EXHIBIT 3

CEQA EXEMPTION MEMORANDUM SUPPORTING TECHNICAL STUDIES

Part 1: Biological Constraints Analysis for 612-630 South Main Street Project, Milpitas, California, prepared by First Carbon Solutions dated May 20, 2022.

Part 2: Trip Generation Study for 612 South Main Street, Milpitas, California, prepared by TJKM dated April 2, 2022.

Part 3: Noise Impacts Constraints Analysis for the South Main Street Project in Milpitas, California, prepared by First Carbon Solutions dated May 17, 2022.

Part 4: Air Quality and Greenhouse Gas Emissions Constraints Analysis for the South Main Street Project in Milpitas, California prepared by First Carbon Solutions dated May 27, 2022.

Part 5: Preliminary Stormwater Quality Control Plan for South Main Street Milpitas 600 & 612 South Main Street prepared by MacKay & Somps dated June 2022.

Exhibit 3, Part 1:
Biological Constraints Analysis for 612-630 South Main Street Project, Milpitas, California, prepared by First Carbon Solutions dated May 20, 2022.

FIRSTCARBONSOLUTIONS™

Biological Constraints Analysis
612-630 South Main Street Project
City of Milpitas, Santa Clara County, California

Project Applicant:
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San Ramon, CA 94583

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Contact: Robert Carroll, Biologist

Date: May 20, 2022

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SECTION 1: INTRODUCTION

FirstCarbon Solutions (FCS) has prepared this Biological Constraints Analysis for the proposed 612-630 South Main Street Project (proposed project) located in Milpitas, California. The purpose of the Biological Constraints Analysis is to identify any potential development constraints related to sensitive or protected biological resources that are present or have potential to occur on-site and to identify any potential impacts that the development of the project site could have on these resources. Recommended measures to avoid or minimize potential project-related impacts to sensitive and protected biological resources on-site are included as appropriate.

1.1 - Project Location

The project site is located in the City of Milpitas, in Santa Clara County, California (Exhibit 1). Specifically, the project site is located just east of Main Street between West Curtis Avenue and Corning Avenue (Exhibit 2). The project site's Assessor's Parcel Number (APN) is 086-25-027. The project site is composed of vacant land and an active Montessori school with associated surface parking.

1.2 - Project Description

The proposed project would include the development of vacant land and the demolition of the existing approximate 29,000-square-foot Montessori school structure. Project construction consists of 57 attached, three-story townhome dwelling units and associated amenities on the approximately 2.3-acre site. The proposed project would also include 20,368 square feet of open space, including private open space areas. The proposed project would include 124 total parking spaces, including 114 garage unit parking spaces (two spaces per unit), and 10 guest surface parking spaces.

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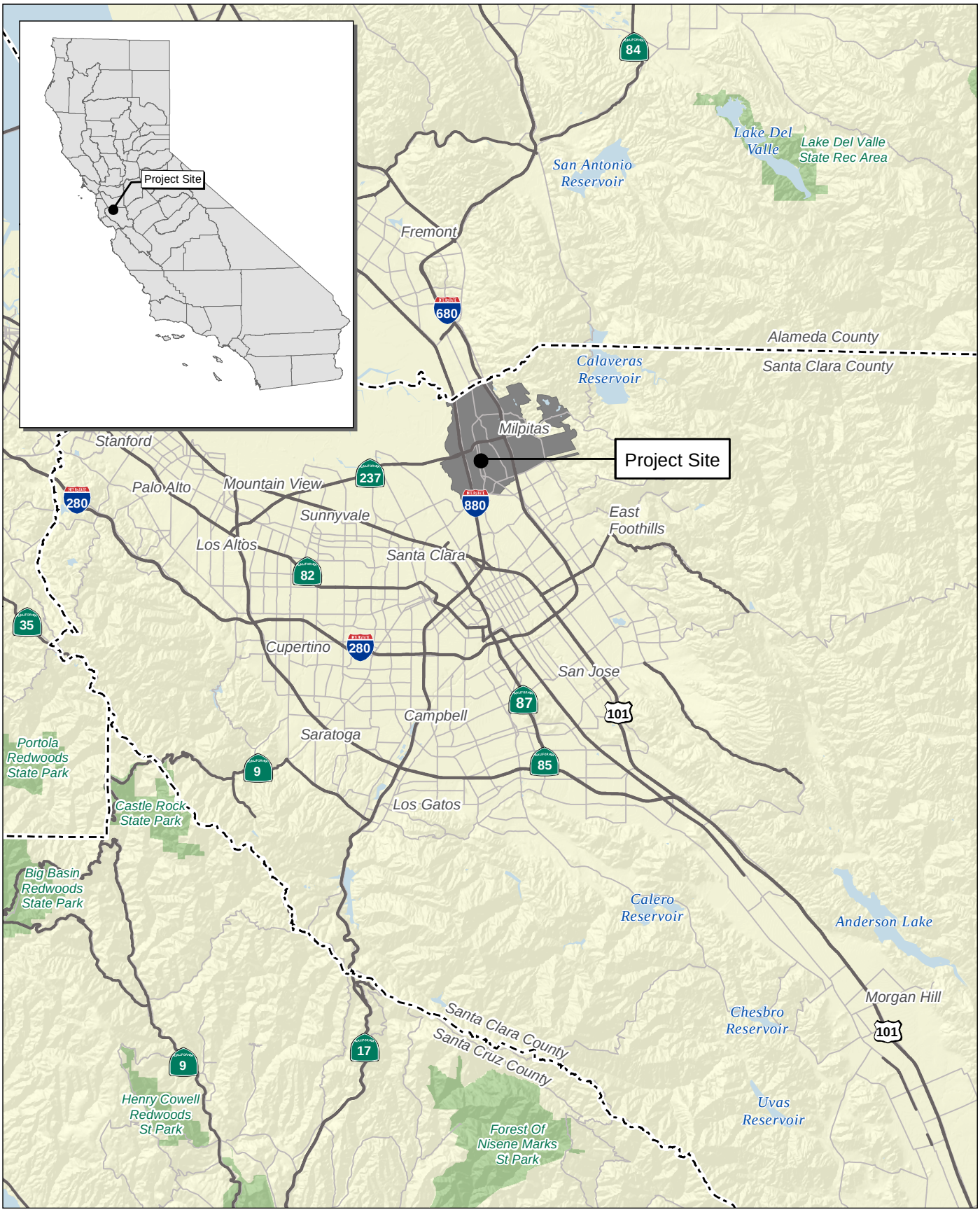

Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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Miles

Exhibit 1
Regional Location Map

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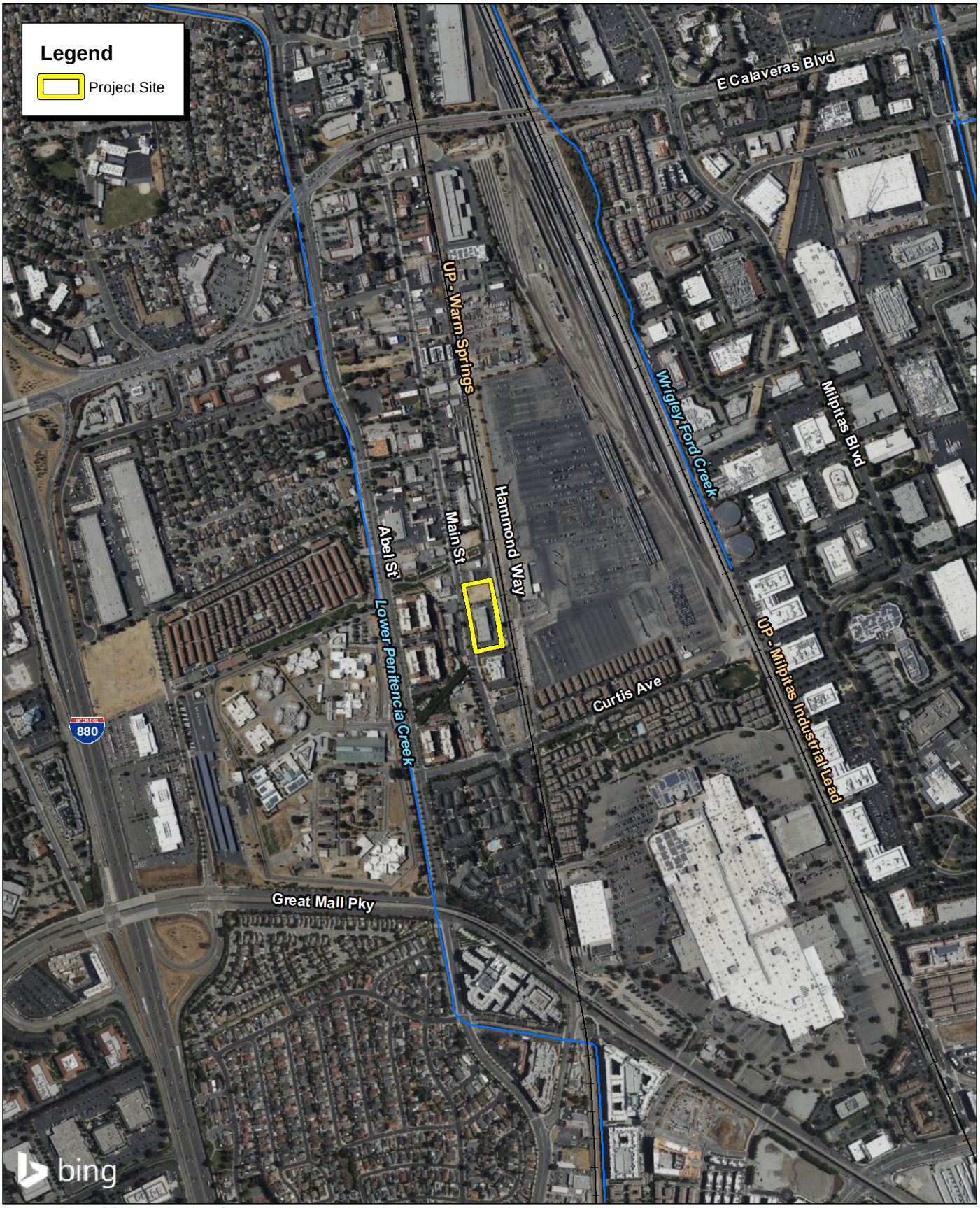

Source: Bing Aerial Imagery. Santa Clara County.

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Exhibit 2
Local Vicinity Map

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SECTION 2: REGULATORY SETTING

2.1 - Federal

2.1.1 - Endangered Species Act

The United States Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under the Endangered Species Act. Section 9 of the Endangered Species Act protects listed species from "take," which is broadly defined as actions taken to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." The Endangered Species Act protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; during the environmental review process these species are usually treated by resource agencies as if they were actually listed as threatened or endangered.

2.1.2 - Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. All migratory birds and their nests are protected from take and other impacts under the MBTA (16 United States Code [USC] § 703, *et seq*.).

2.1.3 - Bald and Golden Eagle Protection Act

The golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) are afforded additional protection under the Eagle Protection Act, amended in 1973 (16 USC § 669, *et seq*.) and the Bald and Golden Eagle Protection Act (16 USC §§ 668–668d).

2.1.4 - Clean Water Act

Section 404

The United States Army Corps of Engineers (USACE) administers Section 404 of the federal Clean Water Act (CWA), which regulates the discharge of dredge and fill material into waters of the United States. On April 21, 2020, the United States Environmental Protection Agency (EPA) and the USACE (collectively "Agencies") published a new definition of waters of the United States in the Federal Register. This new definition, called the 2020 Navigable Waters Protection Rule (NWPR), went into effect on June 22, 2020. Under the 2020 NWPR, the Code of Federal Regulations (33 CFR § 328.3(a); 40 CFR § 230.3(s)) currently defines waters of the United States as:

a) The territorial seas, and traditional navigable waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;

b) Perennial and intermittent tributaries that contribute surface water flow to such waters;

c) Certain ponds, lakes, and impoundments of jurisdictional waters; and

d) Adjacent wetlands to other jurisdictional features.

Section 404 jurisdiction regarding "other waters" refers to features such as ponds, lakes, and streams which extend to the upward limit of the ordinary high water mark (OHWM). The OHWM is defined as the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR § 328.3(7)).

Section 401

As stated in Section 401 of the CWA, "any applicant for a federal permit for activities that involve a discharge to waters of the State, shall provide the federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act." Therefore, before the USACE will issue a valid Section 404 permit, applicants must obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB).

2.2 - State

2.2.1 - CEQA Guidelines

The following California Environmental Quality Act (CEQA) Guidelines Appendix G checklist questions serve as thresholds of significance when evaluating the potential impacts of a proposed project on biological resources. Impacts are considered significant if a project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

2.2.2 - California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to the Endangered Species Act but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with the CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species if there are reasonable and prudent alternatives available (Fish and Game Code [FGC] § 2080). CESA directs agencies to consult with the CDFW on projects or actions that could affect listed species, directs the CDFW to determine whether jeopardy would occur, and allows the CDFW to identify "reasonable and prudent alternatives" to the proposed project consistent with conserving the species. CESA allows the CDFW to authorize exceptions to the State's prohibition against take of a listed species if the take of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (FGC § 2081).

2.2.3 - California Fish and Game Code

Under CESA, the CDFW has the responsibility for maintaining a list of endangered and threatened species (FGC § 2070). Fish and Game Code Sections 2050–2098 outline the protection provided to California's rare, endangered, and threatened species. Fish and Game Code Section 2080 prohibits the taking of plants and animals listed under the CESA. Fish and Game Code Section 2081 established an incidental take permit program for State-listed species. The CDFW maintains a list of "candidate species," which it formally notices as being under review for addition to the list of endangered or threatened species.

In addition, the Native Plant Protection Act of 1977 (NPPA) (FGC § 1900, *et seq*.) prohibits the take, possession, or sale within the State of any plants with a State designation of rare, threatened, or endangered (as defined by the CDFW). An exception to this prohibition in the NPPA allows landowners to take listed plant species under specified circumstances, provided that the owners first notify the CDFW and give the agency at least 10 days to retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed. Fish and Game Code Section 1913 exempts from the take prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right-of-way." Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

In addition to formal listing under the Endangered Species Act and CESA, some species receive additional consideration by the CDFW and local lead agencies during the CEQA process. Species that may be considered for review are those listed as a "Species of Special Concern." The CDFW maintains lists of Species of Special Concern that serve as species "watch lists." Species with this status may have limited distributions or limited populations and/or the extent of their habitats has been reduced substantially, such that their populations may be threatened. Thus, their populations are monitored and they may receive special attention during environmental review. While they do not have statutory protection, they may be considered rare under CEQA and specific protection measures may be warranted. In addition to Species of Special Concern, the CDFW Special Animals List identifies animals that are tracked by the California Natural Diversity Database (CNDDB) and may be potentially vulnerable but warrant no federal interest and no legal protection.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. CEQA Guidelines Section 15065 (Mandatory Findings of Significance) requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for the assessment of unlisted species as Rare or Endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society (CNPS) List ranked 1A, 1B, or 2 would typically require evaluation under CEQA.

Fish and Game Code Sections 3500 to 5500 outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species fully protected by these sections may not be taken or possessed at any time. The CDFW cannot issue permits or licenses that authorize the take of any fully protected species except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock.

Under Fish and Game Code Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders of *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. To comply with the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of CESA. “Take” of protected species incidental to otherwise lawful management activities may be authorized under Fish and Game Code Section 206.591. Authorization from the CDFW would be in the form of an Incidental Take Permit.

Fish and Game Code Section 1602 requires any entity to notify the CDFW before beginning any activity that “may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake” or “deposit debris, waste, or other materials that could pass into any river, stream, or lake.” “River, stream, or lake” includes waters that are episodic and perennial and ephemeral streams, desert washes, and watercourses with a subsurface flow. A Lake or Streambed Alteration Agreement will be required if the CDFW determines that project activities may substantially adversely affect fish or wildlife resources through alterations to a covered body of water.

2.2.4 - California Department of Fish and Wildlife Species of Concern

In addition to formal listing under the Endangered Species Act and CESA, species receive additional consideration by the CDFW and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of “Species of Special Concern” developed by the CDFW. It tracks species in California whose numbers, reproductive success, or habitat may be threatened. In addition to Species of Special Concern, the CDFW identifies animals that are tracked by the CNDDB but warrant no federal interest and no legal protection. These species are identified as California Special Animals.

2.2.5 - California Porter-Cologne Water Quality Control Act

The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the State" (Water Code § 13260(a)) pursuant to provisions of the Porter-Cologne Water Quality Act. "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State" (Water Code § 13050(e)).

