time, please respond with any additional clarifications or edits, or confirm that the Applicant agrees and commits to the following process for procuring GHG offsets, by 5:00 pm tomorrow (Wednesday, December 11, 2019).

GHG Emissions Offset Verification Process Over Three Phases for Downtown West Mixed-Use Plan:

Construction Emissions:

The project Applicant will purchase voluntary GHG offsets necessary to offset construction-generated emissions on a pro-rated basis prior to obtaining the first building permit in each phase of construction, for a total of three (3) offset payments over three (3) construction phases. The total projected GHG emissions from construction are reflected in Table 9 of Appendix C to the original AB 900 application (dated August 26, 2019) and will be pro-rated into three offset purchases according to the phasing schedule in Table 2 of the original application (dated August 26, 2019), which reflects three construction phases. The total (100%) of estimated construction-generated GHG emissions (157,247 metric tons of CO2e) must be fully offset prior to the Lead Agency's issuance of the first building permit for the third phase of construction. All voluntary GHG offsets will be purchased and retired through a CARB-accredited registry, and copies of all offset contracts will promptly be provided to CARB and OPR for verification purposes.

Operational Emissions:

The project Applicant will purchase voluntary GHG offsets necessary to offset the cumulative net increase in operational emissions over the life of the project on a pro-rated basis prior to the Lead Agency's issuance of the final Certificate of Occupancy for the first building in each phase of construction, for a total of three (3) offset payments over three (3) construction phases. The total projected net increase in GHG emissions from project operation are reflected in Table 8 of the Supplement to the original AB 900 application (dated October 23, 2019) and will be pro-rated according to the phasing schedule in Table 2 of the original application (dated August 26, 2019), which reflects three construction phases. The total (100%) of projected net additional operation-related GHG emissions (1,590,383 metric tons of CO2e) must be fully offset prior to the Lead Agency's issuance of the final Certificate of Occupancy for the first building in the third phase of construction. All voluntary GHG offsets will be purchased and retired through a CARB-accredited registry, and copies of offset contracts will promptly be provided to CARB and OPR for verification purposes.

The Lead Agency documented its commitment to fully enforce the provision that the project result in no net additional GHG emissions for the life of the obligation, including the extent to which the Applicant relies on GHG offsets to mitigate the project's GHG emissions, as a condition of project approval (letter to CARB dated October 22, 2019, attached).

…

Thank you for your attention to this. Let me know if you have any questions.

Heather King, AICP

Air Pollution Specialist, Sustainable Transportation and Communities Division

California Air Resources Board

heather.king@arb.ca.gov

Ph. 916-322-0339

From: Bhavesh Parikh <bhaveshp@google.com>
Sent: Friday, December 6, 2019 9:48 AM
To: King, Heather@ARB <Heather.King@arb.ca.gov>; Heidi Rous <hrous@rewsprojects.com>; Gray Bender <graybender@rewsprojects.com>; Asim Tahir <asimt@google.com>; Anna Escuer <annaescuer@google.com>
Subject: DRAFT- Downtown West- Concept for GHG Emissions and Offset Verification Process

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Hi Heather,

Here is a follow up to our discussion regarding a potential path on the GHG emissions evaluation process.

The quantification of the offsets below would be set on a baseline of the lower bound of emissions referenced in Table 8 in the Supplement dated October 23, 2019 then correlated to the phasing schedule in Table 2 of the original application dated August 26, 2019.

GHG Emissions and Offset Verification Process over 3-phases:

1.) Pay 100% of construction emissions for each phase prior to obtaining the first building permit per phase

2.) Prior to completion of Phase 1, pay projected lower bound first phase operational emissions, purchase offsets, and provide verification of offset purchase.

3.) Prior to completion of Phase 2, "true up" operational emissions for Phase 1 and if there less than projected lower bound, we'll receive an offset credit, and apply that credit against the projected Phase 2 lower bound emissions

4.) Prior to completion of Phase 3, pay demand for Phase 3, finalize a speculative 'true up" for all future emissions up to 2060 and then purchase offsets. Finally, provide City verification of offsets purchase and obligation is complete.

Please let me know if you would like to discuss the above further. Thank you.

Bhavesh Parikh | Director, Real Estate Development | 858-750-0060

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CALIFORNIA
AIR RESOURCES BOARD

Gavin Newsom, Governor
Jared Blumenfeld, CalEPA Secretary
Mary D. Nichols, Chair

December 19, 2019

Ms. Kate Gordon, Director
Office of Planning and Research
Office of Governor Gavin Newsom
1400 10th Street
Sacramento, California 95814

Dear Ms. Gordon:

Assembly Bill (AB) 900 (Buchanan, Chapter 352, Statutes of 2011), the Jobs and Economic Improvement through Environmental Leadership Act, authorizes the Governor to certify a leadership project for streamlining under the California Environmental Quality Act (CEQA) if the project meets certain conditions. One condition for certification is that the project does not result in any net additional emissions of greenhouse gases (GHG), including GHG emissions from employee transportation, as determined by the California Air Resources Board (CARB).