2.2.6 - California Native Plant Society

The CNPS maintains a rank of plant species that are native to California and that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Following are the definitions of the CNPS ranks:

- **Rank 1A:** Plants presumed extirpated in California and either rare or extinct elsewhere
- **Rank 1B:** Plants rare, threatened, or endangered in California and elsewhere
- **Rank 2A:** Plants presumed extirpated in California but common elsewhere
- **Rank 2B:** Plants rare, threatened, or endangered in California but more common elsewhere
- **Rank 3:** Plants about which more information is needed
- **Rank 4: Watch List:** Plants of limited distribution

Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. All plants appearing on the CNPS List ranked 1 or 2 are considered to meet the CEQA Guidelines Section 15380 criteria. While only some of the plants ranked 3 or 4 meet the definitions of threatened or endangered species, potential impacts to these species or their habitats should be analyzed during the preparation of environmental documents pursuant to CEQA as they may meet the definition of Rare or Endangered under the CEQA Guidelines Section 15380 criteria.

2.3 - Regional and Local

Milpitas, California, Municipal Code

Chapter 2 Section 7, Tree Protection and Heritage Tree Program.

The City of Milpitas requires a Tree Removal Permit for the removal of any trees meeting the following characteristics:

- All trees which have a 56-inch or greater circumference of any trunk measured 4.5 feet from the ground and located on developed residential property; or
- All trees which have a 37-inch or greater circumference of any trunk measured 4.5 feet from the ground and located on developed commercial or industrial property; or
- All trees which have a 37-inch or greater circumference of any trunk measured 4.5 feet from the ground, when removal relates to any transaction for which zoning approval or subdivision approval is required; or
- Any tree existing at the time of a zoning or subdivision approval and which was a specific subject of such approval or otherwise covered by subsection (b) above; or

- All trees which have a 37-inch or greater circumference of any trunk measured 4.5 feet from the ground and located on a vacant, undeveloped, or underdeveloped property; or
- All heritage trees or groves of trees meeting the following characteristics:
  - One of the largest or oldest trees or grove of trees in Milpitas; or
  - A tree or grove of trees possessing distinctive form, size, age, location, and/or historical significance.

SECTION 3: METHODS

3.1 - Literature Review

This literature review provides a baseline from which to evaluate project impacts on biological resources potentially occurring on the project site and in the surrounding area.

3.1.1 - Existing Documentation

As part of the literature review, an FCS Biologist examined existing environmental documentation for the project site and vicinity. This documentation included literature pertaining to the habitat requirements of special-status species with the potential to occur in the project vicinity and federal register listings, protocols, and species data provided by the USFWS and CDFW.

3.1.2 - Topographic Maps and Aerial Photographs

An FCS Biologist reviewed current United States Geological Survey (USGS) 7.5-minute topographic quadrangle map(s) and aerial photographs as a preliminary analysis of the existing conditions within the project site and immediate vicinity.[1] Information obtained from the topographic maps included elevation, general watershed information, and potential drainage feature locations using Google Earth in conjunction with the EPA Watershed Assessment, Tracking, and Environmental Results System (WATERS).[2] Aerial photographs provided a perspective of the current site conditions relative to on-site and off-site land use, plant community locations, and potential locations of wildlife movement corridors.

3.1.3 - Soil Surveys

The United States Department of Agriculture (USDA) has published soil surveys that describe the soil series (i.e., group of soils with similar profiles) occurring within a particular area.[3] These profiles include major horizons with similar thickness, arrangement, and other important characteristics. These series are further subdivided into soil mapping units that provide specific information regarding soil characteristics. Many special-status plant species have a limited distribution based exclusively on soil type. Therefore, pertinent USDA soil survey maps were reviewed to determine the existing soil mapping units within the project site and to establish whether the soil conditions on-site are suitable for any special-status plant species.

3.1.4 - Special-status Species Database Search

An FCS Biologist compiled a list of threatened, endangered, and otherwise special-status species previously recorded within the project vicinity based on a search of the CNDDB and the CNPS

[1] United States Geological Survey (USGS). 2022. National Geospatial Program. Website: https://www.usgs.gov/core-science-systems/national-geospatial-program/us-topo-maps-america?qt-science_support_page_related_con=4#qt-science_support_page_related_con. Accessed April 27, 2022.

[2] United States Environmental Protection Agency (EPA). 2022. Watershed Assessment, Tracking, and Environmental Results System (WATERS). Website: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system. Accessed April 27, 2022.

[3] Natural Resources Conservation Service (NRCS). 2022. Web Soil Survey (WSS). United States Department of Agriculture (USDA). Website: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed April 27, 2022.

Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California for the *Milpitas, California,* USGS 7.5-minute Topographic Quadrangle Map and the eight surrounding quadrangles.[4,5]

The CNDDB Biogeographic Information and Observation System (BIOS 5) database was used to determine the distance between the known occurrences of special-status species and the project site.[6]

3.1.5 - Trees

Prior to conducting the reconnaissance-level field survey, an FCS Biologist reviewed applicable City ordinances pertaining to tree preservation and protection and ascertained whether tree replacement measures or permits for the removal of protected trees are required. Additionally, FCS reviewed the Preliminary Tree Inventory Report prepared by HortScience in May 2022. The findings of the report informed the Results and Biological Constraints sections of this report. The Tree Inventory Report is included as Appendix C to this report.

3.1.6 - Jurisdictional Waters and Wetlands

Prior to conducting the reconnaissance-level survey, an FCS Biologist reviewed EPA WATERS and aerial photography to identify potential natural drainage features and water bodies.[7] In general, all surface drainage features identified as blue-line streams on USGS and USFWS maps are potentially State or federally protected waters or wetlands.

3.1.7 - Santa Clara Valley Habitat Plan

Prior to conducting the reconnaissance-level survey, an FCS Biologist reviewed the Santa Clara Valley Habitat Agency Geobrowser interactive web tool to determine biological constraints applicable to the project site related to the requirements of the Santa Clara Valley Habitat Plan (SCVHP).[8] Additionally, FCS reviewed applicable habitat-type definitions provided in the SCVHP.

3.2 - Field Survey

On April 6, 2022, FCS Biologist Robert Carroll conducted a general biological field survey of the project site and its immediate vicinity, where accessible. The objective of the survey was to assess and characterize the biological conditions on and adjacent to the site, including identification of plant and wildlife species and their habitats. During the survey, Mr. Carroll searched for evidence of any habitat for special-status species and other sensitive biological resources, including those that were identified in the literature review.

[4] California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed April 27, 2022.
[5] California Native Plant Society (CNPS). 2022. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed April 27, 2022.
[6] California Department of Fish and Wildlife (CDFW). 2022. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed April 27, 2022.
[7] United States Environmental Protection Agency (EPA). 2022. Watershed Assessment, Tracking and Environmental Results System (WATERS). Website: https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system. Accessed April 27, 2022.
[8] Santa Clara Valley Habitat Agency. 2021. Habitat Agency Geobrowser. Website: http://www.hcpmaps.com/habitat/. Accessed April 27, 2022.

3.2.1 - Vegetation

Common plant species observed during the reconnaissance-level survey were identified by visual characteristics and morphology in the field and recorded. Uncommon and less familiar plants were identified with the use of taxonomical guides, including Jepson eFlora and Calflora.[9,10] Taxonomic nomenclature used in this study follows The Jepson Manual: Vascular Plants of California.[11] Common plant names, when not available from The Jepson Manual, were taken from other regionally specific references. Vegetation types and boundaries were noted on aerial photos, verified through field observation, and digitized using ESRI ArcGIS software® ArcMap 10.8. By incorporating collected field data and interpreting aerial photography, a map of habitat types, land cover types, and other biological resources within the project site was prepared.

3.2.2 - Wildlife

Wildlife species detected during the reconnaissance-level survey by sight, calls, tracks, scat, or other signs were recorded. Notations were made regarding suitable habitat for those special-status species determined to have the potential to occur within the project site.[12] If necessary, appropriate field guides were used to assist in species identification during surveys, such as Peterson, Reid, and Stebbins.[13,14,15] Online resources such as eBird and California Herps were also consulted, as necessary. [16,17]

3.2.3 - Wildlife Movement Corridors

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Urbanization and the resulting fragmentation of open space areas create isolated “islands” of wildlife habitat, forming separated populations. Corridors act as an effective link between populations.

The project site was evaluated for evidence of a wildlife movement corridor during the reconnaissance-level survey. The scope of the biological resource assessment did not include a formal wildlife movement corridor study utilizing track plates, camera stations, scent stations, or snares. Rather, the focus of this study was to determine whether a change in land use at the project site could have significant impacts on the regional movement of wildlife. Conclusions are based on the information compiled during the literature review, including aerial photographs, USGS topographic maps, and resource maps for the vicinity; the field survey; and professional experience with the desired topography, habitat, and resource requirements of the special-status species potentially utilizing the project site and vicinity.

[9] Jepson Flora Project (eds.) 2022. Jepson eFlora, https://ucjeps.berkeley.edu/eflora/. Accessed on April 27, 2022.
[10] Calflora. 2022. Calflora: Information on California plants for education, research, and conservation. Website: http://www.calflora.org/. April 27, 2022.
[11] Baldwin, B. et al. 2012. The Jepson Manual: Vascular Plants of California. Berkeley: University of California Press. County of San Bernardino (Bernardino). 2007 (amended 2015).
[12] California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed April 27, 2022.
[13] Peterson, T.R. 2010. A Field Guide to Birds of Western North America, Fourth Edition.
[14] Reid, F. 2006. A Field Guide to Mammals of North America, Fourth Edition.
[15] Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians, Third Edition.
[16] eBird. 2022. Online bird occurrence database. Website: http://ebird.org/content/ebird/. April 27, 2022.
[17] California Herps. 2021. A Guide to the Amphibians and Reptiles of California. Website: http://www.californiaherps.com/. Accessed April 27, 2022.

3.2.4 - Jurisdictional Waters and Wetlands

The project site was surveyed for presence of wetland indicators during the reconnaissance-level survey on April 6, 2022, based on the U.S. Army Corps of Engineers Wetland Delineation Manual.

SECTION 4: RESULTS

This section summarizes the results of the literature search, database review, and field survey.

4.1 - Existing Conditions

Weather conditions during the April 6, 2022, field survey were sunny, with an approximate temperature of 78°F (degrees Fahrenheit). Wind speeds were 2 to 5 miles per hour. Photos of the site are provided in Appendix A.

4.1.1 - Soils

The Natural Resources Conservation Service (NRCS) web soil survey identifies one soil unit for the project site: Urban land–Newpark complex (0 to 2 percent slopes) (Exhibit 3).[18]

No signs of serpentine outcrops, serpentine-derived soils, or other indicators of presence of serpentine (e.g., serpentine-associated plant communities) were observed on-site.

4.1.2 - Vegetation Communities and Land Cover

Exhibit 4 depicts the vegetation and landcover types present on the project site.

Ruderal–0.73 Acres

Ruderal habitat is classified as areas that have been physically altered by previous anthropogenic activities and are no longer recognizable as a native or naturalized vegetation but continue to retain a soil substrate. Past aerial photography indicate that this area of the project site was developed between 1993 and 1999 and was eventually razed in 2000.[19] This area is dominated by a mix of non-native annual grasses and forbs, including cheeseweed (*Malva parviflora)*, Italian thistle (*Carduus pycneocephalus)*, wild oats (*Avena* spp.), English plantain (*Plantago lanceolata)*, salsify (*Tragopgon porrifolius*), redstem filaree (*Erodium cicutarium*), burclover (*Medicago polymorpha*), wild radish (*Raphanus sativus)*, and others. Ornamental trees in this area included Canary Island date palm (*Phoenix canariensis)*, elderberry (*Sambucus sp.)*, sweetgum (*Liquidambar styraciflua)*, Brisbane box (*Lophostemon confertus)*, Mediterranean fan palm (*Chamaerops humilis)*, crape myrtle (*Lagerstroemia indica)*, Chinese hackberry (*Celtis sinesis)*, and silk tree (*Albizia julibrissin)*.

Urban/Developed–1.61 Acres

Developed land is characterized by permanent or semi-permanent structures, pavement, or hardscape, and landscaped areas that often require irrigation. The urban/developed vegetation community includes land that has been constructed upon or otherwise covered with a permanent man-made surface. Vegetation within the urban/developed land usually consists of maintained ornamental vegetation. This portion of the project site has been developed with commercial uses including an active Montessori school and associated surface parking. Ornamental trees in this area

[18] Natural Resources Conservation Service (NRCS). United States Department of Agriculture. 2022. Web Soil Survey. Website: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed April 27, 2022.
[19] Google Earth Pro, 1999. 37° 25' 21.54"N, 121° 54' 14.38"W, Eye alt 1,376 ft. Accessed April 27, 2022.

included Canary Island date palm (*Phoenix canariensis)*, lemon-scented gum (*Eucalyptus citriodora*), sweetgum (*Liquidambar styraciflua)*, Brisbane box (*Lophostemon confertus)*, and crape myrtle (*Lagerstroemia indica)*.

The Tree Inventory Report prepared for the project evaluated a total of 33 trees, including nine street trees representing nine different species.[20] Table 1 below summarizes the findings of the Tree Inventory Report.

Table 1: Trees Evaluated by Tree Inventory Report

Common Name	Scientific Name	Total
Silk tree	*Albizia julibrissin*	1
Chinese hackberry	*Celtis sinesis*	2
Mediterranean fan palm	*Chamaerops humilis*	2
Lemon-scented gum	*Eucalyptus citriodora*	2
Crape myrtle	*Lagerstroemia indica*	7
Sweetgum	*Liquidambar styraciflua*	13
Brisbane box	*Lophostemon confertus*	4
Canary Island date palm	*Phoenix canariensis*	1
Elderberry	*Sambucus sp.*	1
Total		**33**

4.1.3 - Wildlife

The project site may provide habitat for generalist and opportunistic wildlife species that are able to tolerate high levels of habitat disturbance, including skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), house sparrow, (*Passer domesticus*), and Anna's hummingbird (*Calypte anna*), among others.

Many trees that surround the project site could provide suitable habitat for migratory or resident nesting birds. No signs of bat roosts were observed during the field survey; however, many small crevices in the existing structures on-site could provide roosting habitat for bats. Three California ground squirrel (*Otospermophilus beecheyi*) burrows were also observed on-site.

4.2 - Special-status Species

A review of the CNDDB and CNPS Inventory determined that 33 special-status plant species and 53 special-status animal species have been recorded in the greater vicinity of the project site (Appendix

[20] HortScience|Bartlett Consulting Divisions of The F.A. Bartlett Tree Expert Company. 2022. Tree Inventory Report 612 South Main Street Milpitas, CA. May 2022.

B).[21,22] The parameters of these search queries included an area consisting of the *Milpitas, California,* USGS 7.5-minute Topographic Quadrangle Map and the eight surrounding quadrangles (regional vicinity). The likelihood and rationale for these species to occur are discussed in the paragraphs below. No special-status plants or animal species were observed during the field survey.

4.2.1 - Special-status Plants

A total of 33 special-status plant species have been recorded on undeveloped land in the regional vicinity. The following species have been recorded within a 5-mile radius of the project site and are evaluated below in Table 2.

Table 2: Special-status Plants Evaluated

Scientific Name Common Name	Status			Habitat Description[4]	Occurrence Determination
	USFWS[1]	CDFW[2]	CNPS[3]		
Alkali milk-vetch *Astragalus tener var. tener*	—	—	1B.2	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools Elevation: 0–170 m. Blooming period: March–June	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
Congdon's tarplant Centromadia *parryi ssp. congdonii*	FE	ST	1B.1	Valley and foothill grassland. Alkaline soils sometimes described as heavy white clay. Elevation: 0–245 m. Blooming period: May–October	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	—	—	1B.2	Coastal salt marsh. Usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea, Spartina*, etc Elevation: 0–115 m. Blooming period: June–October	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
robust spineflower *Chorizanthe robusta var. robusta*	FE	—	1B.1	Cismontane woodland, coastal dunes, coastal scrub, chaparral. Sandy terraces and bluffs or in loose sand. Elevation: 5–245 m. Blooming period: April–September	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.

[21] California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed April 27, 2022.

[22] California Native Plant Society (CNPS). 2022. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed April 27, 2022

Scientific Name Common Name	Status			Habitat Description[4]	Occurrence Determination
	USFWS[1]	CDFW[2]	CNPS[3]		
Hoover's button-celery *Eryngium aristulatum var. hooveri*	—	—	1B.1	Vernal pools. Alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. Elevation: 1–150 m. Blooming period: June	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
San Joaquin spearscale *Extriplex joaquinana*	—	—	1B.2	Chenopod scrub, alkali meadow, playas, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata*, *Frankenia*, etc. Elevation: 0–800 m. Blooming period: April–September	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
arcuate bush-mallow *Malacothamnus arcuatus*	—	—	1B.2	Chaparral, cismontane woodland. Gravelly alluvium. Elevation: 1–735 m. Blooming period: April–September	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
Hall's bush-mallow *Malacothamnus hallii*	—	—	1B.2	Chaparral, coastal scrub. Some populations on serpentine. Elevation: 10–735 m. Blooming period: May–September	**Not present.** Disturbed and managed non-serpentine ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
hairless popcornflower *Plagiobothrys glaber*	—	—	1A	Meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. Elevation: 5–125 m. Blooming period: March–May	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
California seablite *Suaeda californica*	FE	—	1B.1	Marshes and swamps. Margins of coastal salt marshes. Elevation: 0–5 m. Blooming period: July–October	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.
saline clover *Trifolium hydrophilum*	—	—	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. Elevation: 1–335 m. Blooming period: April–June	**Not present.** Disturbed and managed ruderal grassland present on-site does not provide suitable habitat for this species. Species was not observed during the April 6, 2022, survey.

Scientific Name Common Name	Status			Habitat Description[4]	Occurrence Determination
	USFWS[1]	CDFW[2]	CNPS[3]		
Code Designations					
[1] Federal Status: 2022 USFWS Listing **ESU** = Evolutionary Significant Unit is a distinctive population. **FE** = Listed as endangered under the Endangered Species Act. **FT** = Listed as threatened under the Endangered Species Act. **FC** = Candidate for listing (threatened or endangered) under the Endangered Species Act. **FD** = Delisted in accordance with the Endangered Species Act. **FPD** = Federally Proposed to be Delisted. **MBTA** = protected by the Migratory Bird Treaty Act **—** = Not federally listed				**[2] State Status: 2022 CDFW Listing** **SE** = Listed as endangered under the CESA. **ST** = Listed as threatened under the CESA. **SSC** = Species of Special Concern as identified by the CDFW. **FP** = Listed as fully protected under FGC. **CFG** = FGC = protected by Fish and Game Code 3503.5 **CR** = Rare in California. **—** = Not State listed	**[3] CNPS: 2022 CNPS Listing** **Rank 1A** = Plants presumed extirpated in California and either rare or extinct elsewhere. **Rank 1B** = Plant species that are rare, threatened, or endangered in California and elsewhere. **Rank 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere. **Rank 3** = Plants about which more information is needed **Rank 4** = Watch List: Plants of limited distribution **Blooming period:** Months in parentheses are uncommon.
Notes: [4] Habitat Description: Habitat description adapted from CNDDB and CNPS online inventory or other specified source. Sources: California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed April 28, 2022. California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed April 28, 2022. California Native Plant Society (CNPS). 2022. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/. Accessed April 28, 2022.					

The ruderal grassland community on the project site is substantially disturbed by past and continuous anthropogenic activities (including vegetation management, trespassing, parking, etc.) and is heavily invaded by non-native invasive species (see Section 4.1.2 Vegetation Communities). Furthermore, the site does not contain serpentine-derived substrate or outcrops, marshes, or vernal pools and is cut off from regionally occurring special-status species populations by concentrated surrounding development. No special-status plant species or vegetation communities or other

conditions supporting sensitive plant species were observed. Therefore, it is reasonable to conclude that no special-status plant species occur on the project site.

4.2.2 - Special-status Wildlife

The database results included 53 special-status wildlife species that are known to occur within the regional vicinity of the project site (Appendix B). The following species have been recorded within a 5-mile radius of the project site and are evaluated below in Table 3.

Table 3: Special-status Wildlife Species Evaluated

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Amphibians				
California tiger salamander *Ambystoma californiense*	FT	ST	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**None.** The project site does not contain suitable aquatic habitat to support this species. While the portions of the project site contain burrows, dense commercial development separate the project site from suitable aquatic habitat.
foothill yellow-legged frog *Rana boylii*	—	SE SSC	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**None.** The project site does not contain suitable aquatic habitat to support this species.
California red-legged frog *Rana draytonii*	FT	— SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11–20 weeks of permanent water for larval development. Must have access to estivation habitat.	**None.** The project site does not contain suitable aquatic habitat to support this species.
Birds				
Tricolored blackbird *Agelaius tricolor*	— MBTA	ST SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	**None.** The project site does not contain suitable aquatic habitat to support this species.
golden eagle *Aquila chrysaetos*	— MBTA	— FP WL	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Low.** The project site does not contain suitable nesting habitat for this species. Eagles may fly over the site while foraging. Nearest recorded occurrences is located approximately 3.25 miles northeast of the project site.

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		
Great blue heron *Ardea Herodias*	— MBTA	—	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows. Nesting colonies considered sensitive by CDFW.	**None.** The project site does not contain suitable aquatic habitat to support this species.
Athene cunicularia burrowing owl	— MBTA	— SSC	Found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	**Low.** Species or signs of species presence were not observed during survey. The project site does contain grassland suitable for foraging after mowing. Burrows suitable for nesting were observed. Three occurrences within 1 mile of the project site.
Swainson's hawk *Buteo swainsoni*	— MBTA	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands or alfalfa or grain fields supporting rodent populations.	**Low.** Suitable nesting trees are present on-site. The project site contains marginal foraging habitat due to habitat fragmentation from development.
western snowy plover *Charadrius nivosus nivosus*	FT MBTA	— SSC	Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	**None.** The project site does not contain suitable habitat to support this species.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT MBTA	SE	Riparian forest nester along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**None.** The project site does not contain suitable habitat to support this species.
Yellow rail *Coturnicops noveboracensis*	— MBTA	— SSC	Freshwater marshlands.	**None.** The project site does not contain suitable aquatic habitat to support this species.
Elanus leucurus white-tailed kite	— MBTA	— FP	Often found near foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland or isolated dense-topped trees for nesting and perching. Forages in open grasslands, meadows, or marshes.	**Low.** Suitable nesting trees are present on-site. The project site contains marginal foraging habitat due to habitat fragmentation from development.
American peregrine falcon *Falco peregrinus anatum*	— MBTA	FP SSC	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**Low.** The project site does not contain suitable nesting habitat for this species. Falcons may fly over the site while foraging.

Scientific Name Common Name	Status USFWS[1]	Status CDFW[2]	Habitat Description[3]	Potential to Occur and Rationale[4]
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	— MBTA	— SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting	**None.** The project site does not contain suitable aquatic habitat to support this species.
California black rail *Laterallus jamaicensis coturniculus*	— MBTA	ST FP	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**None.** The project site does not contain suitable aquatic habitat to support this species.
Alameda song sparrow *Melospiza melodia pusillula*	— MBTA	— SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits *Salicornia* marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	**None.** The project site does not contain suitable habitat to support this species.
California Ridgway's rail *Rallus obsoletus obsoletus*	FE MBTA	SE FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**None.** The project site does not contain suitable habitat to support this species.
Fish				
Steelhead–central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	FT	—	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	**None.** The project site does not contain suitable aquatic habitat to support this species.
Mammals				
Pallid bat *Antrozous pallidus*	—	SSC	Inhabits low elevation (below 1,830 m./6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forests (below 2,100 m./7,000 feet). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees, and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	**Low.** The project site does contain man-made structures and trees that may support roosting.
Townsend's big-eared bat *Corynorhinus townsendii*	—	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance	**Low.** The project site does contain man-made structures and trees that may support roosting.

Scientific Name Common Name	Status USFWS[1]	Status CDFW[2]	Habitat Description[3]	Potential to Occur and Rationale[4]
salt-marsh harvest mouse *Reithrodontomys raviventris*	FE	SE FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat, but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	**None.** The project site does not contain suitable habitat to support this species.
Salt-marsh wandering shrew *Sorex vagrans halicoetes*	—	— SSC	Salt marshes of the south arm of San Francisco Bay. Medium high marsh 6–8 ft above sea level where abundant driftwood is scattered among *Salicornia*.	**None.** The project site does not contain suitable habitat to support this species.
Reptiles				
Northern California legless lizard *Anniella pulchra*	—	— SSC	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. Prefers soils with a high moisture content.	**None.** The project site does not contain suitable habitat to support this species.
Phrynosoma blainvillii coast horned lizard	—	— SSC	Inhabits open areas of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads. Often found near ant hills feeding on ants.	**None.** The project site does not contain suitable habitat to support this species.

Code Designations

[1] Federal Status: 2022 USFWS Listing

ESU = Evolutionary Significant Unit is a distinctive population.
FE = Listed as endangered under the Endangered Species Act.
FT = Listed as threatened under the Endangered Species Act.
FC = Candidate for listing (threatened or endangered) under the Endangered Species Act.
FD = Delisted in accordance with the Endangered Species Act.
FPD = Federally Proposed to be Delisted.
MBTA = protected by the Migratory Bird Treaty Act
— = Not federally listed

[2] State Status: 2022 CDFW Listing

SE = Listed as endangered under the CESA.
ST = Listed as threatened under the CESA.
SSC = Species of Special Concern as identified by the CDFW.
FP = Listed as fully protected under the Fish and Game Code.
CFG = FGC =protected by Fish and Game code 3503.5
CE = Candidate endangered under the CESA.
— = Not State listed

Scientific Name Common Name	Status		Habitat Description[3]	Potential to Occur and Rationale[4]
	USFWS[1]	CDFW[2]		

Notes:
[3] **Habitat Description**: Habitat description adapted from CNDDB or other specified source
[4] **Potential to Occur and Rationale**: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source.
Sources:
California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed April 28, 2022.
California Department of Fish and Wildlife (CDFW). 2022. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/. Accessed April 28, 2022.

Most of the species discussed in Table 3 are not expected to occur on the project site due to the lack of suitable habitat on the project site and/or the fact that the project site is situated outside of the species' known geographic range. Many of the special-status species that were recorded in the CNDDB are unlikely to occur on-site given the relatively high level of past and present anthropogenic disturbance, its small size, its urban setting, and the presence of man-made barriers which limit dispersal onto the site. Species whose potential to occur on-site could not be immediately ruled out are discussed in more detail below.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is designated as a Species of Special Concern by the CDFW. CNDDB records shows three occurrences of burrowing owl within 1 mile of the project site.[23] The presence of burrows and suitable ruderal grassland habitat on-site leaves open the possibility that burrowing owl may inhabit the project site under certain conditions (e.g., after vegetation has been mowed). Burrowing owl are known to overwinter in disturbed sites and sites near frequent human use. No burrowing owl or signs of burrowing owl were observed during the field survey; however, they could colonize the site in the future, such as before start of project construction. Therefore, burrowing owl has potential to occur on-site, albeit low potential.

Nesting birds

The project site contains several mature ornamental trees which could provide suitable nesting habitat for native resident and migratory bird species, including birds of prey (raptors) protected under federal and State regulations while nesting.

Special-status raptors, such as Swainson's hawk, American peregrine falcon, golden eagle, and white-tailed kite, are unlikely to nest on-site as more suitable nesting sites and foraging habitat that is not subject to man-made disturbances is present outside the urban setting of the City of Milpitas. It is possible that these species may fly over the project site while foraging; however, potential for these species to occur on-site is low.

[23] California Department of Fish and Wildlife (CDFW). 2022. CNDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx. Accessed April 28, 2022.

Roosting bats

The trees and buildings found on-site contain crevices that are large enough to potentially be inhabited by roosting special-status bat species, including pallid bat and Townsend's big-eared bat. However, the developed nature of the site and surrounding areas (including anthropogenic disturbance and lack of foraging opportunities) would limit the likelihood of bat use of the project site; the potential for these species to occur on-site is low.

4.3 - Jurisdictional Waters and Wetlands

No wetlands or other hydrological features that meet criteria as waters of the United States or waters of the State were observed within the proposed project site during the field survey.

4.4 - Wildlife Movement Corridors

Most of the site consists of developed hardscaped areas in addition to disturbed/ruderal annual grassland habitat. The project site is also surrounded by roads, highways, and urban development that limits wildlife movement.

4.5 - Protected Trees

As identified in the Tree Inventory Report (dated May 2022) prepared by HortScience, there are a total of 33 trees on the project site (including nine street trees), and of these 20 meet the City's criteria as a protected tree.

4.6 - Santa Clara Valley Habitat Plan

The project site does not lie within the boundaries of the any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other approved local, regional, or State habitat conservation plan. The project site is located just outside the boundaries of the SCVHP.[24]

[24] Santa Clara Valley Habitat Agency. 2022. Santa Clara Valley Habitat Agency Geobrowser. Website: http://www.hcpmaps.com/habitat/. Accessed April 28, 2022.

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Source: Google Earth Aerial Imagery. USDA Soils Data Mart, Santa Clara County Western Area.

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Exhibit 3
Soils Map

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Source: Google Earth Aerial Imagery.

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Exhibit 4
Land Cover and Vegetation Map

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TTLC MANAGEMENT INC., AN ARIZONA COMPANY
SOUTH MAIN STREET MILPITAS RESIDENTIAL PROJECT
BIOLOGICAL CONSTRAINTS ANALYSIS

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SECTION 5: BIOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

In conclusion, the Biological Constraints Analysis determined that:

- The project site does not contain suitable habitat for special-status plants.
- The project site does not contain suitable habitat for any special-status wildlife species aside from a potential for nesting birds and roosting bats and a low probability for burrowing owl.
- The project site does not contain potentially jurisdictional wetlands or waters of the United States or waters of the State.
- The proposed project would not directly impact any known wildlife corridors.
- The proposed project has the potential to impact trees protected under the City of Milpitas Municipal Code and/or subject to the City's tree removal permit requirements.
- The project is not within the SCVHP permit area.

The following section recommends project design features, conditions of approval, and/or best management practices (BMPs) that would result in avoidance or minimization of potential project-related impacts to regulated biological resources.

5.1 - Avoidance of Impacts to Burrowing Owl

Burrowing owl, a California Species of Special Concern, was assessed as having low potential to occur on the project site. Though no burrowing owl or signs of burrowing owl were observed on-site, and the species is currently not expected to breed or nest on the project site due to the site's low-quality habitat, burrowing owl may use the site for short periods during migratory movements through the area. Therefore, it is recommended that the project implement measures to avoid potential impacts to burrowing owl. Recommended avoidance and minimization measures include the following:

- Conduct pre-construction survey for burrowing owl prior to the start of construction.
- If active burrows are detected, establish construction exclusion (buffer) zones around active burrows in coordination with CDFW.

5.2 - Avoidance of Impacts to Nesting Birds

Several native migratory or resident birds that are protected under the MBTA and/or Fish and Game Code may nest in the trees and shrubs that are found on and adjacent to the project site. During nesting season, the development of the proposed project has the potential to impact protected bird nests due to the removal of this vegetation or to indirectly harm birds though the generation of noise, light, and other disturbances that could result in the abandonment of eggs or young. Therefore, if work takes place during nesting season, it is recommended that the project implement measures to avoid potential impacts to nesting birds. Recommended avoidance and minimization measures include the following:

- Limit tree and vegetation removal to outside the nesting season (generally February 1 to August 31).
- During the nesting season, conduct pre-construction surveys for nesting birds prior to the start of construction.
- If active nests are found, establish construction exclusion (buffer) zones around active nests regulated by the Fish and Game Code and/or MBTA.

5.3 - Avoidance of Impacts to Roosting Bats

The trees and buildings found on-site have potential to be inhabited by roosting bats including potentially special-status bat species, which could be disturbed or even harmed during the demolition of these structures. Additionally, many bat species are sensitive to disturbances such as light and noise that may result from the development of the proposed project. These disturbances could awaken torpid bats (if during winter hibernation period) and cause them to abandon their roosts. Therefore, the following actions are recommended to avoid potential impacts to roosting bats:

- Conduct pre-construction surveys for roosting bats prior to that start of construction.
- Limit the demolition of structures containing roosting bats or that exhibit signs of past or present use to between March 1 and April 31 to avoid take of torpid overwintering bats and between September 1 and November 15 to prevent take of young that are not yet self-sufficiently volant. Establish construction exclusion (buffer) zones around occupied roost in coordination with CDFW.

5.4 - Tree Preservation

Project construction may require the removal of trees present on-site, including protected trees. If construction requires the removal of City protected trees, the project applicant would be required to apply to the City for a tree removal permit prior the removal of any protected trees. The project applicant would also be required to comply with the Tree Preservation Guidelines as described in the Tree Inventory Report to avoid unnecessary impacts to any trees found on-site or on adjacent properties.