Google (the Applicant) submitted an original AB 900 application to CARB on August 26, 2019, supplemental information on September 6, 2019 and October 23, 2019, and clarifying information on November 14, 2019 and December 17, 2019, for the proposed Downtown West Mixed Use Plan (proposed project) located in the City of San Jose, California. As required by the Governor's Guidelines for Streamlining Judicial Review under CEQA, the application includes proposed GHG quantification methodologies and supporting documentation.

Due to the programmatic nature of the proposed project and inherent uncertainty surrounding the design features that would influence the project's GHG emissions, it was difficult to verify the net amount of GHG emissions that would occur over this project's lifetime. Applying Public Resources Code Section 21183 subdivision (c) to a project of this scale added a level of complexity and speculation that had not previously been encountered in CARB's AB 900 determinations to date. CARB staff conducted an evaluation of the GHG emissions estimates submitted by the Applicant, and confirmed that the Applicant's methodology, calculations, and documentation are adequate and reasonably conservative, given the plan-level nature of the project.

To ensure that the project would result in no net additional GHG emissions, the Applicant has agreed to purchase GHG offset credits to fully offset the projected net increase in GHG emissions attributable to the proposed project on a pro-rated basis at the time each phase is permitted by the Lead Agency (the City of San Jose). Offsets

would be purchased in sufficient quantity to mitigate the net increase in GHG emissions for the life of the project as estimated in the AB 900 application, which represents a conservative estimate of the proposed project's emissions.

The Lead Agency has committed to monitor and enforce the Applicant's commitment to secure GHG offsets. All required GHG offsets must be purchased prior to the Lead Agency's issuance of the Final Certificate of Occupancy for the first building in the final phase of construction (Phase 3). The Lead Agency documented its commitment to fully enforce the provision that the project result in no net additional GHG emissions for the life of the obligation, including the extent to which the Applicant relies on GHG offsets to mitigate the project's GHG emissions, as a condition of project approval.

Based on the documentation submitted by the Applicant and the Lead Agency's commitment to enforce the GHG offsets measure as a condition of project approval, CARB has determined that the proposed project will not result in any net additional GHG emissions for purposes of certification under AB 900. CARB staff's evaluation and an Executive Order noting CARB's determination are enclosed.

If you have any questions regarding the evaluation or determination, please contact Ms. Nicole Dolney, Chief of Transportation Systems Planning Branch, Sustainable Transportation and Communities Division, at (916) 322-1695 or nicole.dolney@arb.ca.gov.

Sincerely,

Richard W. Corey
Executive Officer

Enclosures

cc: See next page.

cc: (via email)

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State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER G-19-154

Relating to Determination of No Net Additional Greenhouse Gas Emissions Under Public Resources Code section 21183, subdivision (c) for Downtown West Mixed Use Plan

WHEREAS, in September 2011, Governor Brown signed the "Jobs and Economic Improvement through Environmental Leadership Act" (AB 900);

WHEREAS, under AB 900, the Governor may certify certain projects for judicial streamlining under the California Environmental Quality Act (CEQA) if certain conditions are met;

WHEREAS, under California Public Resources Code section 21183, subdivision (c), one condition for the Governor's certification is that the project does not result in any net additional emission of greenhouse gases (GHG), as determined by the California Air Resources Board (CARB);

WHEREAS, the Governor's Guidelines for Streamlining Judicial Review under the California Environmental Quality Act require for purposes of CARB's determination on GHG emissions that an applicant submit electronically to CARB a proposed methodology for quantifying the project's net additional GHG emissions and documentation that the project does not result in any net additional GHG emissions;

WHEREAS, pursuant to the Governor's Guidelines, Google LLC (the Applicant) submitted its initial proposed GHG quantification methodologies and documentation to CARB on the proposed Downtown West Mixed Use Plan (proposed project) on August 26, 2019, supplemental information submitted on September 6, 2019 and October 23, 2019, and clarifying information submitted on November 14, 2019 and December 17, 2019;

WHEREAS, as set forth in greater detail in the submitted application and CARB staff's evaluation of the AB 900 application for the proposed project, the project's net additional GHG emissions are as follows:

1. Construction GHG Emissions: Additional 157,247 metric tons carbon dioxide equivalent (CO_2e) emissions from construction and demolition activities associated with project Variant A or B, whichever is adopted;

2. Operation-Related GHG Emissions: Net additional 1,456,514 metric tons CO_2e for Project Variant A, over the lifetime of the project through 2060. Operational GHG emissions associated with Project Variant B would be similar to, or slightly less than, emissions under Project Variant A.

3. Total Project-Related GHG Emissions: Net additional 1,613,761 metric tons CO_2e from combined construction and operation of the proposed project (Variant A). Total emissions associated with Project Variant B would be similar to, or slightly less than, emissions under Project Variant A.

WHEREAS, the Applicant has committed to purchase voluntary GHG offsets in an amount sufficient to offset the cumulative net increase in construction-related GHG emissions on a pro-rated basis prior to the Lead Agency's (the City of San Jose) issuance of building permits for construction of each phase within the project.

WHEREAS, the Applicant has committed to purchase GHG offsets in an amount sufficient to offset the cumulative net increase in operational emissions over the life of the project on a pro-rated basis prior to the Lead Agency's issuance of the Final Certificate of Occupancy for the first building constructed in each phase of the project.