Appendix A: Site Photographs

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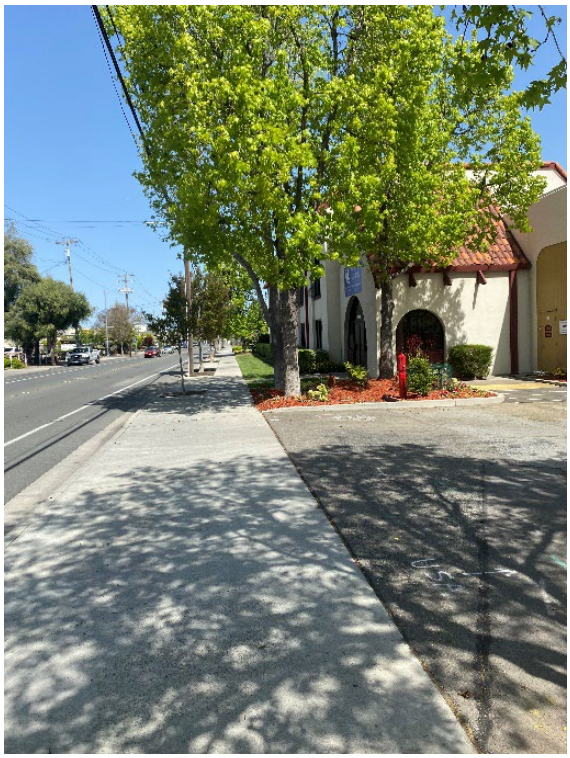
Photograph 1: Eastern border, looking south.

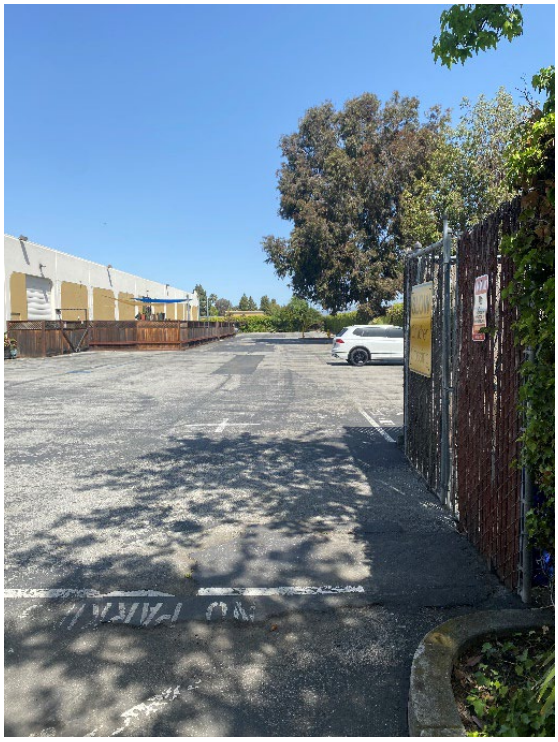
Photograph 2: Eastern border, looking west.



Photograph 3: Western border, looking north.

Photograph 4: Northeastern border, looking south.

Photograph 5: Northeastern border, looking southeast.



Photograph 6: Southeastern border, looking north.

Photograph 7: Southeastern border, looking west.

Appendix B: Database Searches

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Jose East (3712137) OR San Jose West (3712138) OR Calaveras Reservoir (3712147) OR La Costa Valley (3712157) OR Mountain View (3712241) OR Niles (3712158) OR Newark (3712251) OR Cupertino (3712231) OR Milpitas (3712148))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Accipiter striatus sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
Adela oplerella Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Aneides niger Santa Cruz black salamander	AAAAD01070	None	None	G3	S3	SSC
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G2	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Campanula exigua chaparral harebell	PDCAM020A0	None	None	G2	S2	1B.2
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T1T2	S1S2	1B.1
Charadrius nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chorizanthe robusta var. robusta robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Cirsium fontinale var. campylon Mt. Hamilton thistle	PDAST2E163	None	None	G2T2	S2	1B.2
Clarkia concinna ssp. automixa Santa Clara red ribbons	PDONA050A1	None	None	G5?T3	S3	4.3
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2	None	None	G3T3	S3	1B.2
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	AMAFD03061	None	None	G4T1	S1	
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
Dudleya abramsii ssp. setchellii Santa Clara Valley dudleya	PDCRA040Z0	Endangered	None	G4T2	S2	1B.1
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium aristulatum var. hooveri Hoover's button-celery	PDAPI0Z043	None	None	G5T1	S1	1B.1
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S1S2	
Hoita strobilina Loma Prieta hoita	PDFAB5Z030	None	None	G2?	S2?	1B.1
Lasiurus cinereus hoary bat	AMACC05030	None	None	G3G4	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S1	FP
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Lessingia micradenia var. glabrata smooth lessingia	PDAST5S062	None	None	G2T2	S2	1B.2
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2	S2	1B.2
Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Microcina homi Hom's micro-blind harvestman	ILARA47020	None	None	G1	S2	
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Myotis evotis long-eared myotis	AMACC01070	None	None	G5	S3	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.2
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Plagiobothrys glaber hairless popcornflower	PDBOR0V0B0	None	None	GX	SX	1A
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S1	FP
Rana boylii foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Rynchops niger black skimmer	ABNNM14010	None	None	G5	S2	SSC
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sorex vagrans halicoetes salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
Spergularia macrotheca var. longistyla long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
Streptanthus albidus ssp. albidus Metcalf Canyon jewelflower	PDBRA2G011	Endangered	None	G2T1	S1	1B.1
Streptanthus albidus ssp. peramoenus most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
Stuckenia filiformis ssp. alpina northern slender pondweed	PMPOT03091	None	None	G5T5	S2S3	2B.2
Suaeda californica California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
Sycamore Alluvial Woodland Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	

Record Count: 89

CNPS Rare Plant Inventory

California Native Plant Society

Search Results

5 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3:4**] Fed List is one of [**FE:FT:FC**] **or** State List is one of [**CE:CT:CR:CE:CT**] , 9-Quad include [**3712137:3712138:3712147:3712157:3712241:3712158:3712251:3712231:3712148**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Chorizanthe robusta var. *robusta*	robust spineflower	Polygonaceae	annual herb	Apr-Sep	FE	None	G2T1	S1	1B.1	No Photo Available
Dudleya abramsii ssp. *setchellii*	Santa Clara Valley dudleya	Crassulaceae	perennial herb	Apr-Oct	FE	None	G4T2	S2	1B.1	No Photo Available
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	 © 2013 Neal Kramer
Streptanthus albidus ssp. *albidus*	Metcalf Canyon jewelflower	Brassicaceae	annual herb	Apr-Jul	FE	None	G2T1	S1	1B.1	© 2015 Aaron Schusteff
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	FE	None	G1	S1	1B.1	No Photo Available

Showing 1 to 5 of 5 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 22 April 2022].

Appendix C:
Tree Inventory Report

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Tree Inventory Report

612 South Main Street
Milpitas, CA

PREPARED FOR:
TTLC Management Inc.
An Arizona Corporation
12647 Alcosta Blvd. Suite 470
San Ramon CA 94583

PREPARED BY:
HortScience | Bartlett Consulting
325 Ray Street
Pleasanton, CA 94566

May 2022

HORT SCIENCE
BARTLETT CONSULTING
A Division of The F.A. Bartlett Tree Expert Company

Tree Inventory Report

612 South Main Street
Milpitas, CA

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Tree Inventory Report
612 South Main Street
Milpitas, CA

Introduction and Overview
TTLC Management Inc. is proposing to redevelop the subject property at 612 South Main Street in Milpitas. HortScience | Bartlett Consulting, Divisions of The F. A. Bartlett Tree Expert Company, was asked to prepare a **Tree Inventory Report** for the trees on the property as part of the application to the City of Milpitas.

This report provides the following information:

1. An assessment of each tree's health, structure, suitability for preservation and protected status within and adjacent to the proposed project area.
2. Preliminary guidelines for tree preservation during the design, construction and maintenance phases of development.

Assessment Methods
Twenty-eight trees were assessed on September 24, 2021. Five additional trees on an adjacent lot to the north (APN #086-25-028) were added to the inventory on April 29, 2022. The assessment included all trees within or adjacent to the properties with a diameter of 2 inches or greater. Tree tag numbers were #315 – 342 and #381 – 385. The assessment procedure consisted of the following steps:

1. Identifying the tree species.
2. Tagging or confirming the presence of a metal numerical tag and confirming its location on a map.
3. Measuring the trunk diameter at a point 54 inches above grade; for off-site trees diameters were estimated.
4. Evaluating the health and structural condition using a scale of 1 – 5:
   - ***5*** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
   - ***4*** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
   - ***3*** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
   - ***2*** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
   - ***1*** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree species, and its potential to remain an asset to the site.

   High: Trees with good health and structural stability that have the potential for longevity at the site.

   Moderate: Trees with somewhat declining health and/or structural defects than can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.

   Low: Trees in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual tree may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

Thirty-three (33) trees representing 9 species were evaluated. Nineteen (19, or 58%) trees were in fair condition and nine (12, or 36%) were poor. Trees #315 and 325 were in good condition. Tree condition varied by species. Nine street trees were included in the assessment. Descriptions of each tree are found in the ***Tree Assessment Form*** and locations are plotted on the ***Tree Assessment Plan*** (see Exhibits).

Table 1. Tree condition and frequency of occurrence. 612 S. Main Street, Milpitas, CA.

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
Silk tree	*Albizia julibrissin*	1	-	-	**1**
Chinese hackberry	*Celtis sinesis*	1	1	-	**2**
Mediterranean fan palm	*Chamaerops humilis*	1	1	-	**2**
Lemon-scented gum	*Eucalyptus citriodora*	-	1	1	**2**
Crape myrtle	*Lagerstroemia indica*	-	7	-	**7**
Sweetgum	*Liquidambar styraciflua*	6	6	1	**13**
Brisbane box	*Lophostemon confertus*	1	3	-	**4**
Canary Island date palm	*Phoenix canariensis*	1	-	-	**1**
Elderberry	*Sambucus* sp.	1	-	-	**1**
Total		**12**	**19**	**2**	**33**

The site consisted of two adjacent lots. The south lot had one building that was surrounded on three sides by parking. Trees were growing at the edges of the parking lot and in front of the building. The north lot was undeveloped, with shrubs and small trees growing along the fence separating the two lots.

Sweetgum was the most common species assessed, with almost half the population (13 trees, or 39%). Most were growing along the southern edges of the property or near the building (Photo 1). Condition was divided between fair and poor (6 trees each), with tree #315 in good condition. The sweetgums had codominant or multiple attachments and varied form. A few had sparse crowns. Many were crowded together or close to the building.

Seven (7) crape myrtles were assessed (Photo 1). All were street trees growing in planting wells of varying sizes along South Main Street. All were in fair condition, with multiple attachments. Several had full, rounded crowns. Upper branches of crape myrtles #336 and 341 extended into overhead utility lines.

Four (4) Brisbane boxes were growing in narrow planters near the property fences (Photo 2). Three were in fair condition and #320 was in poor. None of the Brisbane boxes was in good condition. All had multiple attachments and most were engulfed in ivy or crowded by shrubs.

Two mature lemon-scented gums were present, at the east and south fences. Gum #319 had multiple attachments with trunks ranging from 14 to 24 inches in diameter. It was in fair condition. Gum #325 was the largest tree assessed, with a diameter of 38 inches (Photo 2). Its base was raised and filled the space between fence and curb. Trunk texture was smooth and yellow. Overall tree condition was good.

Photo 1 (left). Sweetgums #322 – 324 were growing at the southwest corner of the school building. Young crape myrtles #337 and 338 are visible at left (red arrow).

Photo 2 (right). Lemon-scented gum #325 was the largest tree on site, growing at the south fence. Brisbane box #326 is at right (yellow arrow).

Photo 3 (left). Elderberry #317 (green arrow) and Canary Island date palm #318 (red arrow) were growing at the northeast corner of the parking lot.

Two Chinese hackberries were street trees growing in 4-foot square tree wells across from the vacant lot. Hackberry #382 was leaning slightly southeast and was in fair condition. Hackberry #383 had a deflected central leader and scorched leaf tips. It was in poor condition. Both were growing beneath overhead utility lines.

Mediterranean fan palm #342 was in fair condition and had a diameter of 17 inches. Its brown trunk height was approximately 4 feet and fronds were sprouting at the base. Palm #385 was growing at the base of the fence dividing the two lots and was crowded by surrounding shrubs and ivy. It had brown trunk height of approximately 2 feet and was in poor condition.

None of the remaining three species were represented by more than a single tree. Included in this group were:

- Elderberry #317 had multiple attachments from 4 to 15 inches in diameter and was growing against the north fence (Photo 3). It had a history of limb removal and was engulfed in shrubs. It was in poor condition.
- Young Canary Island date palm #318 had a 10-inch diameter and approximately 1 foot of brown trunk height. It growing next to the curb near tree #317 and was in poor condition (Photo 3).
- Silk tree #384 was growing at the north edge of the northern lot. It had two codominant 10-inch stems and leaned west. It was in poor condition (Photo 4).

Photo 4. Silk tree #384 was growing near an adjacent car wash (left side of image).

Milpitas Tree Ordinance

The City of Milpitas Municipal Code (Chapter 2, Section 7 - Tree Protection and Heritage Tree Program) defines a Protected tree on a developed commercial property as any tree with a circumference of 37 inches or greater (about 11.78 inches in diameter). Street trees of any size are Protected. Twenty (20) of the 33 assessed trees met this criterion. Protected Trees are identified on the ***Tree Assessment Form*** (see Exhibits). Permits and replacement tree planting at a ratio of 2:1 are required for the removal of Protected trees.

Removal of protected trees on already improved commercial properties may be subject to replacement trees as determined by the Director of Planning or an arborist's recommendation approved by the Director. Tree replacement ratio may depend on the ability of the property to accommodate replacement trees, as determined by the Director or an arborist's recommendation approved by the Director.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape. Our goal is to identify trees that have the potential for long-term health, structural stability and longevity within the proposed development.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees. For example, sweetgum #322 was in very poor health with a slight lean and sparse foliage; it would not make a good candidate for preservation.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Elderberry #317 had multiple attachments at 2 feet and was growing in a crowded area at the north fence. I do not recommend attempting to preserve this tree.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. Brisbane box are generally tolerant of construction impacts depending upon age and condition of the trees, while sweetgum have moderate tolerance of construction impacts, and require irrigation post-construction to mitigate impacts. Silk tree is intolerant of construction impacts.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Invasiveness**
  Species that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (http://www.cal-ipc.org/paf/) lists species identified as being invasive. Milpitas is part of the Central West Floristic Province. Canary Island date palm is considered invasive on a limited basis.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (Table 2, below). We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Table 2: Tree suitability for preservation. 612 S. Main Street, Milpitas, CA.

High	Trees in this category had good health and structural stability that have the potential for longevity at the site. Trees #315 and 325 had high suitability for preservation.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring and may have shorter lifespans than those in the "high" category. Eighteen (18) trees had moderate suitability for preservation including seven crape myrtles and six sweetgums.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Thirteen (13) trees had low suitability for preservation including six sweetgums.

Preliminary Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods. Coordinating any construction activity inside the **TREE PROTECTION ZONE** can minimize these impacts. Trees with high suitability for preservation should be preserved where possible.

The following recommendations will help reduce impacts to trees from development as well as maintain and improve their health and vitality through the clearing, grading and construction phases. The key elements of a tree preservation plan for the 612 S. Main Street property would include:

- Focus efforts at tree preservation on those trees with high or moderate suitability for preservation. Examples include: sweetgum #315, lemon-scented gum #325 and street trees #336 – 341 and 381 (crape myrtle); and #382 (Chinese hackberry).
- Establish **TREE PROTECTION ZONES** for each tree to be preserved. **TREE PROTECTION ZONES** are identified by the Consulting Arborist based on species tolerances, tree condition, trunk diameters and the nature and proximity of the proposed disturbance.
- Provide supplemental irrigation prior to and during the demolition and construction phases.

Trees should be preserved in groups with minimal grading within the critical root zone, where possible. The following are recommendations for design and construction phases that will assist in successful tree preservation.

Design recommendations

1. Plan for tree preservation by designing adequate space around trees to be preserved. This area is called the **TREE PROTECTION ZONE.** No grading, excavation, construction or storage of materials should occur within that zone. Route underground services including utilities, sub-drains, water or sewer around the **TREE PROTECTION ZONE**. For design purposes, the tree protection zone is ten times the trunk diameter or the entire dripline whichever is larger. Areas of the **Tree Protection Zone** should be fenced to minimize impacts and staging in the **TREE PROTECTION ZONE**.
2. Any changes to the plans affecting the trees should be reviewed by the Project Arborist with regard to tree impacts. These include, but are not limited to, site plans, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans, and demolition plans.
3. Irrigation systems must be designed so that no trenching severs roots larger than 1 inch in diameter within the **TREE PROTECTION ZONE**.
4. Tree Preservation Guidelines prepared by the Project Arborist, which include specifications for tree protection during demolition and construction, should be included on all plans.
5. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
6. Do not lime the subsoil within 50 feet of any tree. Lime is toxic to tree roots.
7. Ensure adequate but not excessive water is supplied to trees; in most cases, occasional irrigation will be required. Avoid directing runoff toward trees.

Pre-demolition and pre-construction treatments and recommendations

1. The demolition and construction superintendents shall meet with the Project Arborist before beginning work to review all work procedures, access routes, storage areas, and tree protection measures.
2. Fence the **TREE PROTECTION ZONE**. Trees adjacent to demolition may require limb and trunk protections. This may be accomplished using foam wrapped with wattle and orange snow fencing to protect the areas where the limb (or trunk) is exposed to incidental contact.
3. Trees to be preserved may require pruning to clean the crown of dead branches 1 inch and larger in diameter, raise canopies as needed for construction activities. All pruning shall be done by a State of California Licensed Tree Contractor (C61/D49). All pruning shall be done by Certified Arborist or Certified Tree Worker in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300). The Project Arborist will provide pruning specifications prior to site demolition.
4. Structures and underground features to be removed within the **TREE PROTECTION ZONE** shall use equipment that will minimize damage to trees above and below ground, and operate from outside the **TREE PROTECTION ZONE**. The Project Arborist shall be on site during all operations within the **TREE PROTECTION ZONE** to monitor demolition activity.
5. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. To the extent feasible, tree pruning and removal should be scheduled outside of the breeding season. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.
6. Apply and maintain 4-6” of wood chip mulch within the **TREE PROTECTION ZONE.**

Recommendations for tree protection during construction

1. Any approved grading, construction, demolition or other work within the **TREE PROTECTION ZONE** should be monitored by the Project Arborist.
2. All contractors shall conduct operations in a manner that will prevent damage to trees to be preserved.
3. Tree protection devices are to remain until all site work has been completed within the work area. Fences or other protection devices may not be relocated or removed without permission of the Project Arborist.
4. Construction trailers, traffic and storage areas must remain outside **TREE PROTECTION ZONE** at all times.
5. Any root pruning required for construction purposes shall receive the prior approval of and be supervised by the Project Arborist. Roots should be cut with a saw to provide a flat and smooth cut. Removal of roots larger than 2 inches in diameter should be avoided.
6. If roots 1 inches and greater in diameter are encountered during site work and must be cut to complete the construction, the Project Arborist must be consulted to evaluate effects on the health and stability of the tree and recommend treatment.
7. Spoil from trench, footing, utility or other excavation shall not be placed within the **TREE PROTECTION ZONE**, neither temporarily nor permanently.
8. All grading within the dripline of trees shall be done using the smallest equipment possible. The equipment shall operate perpendicular to the tree and operate from

outside the **TREE PROTECTION ZONE**. Any modifications must be approved and monitored by the Project Arborist.

9. All trees shall be irrigated on a schedule to be determined by the Project Arborist (every 3 to 6 weeks is typical). Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 18-24 inches.
10. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Project Arborist so that appropriate treatments can be applied.
11. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
12. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel or certified tree climber.
13. Trees that accumulate a sufficient quantity of dust on their leaves, limbs and trunk as judged by the Project Arborist shall be spray-washed at the direction of the Project Arborist.

Maintenance of impacted trees
Trees should be monitored and inspected annually and after major storms to identify conditions requiring treatment to manage risk associated with tree failure.

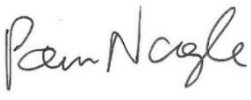
Preserved trees will experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority. Inspect trees annually and following major storms to identify conditions requiring treatment to manage risk associated with tree failure.

Our procedures included assessing trees for observable defects in structure. This is not to say that trees without significant defects will not fail. Failure of apparently defect-free trees does occur, especially during storm events. Wind forces, for example, can exceed the strength of defect-free wood causing branches and trunks to break. Wind forces coupled with rain can saturate soils, reducing their ability to hold roots, and blow over defect-free trees. Although we cannot predict all failures, identifying those trees with observable defects is a critical component of enhancing public safety.

Furthermore, trees change over time. Our inspections represent the condition of the tree at the time of inspection. As trees age, the likelihood of failure of branches or entire trees increases. Annual tree inspections are recommended to identify changes to tree health and structure. In addition, trees should be inspected after storms of unusual severity to evaluate damage and structural changes. Initiating these inspections is the responsibility of the client and/or tree owner.

If you have any questions regarding my observations or recommendations, please contact me.

HortScience | Bartlett Consulting



Pam Nagle
Consulting Arborist and Urban Forester
Certified Arborist #WE-9617A
ISA Tree Risk Assessment Qualified

Exhibits

Tree Assessment Plan

Tree Assessment Form

Tree Assessment Plan

612 South Main Street
Milpitas, CA

Prepared for:
The True Life Companies
San Ramon, CA

September 2021 / May 2022

No Scale

Notes:

- Base map provided by:
  Muir Consulting, Inc.
  Oakdale, CA
- Numbered tree locations are approximate.

HORT SCIENCE
BARTLETT CONSULTING
A Division of The F.A. Bartlett Tree Expert Company
325 Ray Street
Pleasanton, California 94566
Phone 925.484.0211
Fax 925.484.0596

Tree Assessment

612 South Main Street
Milpitas, CA
September 2021 / April 2022

HORT SCIENCE
BARTLETT CONSULTING

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
315	Sweetgum	7	No	4	High	Growing in shrubs; good form and structure; 2' from curb.
316	Brisbane box	7,6,5,4,3	No	3	Moderate	1' from fence; engulfed in ivy; vase form; rounded crown; slightly sparse; multiple attachments at 3.5'.
317	Elderberry	15,4,4	Yes	2	Low	Against fence; multiple attachments at 2'; history of limb removal; thin crown; engulfed in shrubs.
318	Canary Island date palm	10	No	2	Low	1' BTH; wide arching fronds; at curb.
319	Lemon-scented gum	24,19,18,17,14	Yes	3	Low	Multiple attachments at 2'; in 4' bed between curb/fence; large vigorous tree.
320	Brisbane box	9,8,6,6	No	2	Low	In 4' bed between curb/fence; multiple attachments at 3'; growing against fence; engulfed in ivy; slightly sparse.
321	Sweetgum	8	No	2	Low	Multiple attachments at 8'; vase form; sparse.
322	Sweetgum	6	No	1	Low	Slight lean S; codominant stems at 9'; very sparse.
323	Sweetgum	11	No	2	Low	Buried root crown; multiple attachments at 6'; branch dieback; sparse.
324	Sweetgum	8	No	2	Low	Buried root crown; slight lean S.; codominant stems at 9'; some branch dieback.
325	Lemon-scented gum	38	Yes	4	High	Between curb and fence; raised base; good form and structure; large gorgeous tree.
326	Brisbane box	12	Yes	3	Moderate	Near fence; engulfed in ivy; multiple attachments at 9'; oval crown.
327	Brisbane box	9	No	3	Moderate	Near fence; in shrubs; engulfed in ivy; multiple attachments at 9'.
328	Sweetgum	13	Yes	3	Moderate	Roots squared from former planter; multiple attachments at 7'; history of limb removal; conc. border S. side at trunk; 2' from electric box.
329	Sweetgum	13	Yes	2	Low	At fence; engulfed in ivy; codominant stems at 7'; narrow crown.

Tree Assessment

612 South Main Street
Milpitas, CA
September 2021 / April 2022

HORT SCIENCE
BARTLETT CONSULTING

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
330	Sweetgum	9	No	2	Low	In shrub planting bed; codominant stems at 5'; vase form; history of limb removal; slightly sparse.
331	Sweetgum	10	No	3	Moderate	In shrub planting bed; trunk divides at 6 and 8'; vase form; history of limb removal; slightly sparse.
332	Sweetgum	14	Yes	3	Moderate	2' from sidewalk; codominant stems at 8' ; upright vase form; utility lines W. edge crown.
333	Sweetgum	14	Yes	3	Moderate	Large surface roots N. side w/ 2" girdling root; growing against drainage basin N.E. side; codominant stems at 6'.
334	Sweetgum	13	Yes	3	Moderate	Multiple attachments at 10'; raised berm 2' from conc. walk; some branch dieback; history of limb removal.
335	Sweetgum	15	Yes	3	Moderate	Large surface roots in lawn; slight correcting lean W.; history of limb removal; crowded by bldg.; narrow upright form.
336	Crape myrtle	9	Yes	3	Moderate	**Street tree.** In 4x6' well; root pruned; multiple attachments at 6'; some branch dieback; upper crown in utility lines.
337	Crape myrtle	2	Yes	3	Moderate	**Street tree.** In 4.5' square well; multiple attachments at 5'; slightly drought stressed; good young tree.
338	Crape myrtle	5	Yes	3	Moderate	**Street tree.** In 5' wide extended planting bed; multiple attachments at 7'; rounded crown.
339	Crape myrtle	5	Yes	3	Moderate	**Street tree.** In 5' wide extended planting bed; multiple attachments at 6 and 8'; compact upright crown.
340	Crape myrtle	2	Yes	3	Moderate	**Street tree.** In 5' wide extended planting bed; slightly 1-sided to W.; suppressed by sweetgum; narrow form.
341	Crape myrtle	9	Yes	3	Moderate	**Street tree**. In 4.5' square well; root pruned; multiple attachments at 7'; 5" lateral to N.E. turns upward; upper crown in utility lines.
342	Mediterranean fan palm	17	Yes	3	Moderate	Tag on frond; 4' BTH; multiple sprouts at base; low shrubby form.
381	Crape myrtle	7	Yes	3	Moderate	**Street tree.** In 4' square well; correcting lean N.; multiple attachments at 7'; vigorous; under utility lines.

Tree Assessment

612 South Main Street
Milpitas, CA
September 2021 / April 2022

HORT SCIENCE
BARTLETT CONSULTING

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
382	Chinese hackberry	5	Yes	3	Moderate	**Street tree.** In 4' square well; slight lean S.E.; under utility lines.
383	Chinese hackberry	6	Yes	2	Low	**Street tree.** In 4' square well; multiple attachments at 9'; leader deflects sharply W. at attachment; scorched foliage tips; under utility lines.
384	Silk tree	10,10	No	2	Low	At edge of asphalt of property to N.; codominant at 2'; leans W.; wide flat-topped crown; sparse; overhangs property ~21'.
385	Mediterranean fan palm	10	No	2	Low	No tag. At S. fence; approx. 2' brown trunk height; leans N.; engulfed in ivy; crowded and suppressed by shrubs.

Exhibit 3, Part 2:

Trip Generation Study for 612 South Main Street, Milpitas, California, prepared by TJKM dated April 2, 2022.

April 2, 2022

Leah Beniston
Vice President-Entitlements
The True Life Companies
12657 Alcosta Boulevard, Suite 470
San Ramon, CA 94583

Re: Trip Generation Study for 612 South Main Street, Milpitas, California

Dear Ms. Beniston:

At your request, TJKM has prepared this trip generation analysis of the proposed development located at 612 South Main Street in Milpitas, California. The site is currently occupied by a 6,413 square feet (sf) Montessori School for preschool aged students and an 11,700 gymnastics facility. The project also incorporates an adjacent vacant lot. The project site will consist of 57 three-story townhouse style dwelling units with two-car garage and seven on-site guest parking spaces.

To determine the proposed project trips, the following trip rates are applicable, based on the Institute of Transportation Engineer's (ITE) *Trip Generation, 11th Edition.* The land use for Multi-family Housing, Mid-Rise (code 221) was used because it has three or more stories and are connected by three or more dwelling units. Trip Generation for the school is based on the number of students. Because there is no ITE land use for the gymnastics facility, trip generation was estimated based on information provided by the tenant. The net trips for proposed use is shown in the table below:

Land Use (ITE Code)	*Size*		*Daily*		*A.M. Peak Hour*				*P.M. Peak Hour*			
			Rate	*Trips*	*Rate*	*In*	*Out*	*Total*	*Rate*	*In*	*Out*	*Total*
Proposed												
Multifamily Housing, Mid- Rise (221)	57	DU	4.54	**259**	0.37	4	17	**21**	0.39	13	10	**23**
Existing												
Montessori School/Day Care (565)	72	Students	4.09	**294**	0.78	30	26	**56**	0.79	27	30	**57**
Gymnastics	11.7	ksf		**80**						12	12	**24**
Net Total Trips				**-115**		**-26**	**-9**	**-35**		**-26**	**-32**	**-58**

Notes: DU- Dwelling Units; ksf: thousand square feet
Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, 2021, Gymnastics tenant operations

The proposed project will not generate any net new trips during the daily, a.m. peak hour (7:00 a.m. to 9:00 a.m.) trips or p.m. peak hour (4:00 p.m. to 6:00 p.m.).

Per the Valley Transportation Authority (VTA) Congestion Management Program Transportation Impact Analysis (TIA) Guidelines, dated October 2014, transportation impacts of all land uses that are projected to generate 100 or more net new weekday a.m. or p.m. peak hour, including both inbound and outbound trips are required to prepare a TIA. Based on the trip generation, this project would be exempt from preparing a TIA.

Please contact me if there are questions on this matter.

Very truly yours,

Chris D. Kinzel, P.E.
Vice President

Exhibit 3, Part 3:
Noise Impacts Constraints Analysis for the South Main Street Project in Milpitas, California, prepared by First Carbon Solutions dated May 17, 2022.

Memorandum

Date: May 17, 2022

To: Hassan Naboulsi, Project Manager

From: Philip Ault, Director of Noise and Air Quality

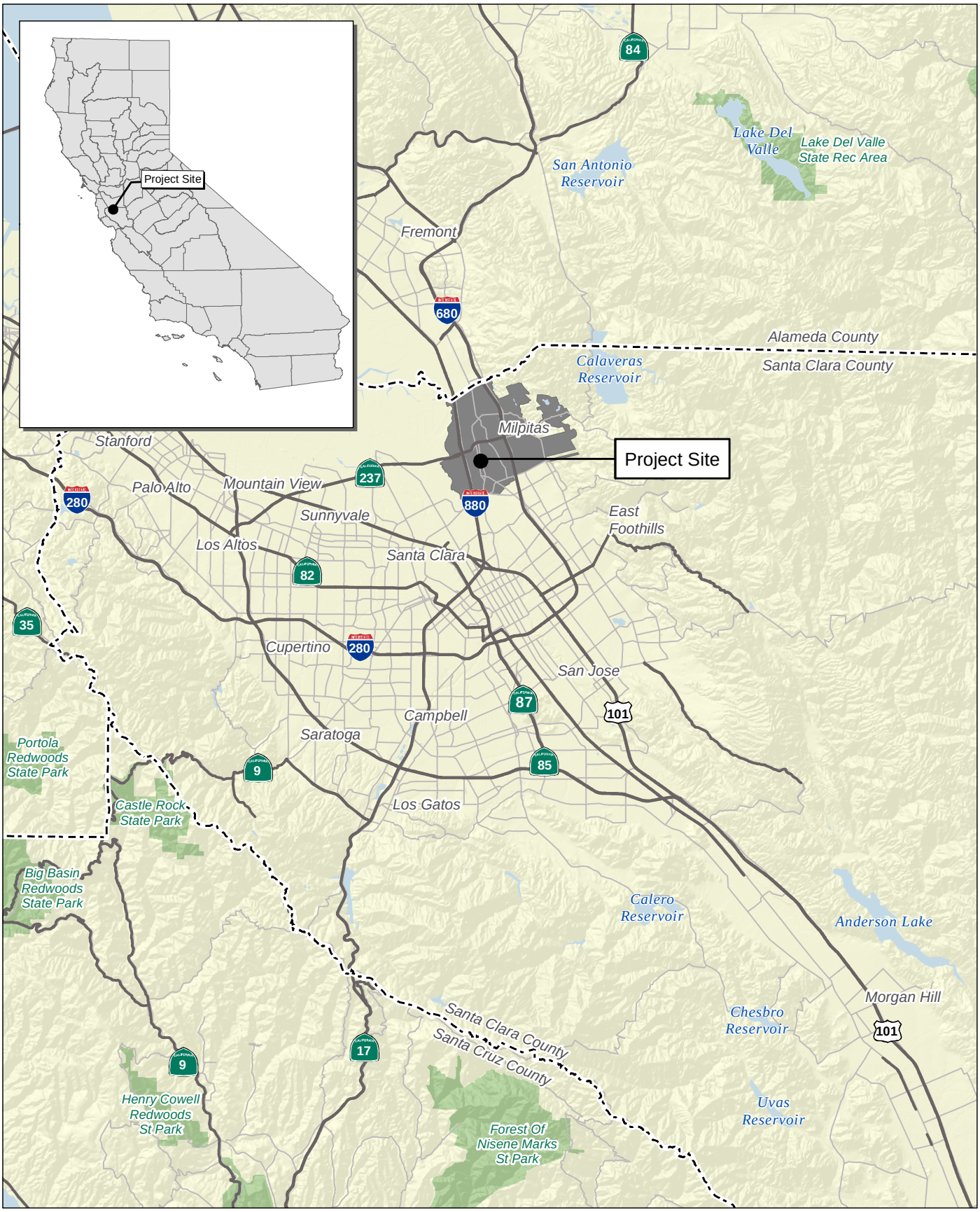
Subject: Noise Impacts Constraints Analysis for the South Main Street Project in Milpitas, California

This memorandum summarizes the findings of a Noise Impacts Constraints Analysis conducted by FirstCarbon Solutions (FCS) for the South Main Street Project (proposed project) located on South Main Street, just east of South Abel Street, in Milpitas, California. Recommended measures to avoid or minimize potential project-related noise impacts to sensitive receptors in the project vicinity are included as appropriate.