WHEREAS, all GHG offsets shall be purchased from a CARB-accredited carbon registry, such as the American Climate Registry, Climate Action Reserve, or Verra (formerly Verified Carbon Standard or VCS). Courtesy copies of any offset contracts will be promptly sent to the Lead Agency, CARB, and the Governor's Office after execution of such contracts.

WHEREAS, enforcement of compliance for GHG emissions reduction measures and procurement of offsets will be documented within the project's Mitigation Monitoring and Reporting Program, and those conditions will be fully monitored and enforced by the Lead Agency for the life of the obligation, pursuant to Public Resources Code section 21183, subdivision (e);

WHEREAS, CARB staff reviewed and evaluated the application in consultation with the Lead Agency;

WHEREAS, CARB staff conducted an evaluation of the GHG emission estimates and mitigation included in the application submitted by the Applicant and confirmed the documentation provides an adequate technical basis for conservatively estimating total projected GHG emissions for the proposed project;

WHEREAS, CARB's review and determination on the proposed project's GHG emissions is for the limited purpose of the Governor's findings and certification under AB 900 and should not be construed as meeting any other requirement under State or federal law, including CEQA; the Lead Agency remains responsible for full CEQA compliance for this project;

NOW, THEREFORE, based on CARB Staff's Evaluation (Attachment 1) of the documentation submitted by the Applicant (Attachment 2), I determine that the Downtown West Mixed Use Plan will not result in any net additional GHG emissions pursuant to Public Resources Code section 21183, subdivision (c) for purposes of certification under AB 900.

Executed this 19th day of December 2019, at Sacramento, California.

Richard W. Corey
Executive Officer

Attachments

1. CARB Staff Evaluation of AB 900 Application for Downtown West Mixed Use Plan
2. Downtown West Mixed Use Plan AB 900 Application and Supplemental Documentation

ATTACHMENT 1 to CARB Executive Order G-19-154

CARB Staff Evaluation of AB 900 Application for Downtown West Mixed Use Plan

CARB Staff Evaluation of AB 900 Application for Downtown West Mixed Use Plan

December 19, 2019

1. Executive Summary

The project Applicant, Google LLC (the Applicant), proposes to develop a mixed-use project within an approximately 80-acre property located in downtown San Jose, California. The proposed project would redevelop existing light industrial and parking uses that are also interspersed with a small amount of commercial and residential land uses.

The Applicant is seeking certification for the proposed project under Assembly Bill (AB) 900 (Buchanan, Chapter 352, Statutes of 2011), the Jobs and Economic Improvement through Environmental Leadership Act as amended effective January 1, 2018, and codified in Public Resources Code Section 21178 et. seq. AB 900 provides for streamlined judicial review under the California Environmental Quality Act (CEQA) if certain conditions are met. One condition is that the proposed project does not result in any net additional greenhouse gas (GHG) emissions as determined by the California Air Resources Board (CARB). This is the only condition that involves a determination by CARB. This technical evaluation summarizes CARB staff's analysis of the GHG emissions from the proposed project and CARB's determination.

CARB staff reviewed the projected GHG emissions provided by the Applicant and confirmed that the assumptions and GHG emission factors used to estimate construction and operational emissions are reasonable and conservative.

The documentation provided by the Applicant includes the original AB 900 application submitted on August 26, 2019, supplemental information submitted on September 6, 2019 and October 23, 2019, and clarifying information submitted November 14, 2019 and December 17, 2019. Collectively these materials comprise the Application and are included in Attachment 2.

Construction and operation of the proposed project would result in a total net increase of 1,613,761 metric tons (MT) carbon dioxide equivalent (CO_2e) over the project's entire 10-year construction period and 30-year operational life. The Applicant would purchase GHG offset credits to fully offset the cumulative net increase in GHG emissions. A detailed description of emissions by source is described in subsequent sections of this report.

To offset the projected net increase in GHG emissions, the Applicant will enter into one or more contracts to purchase GHG credits issued by a CARB-accredited carbon registry. The offset contracts for construction emissions will be executed on a pro-rated basis prior to the Lead Agency's (City of San Jose) issuance of the first building permit for each phase of construction. Offset contracts for projected cumulative operational emissions will be executed on a pro-rated basis prior to the Lead Agency's issuance of the Final Certificate of Occupancy for the first building in each phase of construction. The Lead Agency would enforce the requirement to purchase GHG offsets as a condition of project approval, and the details regarding this requirement will be documented in the project's Mitigation Monitoring and Reporting Program.

Based on an evaluation of the documentation provided by the Applicant, CARB staff concludes that, with commitments to implement feasible GHG emissions reduction measures and/or purchase GHG offsets as documented in Attachment 2, the proposed project would not result in any net additional GHG emissions relative to the baseline. CARB staff confirms that the proposed project would meet the GHG emissions requirements of the Jobs and Economic Improvement through Environmental Leadership Act. (Pub. Resources Code, §21178 et seq.)