PROJECT UNDERSTANDING

The proposed project would construct a 57-unit townhome residential development at South Main Street in Milpitas, California. Exhibit 1 shows the regional location map and Exhibit 2 shows the local vicinity map. The project site includes two parcels with Assessor's Parcel Number (APN) 086-25-027 and APN 086-25-028.

The proposed project would include the demolition of the existing Montessori School structure and the construction of 57 attached, 3-story townhome dwelling units and associated amenities on the approximately 2.3-acre site (Exhibit 3). The proposed project would also include 20,368 square feet of open space, including private open space areas. The proposed project would include 124 total parking spaces, including 114 garage unit parking spaces (two spaces per unit), and 10 guest surface parking spaces.



Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

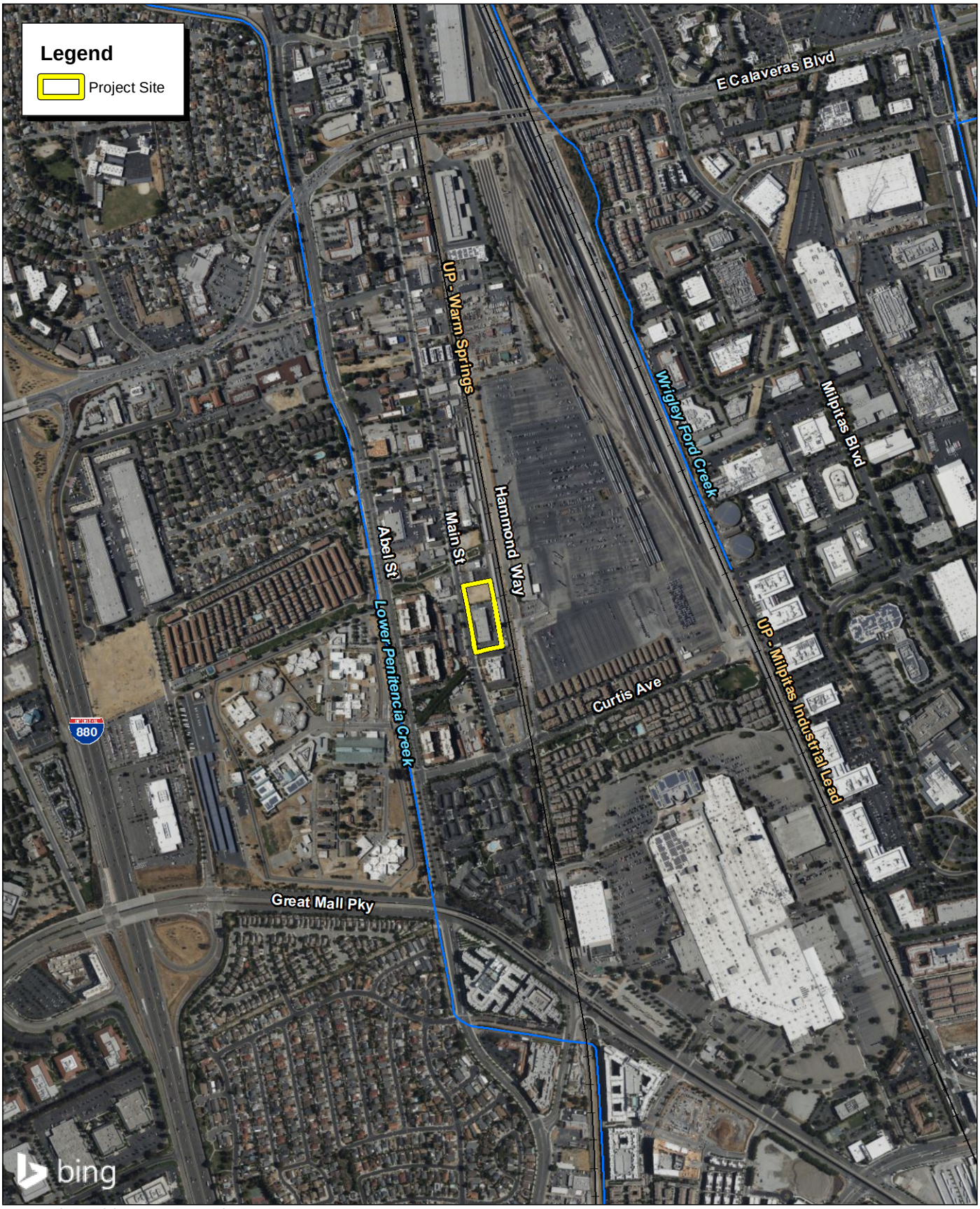
FIRSTCARBON SOLUTIONS™

5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

56470001 • 04/2022 | 1_regional.mxd

TTLC MANAGEMENT INC., AN ARIZONA COMPANY
SOUTH MAIN STREET MILPITAS RESIDENTIAL PROJECT
NOISE CONSTRAINTS ANALYSIS



Source: Bing Aerial Imagery. Santa Clara County.

FIRSTCARBON SOLUTIONS™

1,000 500 0 1,000 Feet

Exhibit 2
Local Vicinity Map

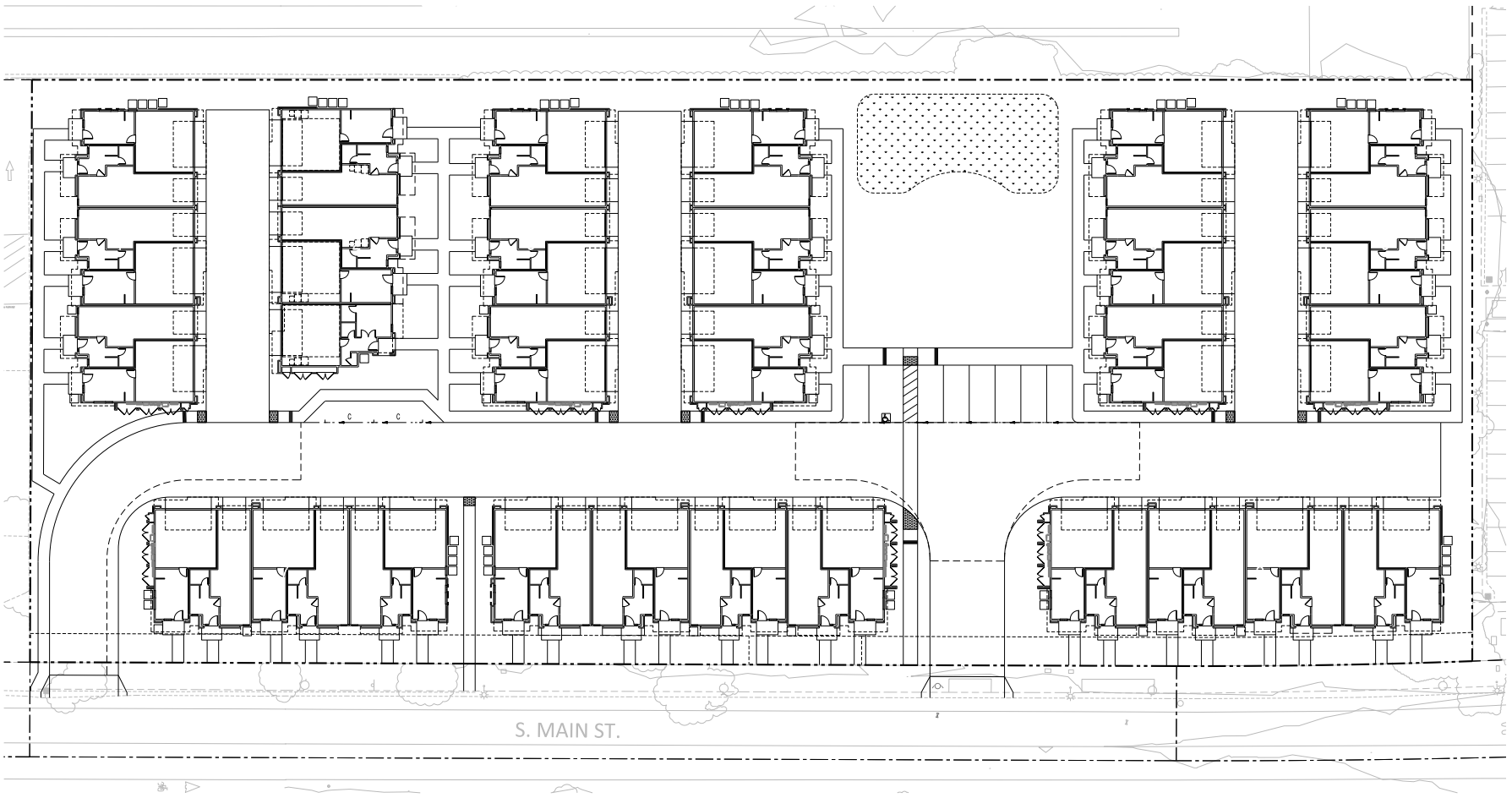


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Exhibit 3
Site Plan

CHARACTERISTICS OF NOISE

Noise is defined as unwanted sound. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing. Most of the sounds that we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. Noise is typically generated by transportation, specific land uses, and ongoing human activity.

The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. A change of 3 dB is the lowest change that can be perceptible to the human ear in outdoor environments. While a change of 5 A-weighted decibel (dBA) is considered to be the minimum readily perceptible change to the human ear in outdoor environments.

Since the human ear is not equally sensitive to sound at all frequencies, the dBA was derived to relate noise to the sensitivity of humans, it gives greater weight to the frequencies of sound to which the human ear is most sensitive. The dBA sound level is the basis for a number of various sound level metrics, including the day/night sound level (L_{dn}) and the Community Noise Equivalent Level (CNEL), both of which represent how humans are more sensitive to sound at night. In addition, the equivalent continuous sound level (L_{eq}) is the average sound energy of time-varying noise over a sample period and L_{max} is the maximum instantaneous noise level occurring over a sample period.

REGULATORY FRAMEWORK

The City of Milpitas has established noise land use compatibility and noise performance standards in the Noise Element of the Milpitas General Plan 2040[1] and in the Milpitas Municipal Code.[2]

Milpitas General Plan

The City of Milpitas establishes noise standards for multi-family residential developments in its General Plan. The multi-family residential noise standards will be used to determine noise impacts for this project, as it is a residential building project. According to Table N-1 (see Attachment A) of the Noise Element, the City considers environments with ambient noise levels of up to 65 dBA L_{dn} to be normally acceptable for new multi-family residential development. Environments with noise levels between 65 dBA and 75 dBA L_{dn} are considered "conditionally acceptable," and development may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features are included in the design. Indoor noise levels should not exceed an L_{dn} of 45 dBA in new residential housing units.

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1 City of Milpitas. 2021. Milpitas 2040 General Plan.

2 City of Milpitas. 2021. Milpitas Municipal Code. Website: https://library.municode.com/ca/milpitas/codes/code_of_ordinances?nodeId=TITVPUHESAWE_CH213NOAB_213-3UNCRPEDINO. Accessed April 18, 2022.

Relevant noise policies are listed below:

Policy N 1-1 Consider the noise compatibility of existing and future development when making land use planning decisions. Require development and infrastructure projects to be consistent with the land use compatibility standards contained in Tables N-1 and N-2 [see Attachment A] to ensure acceptable noise exposure levels for existing and future development.

Policy N 1-2 Require new development to mitigate excessive noise to the standards indicated in Tables N-1 and N-2 [see Attachment A] through best practices, including building location and orientation, building design features, placement of noise-generating equipment away from sensitive receptors, shielding of noise-generating equipment, placement of noise-tolerant features between noise sources and sensitive receptors, and use of noise-minimizing materials.

Policy N 1-3 Use sound walls for sound attenuation only when other measures are not practical, or when recommended by an acoustical expert as part of a mitigation measure. Sound walls shall be designed to be aesthetically pleasing, and should incorporate features such as vegetation, variations in color and texture, artwork, and other features deemed appropriate by the City.

Policy N 1-4 Ensure that new development does not result in indoor noise levels exceeding 45 dBA L_{dn} for residential uses by requiring the implementation of construction techniques and noise reduction measures for all new residential development.

Policy N 1-6 For projects that are required to prepare an acoustical study to analyze noise impacts, the following criteria shall be used to determine the significance of those impacts:

Stationary and Non-Transportation Noise Sources

- A significant impact will occur if the project results in an exceedance of the noise level standards contained in this element. In instances where the ambient noise level is already above the standards contained in this element, a significant impact will occur if the project results in an increase in ambient noise levels by more than 3 dB. This does not apply to temporary construction activities.

Transportation Noise Source

- Where existing traffic noise levels are 60 dB L_{dn} or less at the outdoor activity areas of noise-sensitive uses, a +5 dB L_{dn} increase in roadway noise levels will be considered significant;
- Where existing traffic noise levels are greater than 60 dB L_{dn} and up to 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in roadway noise levels will be considered significant; and

- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB L_{dn} increase in roadway noise levels will be considered significant.

Policy N 1-8 Require construction activities to comply with standard best practices to reduce noise exposure to adjacent sensitive receptors (see Action N 1d).

Non-Transportation Noise

Policy N 1-12 Require non-transportation related noise from site specific noise sources to comply with the standards shown in Table N-2 [see Attachment A].

Action N-1d During the environmental review process, determine if proposed construction will constitute a significant impact on nearby sensitive receptors and, if necessary, require mitigation measures in addition to the standard best practice controls. Suggested best practices for control of construction noise include:

- Noise-generating construction activities, including truck traffic coming to and from the construction site for any purpose, shall be limited to between the hours of 7:00 a.m. and 7:00 p.m. No construction shall occur on National holidays.
- All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment.
- The construction contractor shall utilize “quiet” models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences.
- Unnecessary idling of internal combustion engines shall be prohibited for a duration of longer than 5 minutes.
- Construction staging areas shall be established at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction activities, to the extent feasible.
- Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing.
- The construction contractor shall designate a “noise disturbance coordinator” who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall be responsible for determining the cause of the noise complaint (e.g., starting too early, poor muffler, etc.) and instituting reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

Policy N 2-2 The City may elect to allow new noise-sensitive land uses within activity centers (areas within the boundaries of an adopted Specific Plan)) that exceed the Land Use Compatibility Standards in Table N-1, and Stationary Noise Source Standards in Table N-2 [see Attachment A]. Noise mitigation, including an acoustical analysis, shall be required to reduce interior space noise levels to 45 dB Ldn, or less, for sensitive receptors. Exterior noise levels shall be reduced to the extent feasible using building orientation, construction and design features; however ultimately, noise levels may exceed the noise standards identified in Table N-1 and N-2 [see Attachment A], but shall comply with standards identified in Table N-3 [see Attachment A].

Policy N 2-3 Consider groundborne vibration and noise nuisance associated with rail operations prior to approving the development of sensitive uses.

Action N-2b Review new developments within 100 feet of the rail line to ensure that vibration experienced by residents and sensitive uses would not exceed the Federal Transit Administration guidelines.

Action N-2c Establish provisions that would allow new noise-sensitive land uses on a case-by-case basis in proximity to transportation noise sources and mixed-use areas that do not fall within the Conditionally Acceptable Land Use Compatibility Standards in Table N-1[see Attachment A]. Residential projects which are approved in areas where future tenants would be exposed to noise levels that exceed the standards in Table N-1 [see Attachment A] shall be required to include noise disclosure statements on property titles and in [California Code of Regulations] CCRs, where applicable.

Milpitas Municipal Code

The Municipal Code contains noise ordinances that address the City's construction noise performance standards. According to Chapter V-213-3, Unlawful to Create or Permit Disturbing Noise, the ordinance states that no person shall engage or permit others to engage in construction of any building or related road or walkway, pool, or landscape improvement or in the construction operations related thereto, including delivery of construction materials, supplies, or improvements on or to a construction site except within the hours of 7:00 a.m. to 7:00 p.m. on weekdays and weekends. No construction work shall be conducted or performed on federal holidays.

NOISE IMPACTS CONSTRAINTS ANALYSIS

Consistent with the California Environmental Quality Act (CEQA) Guidelines Checklist questions, potential noise impacts are compared to the following significance criteria. Would the proposed project:

a) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than significant impact. A significant impact would occur for the proposed project if the proposed residential multi-family land use development would be exposed to ambient noise levels in conflict with the City's land use compatibility standards. For new residential multi-family development, the Milpitas 2040 General Plan determines exterior noise levels below 65 dBA L_{dn} to be normally acceptable and 65 dBA L_{dn} to 75 dBA L_{dn} to be conditionally acceptable. Normally Acceptable exterior noise levels should not exceed 65 dBA where outdoor use is a major consideration. Additionally, the City requires that interior noise levels are not to exceed the State of California's interior noise standard of 45 dBA L_{dn}.

Ambient Noise

The existing ambient noise levels on the project site were documented through a noise monitoring effort performed at the project site. The noise measurements were taken using a Larson-Davis Model LxT Type 2 precision sound level meter programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meter and microphone were held approximately 5 feet above the ground and were equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 150. The accuracy of the calibrator is maintained through a program established by the manufacturer and is traceable to the National Bureau of Standards. The unit meets the requirements of American National Standards Institute Standard S1.4-1984 and International Electrotechnical Commission (IEC) Standard 942: 1988 for Class 2 equipment. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4 1983 identified in Chapter 19.68.020.AA).

One short-term noise measurement (15 minutes) was taken during the midday peak noise hour on Thursday, October 28, 2021, starting at approximately 1:30 p.m. and ending at approximately 1:45 p.m. This noise measurement was taken in the northwestern corner of the project site approximately 5 feet from the edge of South Main Street. The resulting measurement showed that ambient noise levels at this location averaged 65.3 dBA L_{eq}. As was observed by the technician at the time of the noise measurement, the dominant noise source at this site was vehicle traffic along South Main Street.

A long-term (approximately 24-hour) noise measurement was also conducted on the project site, from approximately 2:05 p.m. on Thursday, October 28, 2021, to approximately 1:40 p.m. on Friday, October 29, 2021. This long-term noise measurement was taken at the southeastern corner of the project site nearest the rail line to the east of the project site. The resulting measurement determined that ambient noise levels at this location averaged 56.8 dBA L_{dn}. The daytime average noise level (7:00 a.m. to 10:00 p.m.) was 54.5 dBA L_{eq}, and the nighttime average noise level (10:00 p.m. to 7:00 a.m.) was 49.4 dBA L_{eq}. Documented maximum noise levels ranged up to 74.4 dBA L_{max}. As was observed by the technician at the time of the noise measurement, the dominant noise source in the project vicinity was vehicle traffic along South Main Street, children playing outside at the nearby day care facility, and train passings. Observed maximum noise levels were from train passings on the rail line east of the project site.

The noise measurement data sheets are provided in Attachment B of this document.

The City considers environments with noise levels below 65 dBA L_{dn} to be normally acceptable for new multi-family residential development. Therefore, the documented 24-hour average ambient noise levels of 56.8 dBA L_{dn} are within the City's normally acceptable range for new multi-family residential development.

Based on the United States Environmental Protection Agency (EPA) Protective Noise Levels,[3] with a combination of walls, doors, and windows, standard construction in accordance with building code requirements for multi-family residential developments would provide a minimum of 25 dBA in exterior-to-interior noise reduction with windows closed and 15 dBA or more with windows open. With windows open, the interior noise levels of the proposed units nearest to and facing the railroad line would still meet the City's interior noise standard of 45 dBA L_{dn} for indoor sleeping areas (i.e., 56.8 dBA - 15 dBA = 41.8 dBA). Therefore, the interior noise level standard would also be met, even with windows open. Therefore, the proposed project would not result in a conflict with the City's adopted land use-noise compatibility guidelines or interior noise standard, and the impact would be less than significant.

b) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Short-term Construction Impacts

Less than significant impact. For purposes of this analysis, a significant impact would occur if construction activities would result in a substantial temporary increase in ambient noise levels outside of the City's permissible hours of construction which would result in annoyance or sleep disturbance of nearby sensitive receptors. According to the City's noise ordinance, construction activities including delivery of construction materials, supplies, or improvements on or to a construction site are only permitted within the hours of 7:00 a.m. to 7:00 p.m. on weekdays and weekends. No construction work shall be conducted or performed on federal holidays.

Construction-related Traffic Noise

Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. One type of short-term noise impacts that could occur during project construction would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site.

The transport of workers, construction equipment, and materials to the project site would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment

[3] United States Environmental Protection Agency (EPA). 1978. Protective Noise Levels. EPA 550/9-79-100. Website: https://www.nonoise.org/library/levels/levels.htm. Accessed on May 13, 2022.

would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. Typically, a doubling of the Average Daily Traffic (ADT) hourly volumes on a roadway segment is required in order to result in an increase of 3 dBA in traffic noise levels; which, as discussed in the characteristics of nose discussion above, is the lowest change that can be perceptible to the human ear in outdoor environments. Project-related construction trips would not be expected to double the hourly traffic volumes along any roadway segment in the project vicinity. For these reasons, short-term intermittent noise from trucks would be minor when averaged over a longer time-period. Therefore, short-term construction-related noise impacts associated with worker commute and equipment transport to the project site would not exceed applicable significance thresholds and would be less than significant.

Construction Equipment Operational Noise

The second type of short-term noise impact is related to noise generated during construction on the project site. Construction noise levels are rarely steady in nature, and often fluctuate depending on the type and number of equipment being used at any given time. In addition, there could be times where large equipment is not operating and noise would be at or near normal ambient levels. Construction is completed in discrete steps, each of which has its own mix of equipment and its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

The site preparation phase, which includes excavation and grading activities, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery and compacting equipment, such as bulldozers, draglines, backhoes, front loaders, roller compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the proposed project is expected to require the use of front-end loaders, excavators, haul trucks, water trucks, concrete mixer trucks, and pickup trucks. The maximum noise level generated by each concrete mixing truck is assumed to be 85 dBA L_{max} at 50 feet from this equipment.[4] Each front-end loader would also generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by excavators is approximately 85 dBA L_{max} at 50 feet. Each doubling of sound sources with equal strength increases the noise level by 3 dBA.

A conservative but reasonable assumption is that this equipment would operate simultaneously and continuously over at least a 1-hour period in the vicinity of the closest existing residential receptors, but would move linearly over the project site as they perform their earthmoving operations, spending a relatively short amount of time adjacent to any one receptor. Assuming that each piece of construction

[4] Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. August.

equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} (and a worst-case hourly average of 86 dBA L_{eq}) at a distance of 50 feet from the acoustic center of a construction area. The acoustical center reference is used because construction equipment must operate at some distance from one another on a project site, and the combined noise level as measured at a point equidistant from the sources (acoustic center) would be the worst-case maximum noise level.

The closest sensitive receptor to proposed areas of construction is an apartment complex located west of the project site on South Abel Street. The façade of this closest sensitive receptor would be located approximately 285 feet from the acoustic center of construction activity where multiple pieces of heavy construction equipment would potentially operate at the project site. At this distance, reasonable worst-case construction noise levels could range up to approximately 75 dBA L_{max} intermittently, and could have an hourly average of up to 71 dBA L_{eq} at the façade of the nearest sensitive receptor when multiple pieces of equipment operate simultaneously at the nearest center of construction activity. These noise levels would occur for only a short period during the site preparation phase of construction, as noise levels would drop off at a rate of 6 dBs per doubling of distance as construction equipment moves across the site.

Based on the ambient noise monitoring effort described above, documented maximum noise levels on the project site ranged up to 74.4 dBA L_{max}. The measured ambient noise adjacent to South Main Street in the vicinity of the nearest sensitive receptors averaged 65.3 dBA L_{eq}.

These potential maximum noise levels are lower than the existing documented maximum noise levels in the project vicinity of 74.4 dBA L_{max}. However, these calculated reasonable worst-case hourly average noise levels that could occur during the loudest phase of construction would exceed measured daytime hourly average noise levels of 65.3 dBA L_{eq} by slightly more than 5 dBA. Although there could be a relatively high single-event noise exposure potential causing an intermittent noise nuisance, the effect of construction activities on daytime ambient noise levels would be small. However, these reasonable worst-case construction noise levels could exceed nighttime hourly average noise levels of 49.4 dBA L_{eq} by as much as 21.6 dBA, which would be considered a substantial temporary increase which could result in sleep disturbance or annoyance of nearby sensitive receptors.

However, the proposed project is required to comply with the City's Municipal Code standards restricting the permissible hours of construction. According to the City's noise ordinance, no person shall engage or permit others to engage in construction of any building, including, delivery of construction materials, supplies, or improvements on or to a construction site except within the hours of 7:00 a.m. to 7:00 p.m. on weekdays and weekends. Compliance with these restrictions on permissible hours of construction would ensure that project construction would not result in any nighttime noise. Therefore, project construction activities conducted in compliance with the City's noise ordinance requirements would not result in a substantial temporary increase in ambient noise levels and potential impacts would be less than significant.

Operational/Stationary Source Noise Impacts

Less than significant impact. A significant impact would occur if operational noise levels generated by stationary noise sources at the proposed project site would result in a substantial permanent increase in ambient noise levels in excess of any of the noise performance thresholds established by the City. The City has established that a significant impact will occur if a project would result in an exceedance of the noise level standards contained in the noise element of the General Plan. As shone in Table N-2 in Attachment A, the City's noise performance thresholds for stationary noise sources are 55 dBA and 45 dBA L_{eq} for daytime and nighttime hours respectively as measured at receiving residential land uses. In addition, in instances where the ambient noise level is already above the standards, a significant impact would occur if the project resulted in an increase in ambient noise levels by more than 3 dBA.

Mechanical Equipment Operations

At the time of preparation of this analysis, details were not available pertaining to proposed mechanical ventilation systems for the proposed project. Therefore, a reference noise level for typical residential mechanical ventilation systems was used. Noise levels from typical residential mechanical ventilation equipment are sound rated from 60 dBA to 70 dBA L_{eq} as measured at approximately 3 feet from the operating unit.

The nearest off-site sensitive receptor is the apartment complex land use, located west of the project site across South Main Street. The nearest façade of this sensitive receptor would be located approximately 370 feet from the proposed mechanical ventilation systems. At this distance, noise generated by mechanical ventilation equipment would attenuate to less than 29 dBA L_{eq} at the nearest sensitive receptor. Existing traffic noise levels along common areas with heavy traffic, such as South Main Street, are documented in the City's General Plan Noise Element with normal levels of 60 dBA L_{dn}. Therefore, noise levels from proposed residential mechanical ventilation equipment operations would not exceed existing ambient noise levels as measured at this nearest sensitive receptor. In addition, these noise levels would not exceed the City's noise performance thresholds for receiving residential land uses of 55 dBA and 45 dBA L_{eq} for daytime and nighttime hours respectively.

Therefore, noise levels from mechanical ventilation equipment operations would not generate a substantial temporary or permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, and the impact would be less than significant.

Operational/Mobile Source Noise Impacts

Less than significant impact. A significant impact would occur if project-generated traffic would result in a substantial increase in ambient noise levels compared with those that would exist without the proposed project.

The City considers traffic noise increases to be significant if (1) an increase in +5 dB L_{dn} occurs in roadway noise levels where existing traffic noise levels are 60 dB L_{dn} or less at the outdoor activity areas of noise-

sensitive uses, or (2) an increase in +3 dB L_{dn} occurs in roadway noise levels where existing traffic noise levels are greater than 60 dB L_{dn} and up to 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, or (3) an increase in + 1.5 dB L_{dn} occurs in roadway noise levels where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses.

Based on the traffic analysis prepared for the proposed project, the proposed project would generate 115 fewer daily trips than the existing land uses.[5] In addition, the proposed project would result in 35 fewer AM peak-hour trips and 58 fewer PM peak-hour trips. Because the proposed project would generate fewer daily and peak-hour trips than the existing land uses, the proposed project would result in no increase in traffic noise levels in the project vicinity.

Therefore, implementation of the proposed project would not generate a substantial permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, and project-related traffic noise impacts would be less than significant.

c) Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact. A significant impact would occur if the proposed project would generate groundborne vibration or groundborne noise levels in excess of established standards. For determining construction-related vibration impacts, the Federal Transit Administration (FTA) Construction Vibration Impact Criteria are utilized. The FTA has established industry accepted standards for vibration impact assessment in its Transit Noise and Vibration Impact Assessment Manual, dated September 2018.

Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room, and may also consist of the rattling of windows or dishes on shelves. In general, if groundborne vibration levels do not exceed levels considered to be perceptible, then groundborne noise levels would not be perceptible in most interior environments. Therefore, this analysis focuses on determining exceedances of groundborne vibration levels.

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects such as the shaking of a building can be notable. When assessing annoyance from groundborne vibration, vibration is typically expressed as root mean square (rms) velocity in units of dBs of 1 microinch per second. To distinguish these vibration levels referenced in dBs from noise levels referenced in dBs, the unit is written as “VdB.” In extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Common sources of groundborne vibration include construction activities such as blasting, pile driving and operating heavy earthmoving equipment. However, construction vibration impacts on building structures are generally assessed in terms of peak particle velocity (PPV). For purposes of this analysis, project-related impacts are expressed in terms of PPV.

[5] TJKM. 2022. Trip Generation Study for 612 South Main Street, Milpitas, California. April 2.

Short-term Construction Vibration Impacts

A significant impact would occur if project construction activities would generate groundborne vibration levels in excess of levels established by the FTA's Construction Vibration Impact Criteria for the receiving type of structure.

Of the variety of equipment used during construction, the small vibratory rollers that could be used in the site preparation phase of construction of the project would produce the greatest groundborne vibration levels. Small vibratory rollers produce groundborne vibration levels ranging up to 0.101 inch per second (in/sec) PPV at 25 feet from the operating equipment.

The nearest off-site structure to the proposed project construction footprint is a car wash business located immediately north of the project site on South Main Street. The nearest façade of these buildings would be located approximately 20 feet from the nearest construction footprint where the heaviest construction equipment would potentially operate. At this distance, groundborne vibration levels would range up to 0.14 in/sec PPV from operation of the types of equipment that would produce the highest vibration levels. This is below the FTA's Construction Vibration Impact Criteria of 0.2 in/sec PPV for structures of non-engineered timber and masonry construction.

Therefore, project construction activities would not generate groundborne vibration or groundborne noise levels in excess of established standards and impacts to off-site receptors would be less than significant.

Operational Vibration Impacts

A significant impact would occur if project operations would generate groundborne vibration levels in excess of the City's standards. The City prohibits generation of groundborne vibration levels that would be discernible without instruments at the lot line of the establishment or use.

Implementation of the proposed project would not include any permanent sources of vibration that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any of the proposed project lot lines. Therefore, operational groundborne vibration impacts would be less than significant.

d) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impact. A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.

The project site is not located within the vicinity of a private airstrip. The nearest public airport to the project site is the San Jose International Airport, located approximately 3.67 miles southwest of the project site. The project site is located outside of the 60 dBA CNEL airport noise contours of this closest

airport. While aircraft noise is occasionally audible on the project site from aircraft flyovers, aircraft noise associated with nearby airport activity would not expose people residing or working near the project site to excessive noise levels. Therefore, implementation of the proposed project would not expose persons residing or working in the project vicinity to noise levels from airport activity that would be in excess of normally acceptable standards for the proposed land use development, and no impact would occur.

SUMMARY

Based on our understanding of the proposed project described above, the proposed project would not result in a conflict with the City's adopted land use-noise compatibility guidelines or interior noise standard. Required compliance of the proposed project with the City's Municipal Code noise ordinance restricting permissible hours of construction to daytime hours would ensure that potential construction noise impacts would not result in a substantial temporary increase in ambient noise levels as measured at nearby sensitive receptors. The proposed project would also not result in any substantial permanent increase in ambient noise levels compared with noise levels existing without the project. Furthermore, project implementation would not generate groundborne vibration or groundborne noise levels in excess of established standards during construction or operation of the proposed project. Finally, implementation of the proposed project would not expose persons residing or working in the project vicinity to noise levels from airport activity that would be in excess of normally acceptable standards for the proposed land use development.