This evaluation includes a description of the proposed project, a technical review and assessment of GHG emissions sources, the Applicant's and Lead Agency's commitments to offset any net increase in GHG emissions, and CARB staff's recommendation on the AB 900 GHG emissions determination for the proposed project.

2. Overview of AB 900

AB 900, as amended by Senate Bill (SB) 743 (Steinberg, Chapter 386, Statutes of 2013), SB 734 (Galgiani, Chapter 210, Statutes of 2016), and AB 246 (Santiago, Chapter 522, Statutes of 2017), provides streamlined judicial review for development projects if, among other conditions, the "project does not result in any net additional emissions of greenhouse gases, including greenhouse gas emissions from employee transportation, as determined by the State Air Resources Board pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code." (Pub. Resources Code, §21183, subd. (c).)

The Governor's Guidelines for AB 900 applications require applicants to submit a proposed methodology for quantifying the project's GHG emissions and documentation that the project will not result in any net additional GHG emissions. The documentation must quantify direct and indirect GHG emissions associated with the project's construction and operation, including GHG emissions from employee transportation, and the net emissions of the project after accounting for any mitigation measures. The project's net emissions, after mitigation, must be monitored and enforced consistent with Public Resources Code section 21183, subdivision (e).

The role of CARB in reviewing AB 900 applications for purposes of the Governor's certification is limited to an evaluation of the quantification methods and documentation submitted by the Applicant to determine whether the project would result in no net additional GHG emissions. CARB staff evaluated the technical elements of the project application, including baseline emissions in the absence of the project, input data and assumptions used for GHG emissions and mitigation calculations, quantification methods, and an estimate of the project's net GHG emissions after any mitigation.

3. Existing Baseline Conditions

The proposed project site is located in downtown San Jose, generally within the Diridon Station Area Plan. The site is currently occupied by existing light industrial and parking uses interspersed with a small amount of commercial and residential land uses, including: 13 single-family residential units, approximately 169,000 square feet of commercial uses, approximately 383,700 square feet of light industrial uses, a 9,000 square foot place of worship, and approximately 11 acres of surface parking. Approximately 170 trees would also be removed from the site.

The San Jose Diridon Station, a central passenger rail hub served by numerous rail and bus services, is located to the west of the project boundary. The SAP Center, an indoor arena with the San Jose Sharks professional hockey team as the primary tenant, is adjacent to the project site.

4. Proposed Project Description

The proposed project is a mixed-use plan, and the application includes two project variants. The level of development would be similar under either variant, but the distribution of land uses on the project site would differ. Project Variant A could accommodate slightly higher intensity of development than Variant B by approximately 200 residential units and 200,000 square feet of additional office space.

The Applicant is including both Project Variants A and B to ensure both Variants would meet the AB 900 requirement that the project would result in no net additional GHG emissions. For purposes of this AB 900 evaluation, CARB staff focused its evaluation on Project Variant A because it represents a more development-intensive, and thereby conservative, scenario for the proposed project's anticipated GHG emissions. If the Lead Agency (City of San Jose) were to adopt Project Variant B, the GHG emissions associated with Project Variant B would be within the scope of CARB staff's evaluation.

The proposed project would result in the demolition and conversion of existing land uses, as described above.

Project Variant A would include development of up to 5,900 residential units, up to 500,000 square feet of retail space, up to 300 hotel rooms, up to 800 limited corporate accommodation rooms, up to 7.3 million square feet of office space, 100,000 square foot event center, a central district system utility plant, 100,000 square feet of logistics/warehouse space, 6,010 parking stalls, approximately 15 acres of open space, and 750 new trees. Approximately 30 diesel-powered emergency generators would be installed throughout the project site.

The baseline and proposed land uses are summarized in Table 1.

Table 1: Baseline and Proposed Land Uses

Land Use Type	Baseline	Project Variant A	Project Variant B
Residential Units	13 du	5,900 du	5,700 du
Retail/Commercial	123,200 gsf	500,000 gsf	500,000 gsf
Hotel	-	300 rooms	300 rooms
Limited-term Corporate Accommodations	-	800 rooms	800 rooms
Office	46,000 gsf	7,300,000 gsf	7,100,000 gsf
Event Center	-	100,000 gsf	100,000 gsf
District Systems	-	100,000 gsf	100,000 gsf
Logistics/Warehouse	-	100,000 gsf	100,000 gsf

Light Industrial	383,700 gsf	-	-
Worship	9,000 gsf	-	-
Open Space	-	15 acres	15 acres
Parking	469,371 gsf	6,010 stalls	5,830 stalls
Notes: du = dwelling units, gsf = gross square feet Source: as documented in Attachment 2.			

5. Technical Review and Assessment

ESA and ARUP, on behalf of the Applicant, prepared a GHG emissions assessment for the proposed project to document how the requirements of Public Resources Code section 21183 subdivision (c) would be met. A full copy of the supporting documentation can be found in Attachment 2.

The Applicant relied upon a variety of sources for activity data and emission factors to quantify GHG emissions. This CARB staff evaluation is focused on reviewing the data sources, emission factors, emission calculations, and assumptions used for the application, and determining whether these sources and assumptions are reasonable.

The Applicant relied upon a combination of project-specific data and Version 2016.3.2 of the California Emissions Estimator Model (CalEEMod), a widely used emissions quantification tool developed in coordination with local air districts to quantify criteria pollutant and GHG emissions from land use development projects in California. CalEEMod uses widely accepted sources for emission estimates combined with appropriate default data that can be used if site-specific information is not available. CalEEMod is populated with data from the United States Environmental Protection Agency AP-42 emission factors, CARB's on-road and off-road equipment emission models such as the Emission Factor 2014 model (EMFAC2014), and the Off-road Emissions Inventory Program model (OFFROAD). The Applicant used the latest CalEEMod version, correction factors to reflect future renewable electricity standards, and project-specific data including transportation data and energy demand modeling, to calculate GHG emissions from project construction and operation.

6. Project Construction Emissions

Construction-related GHG emissions are one-time, direct emissions and would occur over an approximately 10-year construction period. The Applicant estimated GHG emissions associated with project construction by using the CalEEMod tool. The Applicant used CalEEMod default settings to generate construction-related GHG emissions, along with the proposed project's phasing plan. Construction-related GHG emissions reflect the types of equipment expected and the number of hours of operation

anticipated over the construction schedule. This includes heavy-duty equipment, such as refuse hauling trucks, excavators, cranes, pavers, tractors, generators, and conventional work vehicles. The Applicant estimates a total of 157,247 metric tons carbon dioxide equivalent (MT CO_2e) would be emitted over the project construction period, as shown in Table 2 below.

Table 2 shows estimated GHG emissions generated by construction activities from Project Variant A, which would be similar to Variant B because either would be constructed in three overlapping phases. Project construction is expected to be completed in approximately 10 years, with demolition activities beginning in 2021.

CARB staff concluded that the methodology and estimated GHG emissions provided by the Applicant for construction are appropriate and conservative.

Table 2: Project Construction-Generated GHG Emissions[1]

Construction Year	Project Phase	GHG Emissions (MT CO_2e/year)
2021	1	6,695
2022	1	18,363
2023	1	17,302
2024	1 & 2	18,917
2025	2	18,301
2026	2	17,697
2027	2 & 3	18,536
2028	3	15,352
2029	3	15,129
2030	3	10,954
Total[2]		**157,247 MT CO_2e**
Net Increase in Construction-Generated GHG Emissions[3]		**157,247 MT CO_2e**

Notes:
GHG = greenhouse gas; MT CO2e = Metric tons carbon dioxide equivalent;
[1] Source: as documented in Attachment 2 (Table 9 of Appendix C to the original AB 900 application, dated August 26, 2019) and confirmed by CARB staff.
[2] Totals may not sum exactly due to rounding.
[3] The process the Applicant will follow for acquiring GHG offsets is described in Section 10. "Method to Offset Emissions."

7. Baseline Operational Emissions

Operational emissions from land uses at the existing project site (Table 1) that would be vacated, demolished, and removed as part of the project represent baseline conditions. Default CalEEMod operational emissions in year 2023 serves as the baseline for purposes of this analysis, which represents existing conditions at the time the first phase of the proposed project would become operational. GHG emissions were quantified using CalEEMod default values for mobile, electricity, natural gas, area, stationary, solid waste, water, wastewater, and vegetation sources.

CARB staff evaluated the Applicant's GHG emission estimations, demand factors, and assumptions used in the Applicant's baseline calculations. CARB staff concluded that the methodology and estimated baseline GHG emissions provided by the Applicant are appropriate. Baseline emissions are reflected in Table 3 in the following section, VIII. "Proposed Project Operational Emissions."

8. Proposed Project Operational Emissions

Operational GHG emission sources from the proposed project would include mobile, electricity, area, stationary, solid waste, water, wastewater, and vegetation sources. Operational GHG emissions from the proposed project would begin as early as 2024, with full buildout as early as 2030.

Table 3 summarizes the estimated net increase in operation-related GHG emissions from Project Variant A through the lifetime of the project (defined by the Applicant as 30 years for each phase). Operational emissions from Project Variant B would be similar to, or slightly less than, Project Variant A because Variant A could accommodate slightly higher intensity of development than Variant B. The continued operation of the existing land uses that would be demolished under the proposed project serves as the reference point for defining a baseline.

Due to the scale and plan-level nature of the proposed project, the feasibility of certain project design features and mitigation measures was still under study at the time this report was prepared. The Applicant's original AB 900 application submission (dated August 26, 2019) did not include certain design features that would reduce the project's operational GHG emissions. For this reason, CARB staff requested that the Applicant provide a second GHG emissions scenario, where more on-site GHG emissions reducing measures were incorporated, as feasible. Both scenarios, referred to in this report as the "Unmitigated" and "Mitigated" emissions scenarios, respectively, were evaluated by CARB staff, and supporting documentation is provided in Attachment 2 to this report.

CARB staff evaluated the proposed project's emission calculations, demand factors, and assumptions used to estimate operational GHG emissions, and concluded that the Applicant's assumptions and inputs represented by the "Unmitigated" GHG emissions scenario are overly conservative (see Attachment 2: Appendix C to AB 900 Application dated August 26, 2019). The "Mitigated" GHG emissions scenario includes assumptions that more closely align with the project's design features, such as LEED Gold certification for Google's office buildings, on-site solar photovoltaic generation, and reduced water demand from on-site wastewater collection for recycled water systems (see Attachment 2: Supplemental Documentation to the AB 900 Application dated October 23, 2019). Given the scale and nature of the proposed project, CARB staff concluded that the methodology, assumptions, and estimated "Mitigated" operational GHG emissions provided by the Applicant are a reasonably conservative characterization of the projected GHG emissions that could occur during project operation and the appropriate basis for mitigation.

Based on the Applicant's proposal, annual project operational emissions would exceed baseline throughout the lifetime of the project, as summarized in Table 3.

Table 3: Comparison of Baseline and Project Operation-Related GHG Emissions[1]

Year[2]	GHG Emissions (MT CO_2e/year)				
	Baseline[3]	Project Variant A (Unmitigated)[4]	Net Increase (Unmitigated)	Project Variant A (Mitigated)[4]	Net Increase (Mitigated)[5]
2024	8,350	29,703	21,353	23,458	15,108
2025	8,350	29,221	20,871	23,094	14,744
2026	8,350	28,739	20,389	22,729	14,379
2027	8,350	66,769	58,419	51,632	43,282
2028	8,350	65,756	57,406	50,819	42,469
2029	8,350	64,702	56,352	50,006	41,656
2030	8,350	86,749	78,399	67,324	58,974
2031	8,350	85,304	76,954	66,192	57,842
2032	8,350	83,859	75,509	65,108	56,758
2033	8,350	82,401	74,051	63,976	55,626
2034	8,350	80,942	72,592	62,844	54,494
2035	8,350	79,484	71,134	61,712	53,362
2036	8,350	78,025	69,675	60,580	52,230
2037	8,350	76,567	68,217	59,447	51,097
2038	8,350	75,109	66,759	58,315	49,965
2039	8,350	73,650	65,300	57,183	48,833
2040	8,350	72,192	63,842	56,051	47,701
2041	8,350	70,733	62,383	54,919	46,569
2042	8,350	69,275	60,925	53,787	45,437
2043	8,350	67,816	59,466	52,654	44,304
2044	8,350	66,358	58,008	51,522	43,172
2045	8,350	65,167	56,817	50,597	42,247
2046	8,350	65,154	56,804	50,584	42,234
2047	8,350	65,140	56,790	50,570	42,220
2048	8,350	65,127	56,777	50,557	42,207
2049	8,350	65,113	56,763	50,544	42,194

2050	8,350	65,100	56,750	50,530	42,180
2051	8,350	65,087	56,737	50,517	42,167
2052	8,350	65,073	56,723	50,503	42,153
2053	8,350	65,060	56,710	50,490	42,140
2054	8,350	65,060	56,710	50,477	42,127
2055	8,350	46,002	37,652	35,141	26,791
2056	8,350	45,993	37,643	35,133	26,783
2057	8,350	45,985	37,635	35,124	26,774
2058	8,350	17,646	9,296	13,785	5,435
2059	8,350	17,643	9,293	13,782	5,432
2060	8,350	17,639	9,289	13,778	5,428
Net Increase in Operational-Related GHG Emissions[6]			1,966,392		**1,456,514**

Notes: GHG = greenhouse gas; MT CO_2e = Metric tons carbon dioxide equivalent.

[1] Source: as documented in Attachment 2, and confirmed by CARB staff.

[2] The Applicant estimates that the useful life of each project phase would be 30 years, and that operational emissions associated with each phase would sunset 30 years after construction of each respective phase is completed. The first year of occupancy for project phase 1 would be as early as 2024, phase 2 would be as early as 2027, and the first year of full project operation of all three phases concurrently would be as early as 2030.

[3] Baseline emissions are represented by the continued operation of the existing land uses on the project site that would be vacated and demolished as part of the project (Attachment 2: Table 8 of Appendix C to the original AB 900 Application, dated August 26, 2019).

[4] Due to the scale and plan-level nature of the proposed project, feasibility of certain project design features and mitigation measures was still under study at the time this report was prepared. As a result, the Applicant provided two emissions scenarios: an "Unmitigated" scenario relies on very conservative assumptions (Attachment 2: Table 20 Appendix C to AB 900 Application, dated August 26, 2019), and a "Mitigated" scenario, which relies on reasonably conservative assumptions including mitigation measures currently under consideration (Attachment 2: Supplemental Documentation to the AB 900 Application, Table 7 dated October 23, 2019).

[5] The process the Applicant will follow for acquiring GHG offsets is described in Section 10. "Method to Offset Emissions."

[6] Totals may not sum exactly due to rounding.

Energy Emissions

The proposed project would seek Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) Gold certification, which includes measures applicable to both construction and operation. At the time of this analysis, the exact LEED credits and project features that would be selected to achieve LEED-ND Gold Certification had not yet been determined, but would include a transit-oriented location and linkages to off-site land uses, walkable neighborhood design, green infrastructure, and building energy efficiency elements. A full discussion of the LEED-ND Gold project features that would contribute to certification is included in Attachment 2. LEED-ND requires at least one building in the project achieve LEED Gold certification for building energy efficiency. The Applicant has committed that the Google office buildings will achieve LEED Gold Certification.

In the "Unmitigated" GHG emissions scenario in Table 3, building energy consumption from the proposed project was conservatively estimated assuming that buildings would be constructed to comply with the 2019 Building Energy Efficiency Standards (California

Code of Regulations Title 24, Part 6, i.e., “Title 24”). This is a conservative assumption because the Applicant has documented its commitment that all Google office buildings would be LEED Gold Certified, and the City of San Jose building code would require a minimum of LEED Silver Certification, both of which are higher standards than Title 24. The “Mitigated” GHG emissions scenario in Table 3 reflects energy demand assumptions that are more closely aligned with LEED Gold and Silver Certification. Furthermore, on-site renewable energy systems are still under investigation and would be included in the project design where feasible. On-site solar photovoltaic generation was evaluated as part of the “Mitigated” GHG emissions scenario (Table 3).

The Applicant is investigating sourcing its electricity from providers with a higher proportion of renewable energy, such as San Jose Clean Energy. However, the Applicant conservatively used GHG emission factors for electricity from Pacific Gas and Electric (PG&E), and assumed that the electric grid would be decarbonized over time according to Renewable Portfolio Standard requirements. The Applicant assumed that the project would be served by 100 percent carbon free electricity by year 2045 consistent with the mandates of SB 100 (DeLeon, Chapter 312, Statutes of 2018). The project design assumes that all thermal systems would be electric; therefore, no natural gas consumption was included in the GHG emissions calculations.

Mobile Source Emissions

For mobile sources, the Applicant conservatively relied on default mobile source emission factors from CARB’s EMFAC 2014 model for operational year 2023. The Applicant conservatively did not account for future improvements in fleet fuel economy due to implementation of CARB’s Advanced Clean Cars regulations that would foreseeably reduce mobile source GHG emissions during the project’s lifetime due to vehicle technology improvements, electrification, and fleet turnover. Default trip generation rates were adjusted to more closely match the anticipated ground floor retail uses as documented in the Attachment 2: Supplement to the original AB 900 application (dated October 23, 2019)

Solid Waste, Water and Wastewater, Area, Stationary, and Vegetation Emissions

CalEEMod default emission factors and calculation methods were also used to conservatively estimate GHG emissions from solid waste disposal, water consumption and wastewater sources, area sources, and vegetation in the “Unmitigated” GHG emissions scenario. The “Mitigated” GHG emissions scenario in Table 3 reflects reduced water demand from on-site wastewater collection for recycled water systems. The Applicant also assumed up to 50 hours per year for operations and testing of 30 emergency generators.

9. Total Net Additional Emissions

Due to the large scale, plan-level nature, and multi-phase buildout of the proposed project, there is a greater degree of uncertainty in the GHG emissions analysis than for smaller scale development projects with more defined project descriptions. For purposes of this AB 900 Determination, CARB staff concurs with the Applicant's assumptions in the "Mitigated" GHG emissions scenario, which represents a reasonably conservative characterization of the projected GHG emissions that could occur during project operation with feasible mitigation incorporated. Table 4 below summarizes the total projected net increase in GHG emissions attributable to the proposed project.

Table 4: Year-by-Year Net Additional GHG Emissions[1]

Year	GHG Emissions (MT CO_2e/year)	
	Construction	Operation
2021	6,695	----
2022	18,363	----
2023	17,302	----
2024	18,917	15,108
2025	18,301	14,744
2026	17,697	14,379
2027	18,536	43,282
2028	15,352	42,469
2029	15,129	41,656
2030	10,954	58,974
2031	----	57,842
2032	----	56,758
2033	----	55,626
2034	----	54,494
2035	----	53,362
2036	----	52,230
2037	----	51,097
2038	----	49,965
2039	----	48,833
2040	----	47,701
2041	----	46,569
2042	----	45,437
2043	----	44,304
2044	----	43,172
2045	----	42,247
2046	----	42,234

2047	----	42,220
2048	----	42,207
2049	----	42,194
2050	----	42,180
2051	----	42,167
2052	----	42,153
2053	----	42,140
2054	----	42,127
2055	----	26,791
2056	----	26,783
2057	----	26,774
2058	----	5,435
2059	----	5,432
2060	----	5,428
Sub Total [2]	157,247 MT CO_2e	1,456,514 MT CO_2e
Total [2, 3] (Construction + Operations)	**1,613,761 MT CO_2e**	

Notes: GHG = greenhouse gas; MT CO_2e = Metric tons carbon dioxide equivalent.
[1] Source: as documented in Attachment 2, and confirmed by CARB staff.
[2] Totals may not sum exactly due to rounding.
[3] The process the Applicant will follow for acquiring GHG offsets is described in Section 10. "Method to Offset Emissions."

To ensure that the project would result in no net additional GHG emissions under Public Resources Code 21183 subsection (c), the Applicant has committed to offset the total projected net increase in GHG emissions generated under the "Mitigated" scenario in Table 3 The Applicant has committed to execute contracts to offset the net increase in GHG emissions generated during project operation on a pro-rated basis for any phase of the project prior to issuance of the final Certificate of Occupancy for the first building constructed during that phase. The details of this commitment are described in the following section, documented in Attachment 2, and will also be included within the proposed project's Mitigation Monitoring and Reporting Program, which is binding and enforceable by the Lead Agency (City of San Jose) for the life of the project.

10. Method to Offset GHG Emissions

Under the GHG emissions quantification methodology used by the Applicant, the proposed project would result in a net GHG emissions increase of 157,247 MT CO_2e during project construction over a ten-year period, and an estimated net increase of approximately 1,456,514 MT CO_2e for the operation of Project Variant A. GHG emissions associated with Project Variant B would be similar to, or less than, Variant A.

Operational emissions would be on-going for the project lifetime (defined by the Applicant as 30 years for each phase), and would be expected to decline over the life of the project as emission factors decline associated with adoption of renewable sources of electricity and cleaner vehicle technologies.[1]

Over the project's lifetime as defined by the Applicant, the project would conservatively result in a cumulative net increase in GHG emissions of approximately 1,613,761 MT CO_2e.

The Applicant has agreed to meet the requirement set forth in California Public Resources Code section 21183, subdivision (c) to demonstrate that either project variant, whichever is adopted, would result in no net additional GHG emissions through adoption of GHG emissions reduction measures identified in the "Mitigated" scenario, and procurement of GHG offset credits issued by a CARB-accredited carbon registry.

<u>GHG Emissions Offset Verification Process Over Three Phases: Construction Emissions</u>

The Applicant commits to the following process for acquiring GHG offsets for construction emissions:

a. The project Applicant will purchase GHG offsets necessary to offset construction-generated emissions on a pro-rated basis prior to obtaining the first building permit in each phase of construction, for a total of three offset payments over three construction phases. The total projected GHG emissions from construction are reflected in Table 9 of Appendix C to the original AB 900 application (dated August 26, 2019) and will be pro-rated into three offset purchases according to the phasing schedule in Table 2 of the original application (dated August 26, 2019), which reflects three construction phases. The total (100 percent) of estimated construction-generated GHG emissions (157,247 MT CO_2e) must be fully offset prior to the Lead Agency's issuance of the first building permit for the third phase of construction.

b. All GHG offsets shall be purchased from a CARB-accredited carbon registry, such as the American Climate Registry, Climate Action Reserve, or Verra (formerly Verified Carbon Standard or VCS). Courtesy copies of any offset contracts will be promptly sent to the Lead Agency, CARB, and the Governor's Office after execution of such contracts. The details of this commitment will also be included within the project's

[1] The Applicant did not account for future GHG emissions reductions from technology and fuel efficiency improvements to the vehicle fleet.

Mitigation Monitoring and Reporting Program, which is binding and enforceable by the Lead Agency.

GHG Emissions Offset Verification Process Over Three Phases: Operational Emissions

The Applicant commits to the following process for acquiring GHG offsets for operational emissions:

a. The project Applicant will purchase GHG offsets necessary to offset the cumulative net increase in operational emissions over the life of the project on a pro-rated basis prior to the Lead Agency's issuance of the final Certificate of Occupancy for the first building in each phase of construction, for a total of three offset payments over three construction phases. The total projected net increase in GHG emissions from project operation is reflected in Table 7 of the Supplement to the original AB 900 application (dated October 23, 2019) less the baseline emissions reflected in Table 8 of Appendix C to the original application and will be pro-rated according to the phasing schedule in Table 2 of the original application (dated August 26, 2019), which reflects three construction phases. The total (100 percent) of projected net additional operation-related GHG emissions (1,456,514 MT CO_2e) must be fully offset prior to the Lead Agency's issuance of the final Certificate of Occupancy for the first building in the third phase of construction.

b. All GHG offsets shall be purchased from a CARB-accredited carbon registry, such as the American Climate Registry, Climate Action Reserve, or Verra (formerly Verified Carbon Standard or VCS). Courtesy copies of any offset contracts will be promptly sent to the Lead Agency, CARB, and the Governor's Office after execution of such contracts. The details of this commitment will also be included within the project's Mitigation Monitoring and Reporting Program, which is binding and enforceable by the Lead Agency for the life of the Project.

The total projected quantity of GHG offsets required to fully offset the cumulative net increase in GHG emissions attributable to construction and operation of the project is 1,613,761 MT CO_2e.

The Lead Agency documented its commitment to fully enforce the provision that the project result in no net additional GHG emissions for the life of the obligation, including the extent to which the Applicant relies on GHG offsets to mitigate the project's GHG emissions, as a condition of project approval (Attachment 2: Supplemental Documentation to the AB 900 Application, Attachment D, letter to CARB dated October 22, 2019).

11. Conclusions and Recommendations

Based on an evaluation of the documentation provided by the Applicant, its commitment to purchase GHG offsets issued by a CARB-accredited carbon registry, and the Lead Agency's commitment to fully enforce the requirement that the net increase in GHG emissions from the project would be fully offset for the life of the obligation as a condition of approval, CARB staff concludes that the proposed project will not result in any net additional GHG emissions relative to the baseline.