Sincerely,

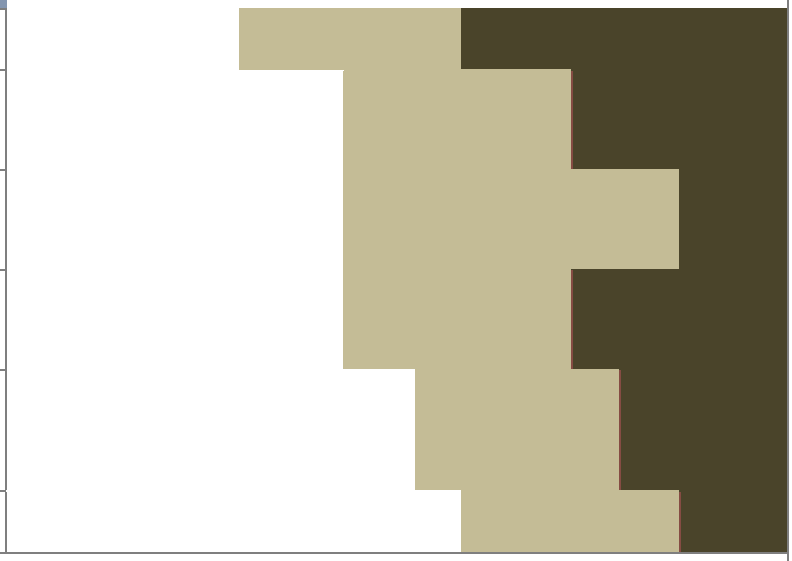
Philip Ault
Director of Noise and Air Quality
FirstCarbon Solutions
1350 Treat Boulevard, Suite 380
Walnut Creek, CA 94597

Attachment A: Tables N-1, N-2, and N-3 of the Noise Element of the General Plan
Attachment B: Ambient Noise Monitoring Data

Attachment A:
Tables N-1, N-2, and N-3 of the Noise Element of the General Plan

Table N-1: Land Use Compatibility for Community Noise Environment

Land Use Category	Exterior Noise Exposure (Ldn)
	55 60 65 70 75 80
Single-Family Residential	
Multi-Family Residential, Hotels, and Motels	
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	
Schools, Libraries, Museums, Hospitals, Personal Care, Public Assembly	
Office Buildings, Business Commercial, and Professional	
Industrial	



Note: Residential components of Mixed-Use developments are subject to the Multi-Family Residential Noise Standards unless otherwise allowed in conjunction with Policy N 2-2.

NORMALLY ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements

CONDITIONALLY ACCEPTABLE
Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design

UNACCEPTABLE
New construction or development should generally not be undertaken because mitigation was found to be infeasible to comply with noise element policies

Table N-2: Stationary (Non-Transportation) Noise Source Standards

Land Use Receiving the Noise	Hourly Noise-Level Descriptor	Exterior Noise-Level Standard (dBA)	
		Daytime (7am-10pm)	Nighttime (10pm-7am)
Residential	L_{eq}	55	45
	L_{max}	70	65

Notes:

a) The residential standards apply to all properties that are zoned for residential use. The exterior noise level standard is to be applied at the property line of the receiving land use or at a designated outdoor activity area. For mixed-use projects, the exterior noise level standard may be waived in conjunction with Policy N 2-2 (at the discretion of the decision-making body) if the residential portion of the project does not include a designated activity area and mitigation of property line noise is not practical.

b) Each of the noise levels specified above shall be lowered by 5 dBA for tonal noises characterized by a whine, screech, or hum, noises consisting primarily of speech or music, or recurring impulsive noises. In no case shall mitigation be required to a level that is less than existing ambient noise levels, as determined through measurements conducted during the same operational period as the subject noise source.

c) In situations where the existing noise level exceeds the noise levels indicated in the above table, any new noise source must include mitigation that reduces the noise level of the noise source to the existing level plus 3 dB.

Tonal Noises are characterized by a whine, screech, beep, or hum, consisting primarily of speech or music, or recurring impulsive noises. Tonal noises can cause unpleasant experiences in spaces adjacent to areas that produce tonal noise, which annoys occupants and, in turn, lead to increased complaints from nearby sensitive receptors.

Table N-3 Stationary (Non-Transportation) Noise Source Standards (Commercial Mixed-Use and Transit-Oriented Areas)

Land Use Receiving the Noise	Hourly Noise-Level Descriptor	Exterior Noise-Level Standard (dBA) Daytime (7am-10pm)	Late Night (10pm-12am)	Nighttime (12am-7am)
Residential (Sunday Night – Thursday Night)	L_{eq}	60	55	50
	L_{max}	70	65	65
Residential (Friday Night – Saturday Night)	L_{eq}	65	60	55
	L_{max}	75	70	65

Attachment B:
Ambient Noise Monitoring Data

FIRSTCARBON
SOLUTIONS
FCS INTERNATIONAL, INC.

Project Number: 5647.0001 Sheet ___of___
Project Name: _____
Test Personnel: Robert Carroll

NOISE MEASUREMENT SURVEY

Site Number: ST-1 Date: 10/28/21 Time: From 1:30 To 1:45

Site Location: Northern corner of site, ~5 feet from street

Primary Noise Sources: steady traffic, a few loud trucks

Measurement Results

	dBA
L_{eq}	
L_{max}	On monitor
L_{min}	↓
L_{peak}	
L_5	
L_{10}	(See attached
L_{50}	SLM download
L_{90}	data)
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments: [redacted]

Equipment: _____ Measured Difference: -0.2 dBA
Settings: A-Weighted ☐ Other☐_____ Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
5	3	76	65	
Comments:				

Summary							
Filename	LxT_Data.466						
Serial Number	4228						
Model	SoundTrack LxT®						
Firmware Version	2.206						
User							
Location							
Job Description							
Note							
Measurement Description							
Start	28/10/2021 13:31:40						
Stop	28/10/2021 13:46:43						
Duration	0:15:02.4						
Run Time	0:15:02.4						
Pause	0:00:00.0						
Pre Calibration	28/10/2021 13:27:37						
Post Calibration	None						
Calibration Deviation	---						
Overall Settings							
RMS Weight	A Weighting						
Peak Weight	A Weighting						
Detector	Slow						
Preamp	PRMLxT2L						
Microphone Correction	Off						
Integration Method	Linear						
Overload	125.5	dB					
	A		**C**		**Z**		
Under Range Peak	**81.7**		78.7		83.7	dB	
Under Range Limit	**27.3**		27.3		32.1	dB	
Noise Floor	18.1		18.2		22.9	dB	
Results							
LAeq	65.3	dB					
LAE	94.9	dB					
EA	341.739	µPa²h					
EA8	10.907	mPa²h					
EA40	54.533	mPa²h					
LApeak (max)	28/10/2021 13:43:19		91.2	dB			
LASmax	28/10/2021 13:37:44		74.4	dB			
LASmin	28/10/2021 13:37:26		48.8	dB			
SEA	-99.9	dB					
LAS > 85.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LAS > 115.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LApeak > 135.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LApeak > 137.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LApeak > 140.0 dB (Exceedence Counts / Duration)	0		0.0	s			
Community Noise	**Ldn**	**LDay 07:00-23:00**	**LNight 23:00-07:00**		**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-23:00**	**LNight 23:00-07:00**
	65.3	65.3	-99.9		65.3	65.3	-99.9	-99.9
LCeq	70.2	dB						
LAeq	65.3	dB						
LCeq - LAeq	4.9	dB						
LAleq	66.3	dB						
LAeq	65.3	dB						
LAleq - LAeq	1.0	dB						
# Overloads	0							
Overload Duration	0.0	s						
Dose Settings								
Dose Name	OSHA-1	OSHA-2						
Exch. Rate	5	5	dB					
Threshold	90	80	dB					
Criterion Level	90	90	dB					
Criterion Duration	8	8	h					
Results								
Dose	-99.9	-99.9	%					
Projected Dose	-99.9	-99.9	%					
TWA (Projected)	-99.9	-99.9	dB					
TWA (t)	-99.9	-99.9	dB					
Lep (t)	50.3	50.3	dB					
Statistics								
LAS5.00	70.2	dB						
LAS10.00	69.4	dB						
LAS33.30	65.8	dB						
LAS50.00	63.6	dB						
LAS66.60	59.8	dB						
LAS90.00	52.3	dB						

FIRSTCARBON
SOLUTIONS
FCS INTERNATIONAL, INC.

Project Number: 5647.0001 Sheet ___of___
Project Name:
Test Personnel: Robert Carroll

NOISE MEASUREMENT SURVEY

Site Number: LT-1 Date: 10/28/21 Time: From 2:05 To 1:45 10/29/21

Site Location: S.E. corner of parking lot

Primary Noise Sources: Daycare in back of building → Kids playing
Airplanes overhead, train passing

Measurement Results

	dBA	
L_{eq}		53.3
L_{max}	On monitor ↓	79.6
L_{min}		39.5
L_{peak}		—
L_5		58.0
L_{10}		55.9
L_{50}		50.8
L_{90}		44.7
~~SEL~~ ~~CNEL~~		57.4

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment:
Settings: A-Weighted ☐ Other☐
Measured Difference: -0.21 dBA
Slow☐ Fast☐ Windscreen☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
5	3	~77	65	drop-off
3	2	73	59	pick-up
Comments:				

SLM data							
Filename	LxT_Data.467						
Serial Number	4228						
Model	SoundTrack LxT®						
Firmware Version	2.206						
User							
Location							
Job Description							
Note							
Measurement Description							
Start	28/10/2021 14:05:22						
Stop	29/10/2021 13:40:02						
Duration	23:34:39.6						
Run Time	23:34:39.6						
Pause	0:00:00.0						
Pre Calibration	28/10/2021 13:26:39						
Post Calibration	None						
Calibration Deviation	---						
Overall Settings							
RMS Weight	A Weighting						
Peak Weight	A Weighting						
Detector	Slow						
Preamp	PRMLxT2L						
Microphone Correction	Off						
Integration Method	Linear						
Overload	125.5	dB					
	A		**C**		**Z**		
Under Range Peak	**81.7**		78.7		83.7	dB	
Under Range Limit	**27.3**		27.3		32.1	dB	
Noise Floor	18.1		18.2		22.9	dB	
Results							
LAeq	53.3	dB					
LAE	102.6	dB					
EA	2.035	mPa^2h					
EA8	690.385	μPa^2h					
EA40	3.452	mPa^2h					
LApeak (max)	28/10/2021 17:57:34		97.2	dB			
LASmax	28/10/2021 17:57:34		79.6	dB			
LASmin	29/10/2021 01:26:19		39.5	dB			
SEA	-99.9	dB					
LAS > 85.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LAS > 115.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LApeak > 135.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LApeak > 137.0 dB (Exceedence Counts / Duration)	0		0.0	s			
LApeak > 140.0 dB (Exceedence Counts / Duration)	0		0.0	s			
Community Noise	**Ldn**	**LDay 07:00-23:00**	**LNight 23:00-07:00**		**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-23:00**	**LNight 23:00-07:00**
	56.8	54.5	49.4		57.4	54.9	52.9	49.4
LCeq	65.0	dB						
LAeq	53.3	dB						
LCeq - LAeq	11.6	dB						
LAleq	56.6	dB						
LAeq	53.3	dB						
LAleq - LAeq	3.2	dB						
# Overloads	0							
Overload Duration	0.0	s						
Dose Settings								
Dose Name	OSHA-1	OSHA-2						
Exch. Rate	5	5	dB					
Threshold	90	80	dB					
Criterion Level	90	90	dB					
Criterion Duration	8	8	h					
Results								
Dose	-99.9	-99.9	%					
Projected Dose	-99.9	-99.9	%					
TWA (Projected)	-99.9	-99.9	dB					
TWA (t)	-99.9	-99.9	dB					
Lep (t)	58.0	58.0	dB					
Statistics								
LAS5.00	58.0	dB						
LAS10.00	55.9	dB						
LAS33.30	52.5	dB						
LAS50.00	50.8	dB						
LAS66.60	48.9	dB						
LAS90.00	44.7	dB						

Exhibit 3, Part 4:
Air Quality and Greenhouse Gas Emissions Constraints Analysis for the South Main Street Project in Milpitas, California prepared by First Carbon Solutions dated May 27, 2022.

Memorandum

Date: May 27, 2022

To: Hassan Naboulsi, Project Manager

From: Philip Ault, Director of Noise and Air Quality
Lance Park, Senior Air Quality Scientist
Mercedes Kaiser, Air Quality Analyst

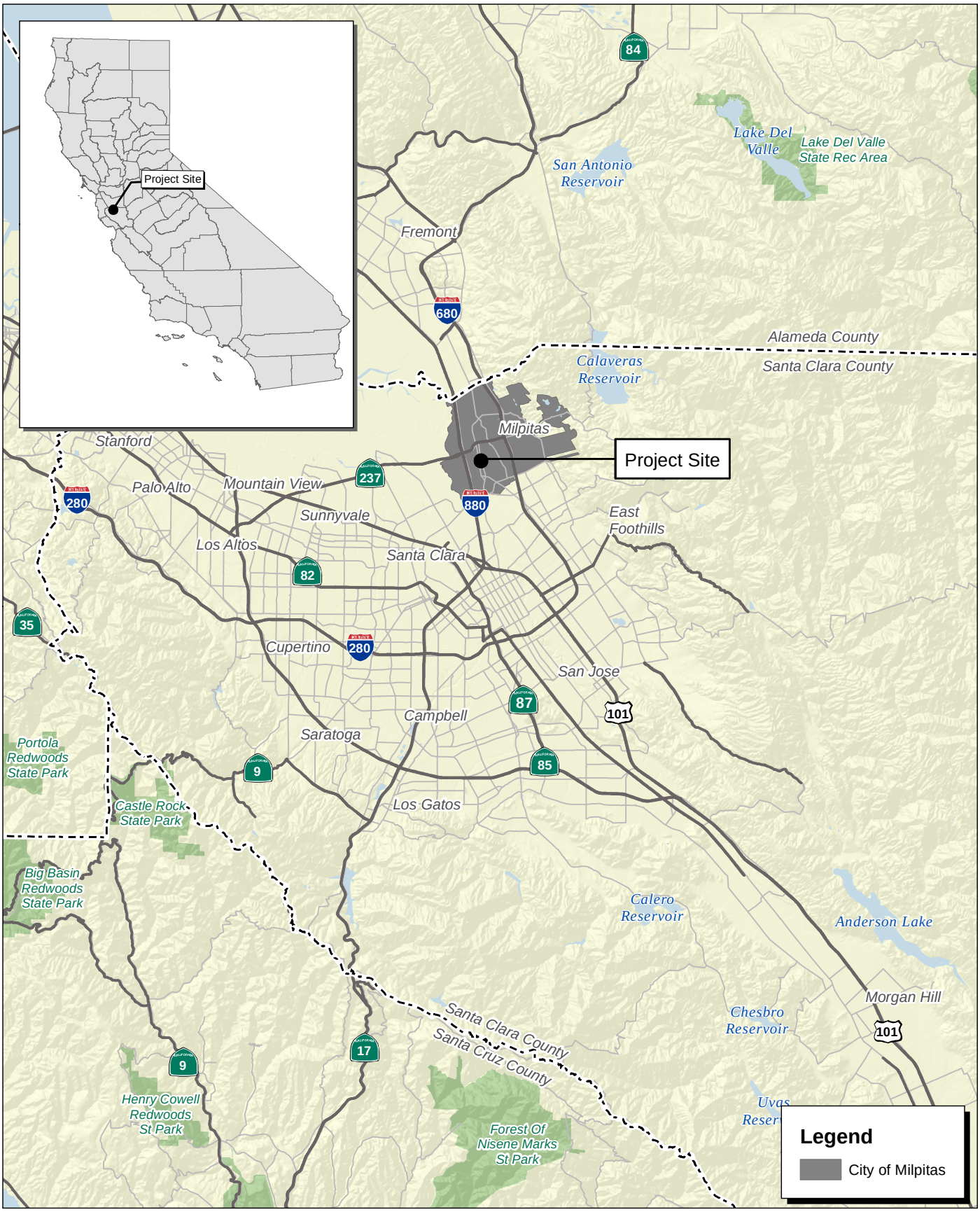
Subject: Air Quality and Greenhouse Gas Emissions Constraints Analysis for the South Main Street Project in Milpitas, California

This memorandum summarizes the findings of an Air Quality and Greenhouse Gas Emissions Impacts Constraints Analysis conducted by FirstCarbon Solutions (FCS) for the TTLC Milpitas–Main Street LLC Project (proposed project) located at 612-630 South Main Street in Milpitas, California. Recommended measures to avoid or minimize potential project-related impacts are included as appropriate.

PROJECT UNDERSTANDING

The proposed project would construct a 57-unit townhome residential development at South Main Street in Milpitas, California. Exhibit 1 shows the regional location map and Exhibit 2 shows the local vicinity map. The project site includes two parcels with Assessor's Parcel Number (APN) 086-25-027 and 086-25-028.

The proposed project would include the demolition of the existing approximate 29,000-square-foot Montessori School structure and the construction of 57 attached 3-story townhome dwelling units and associated amenities on the approximately 2.3-acre site (Exhibit 3). Twelve of the units would be provided at rates to meet affordable housing requirements. The proposed project would include approximately 0.57 acre of open space and landscaping. The proposed project would include 124 total parking spaces.



Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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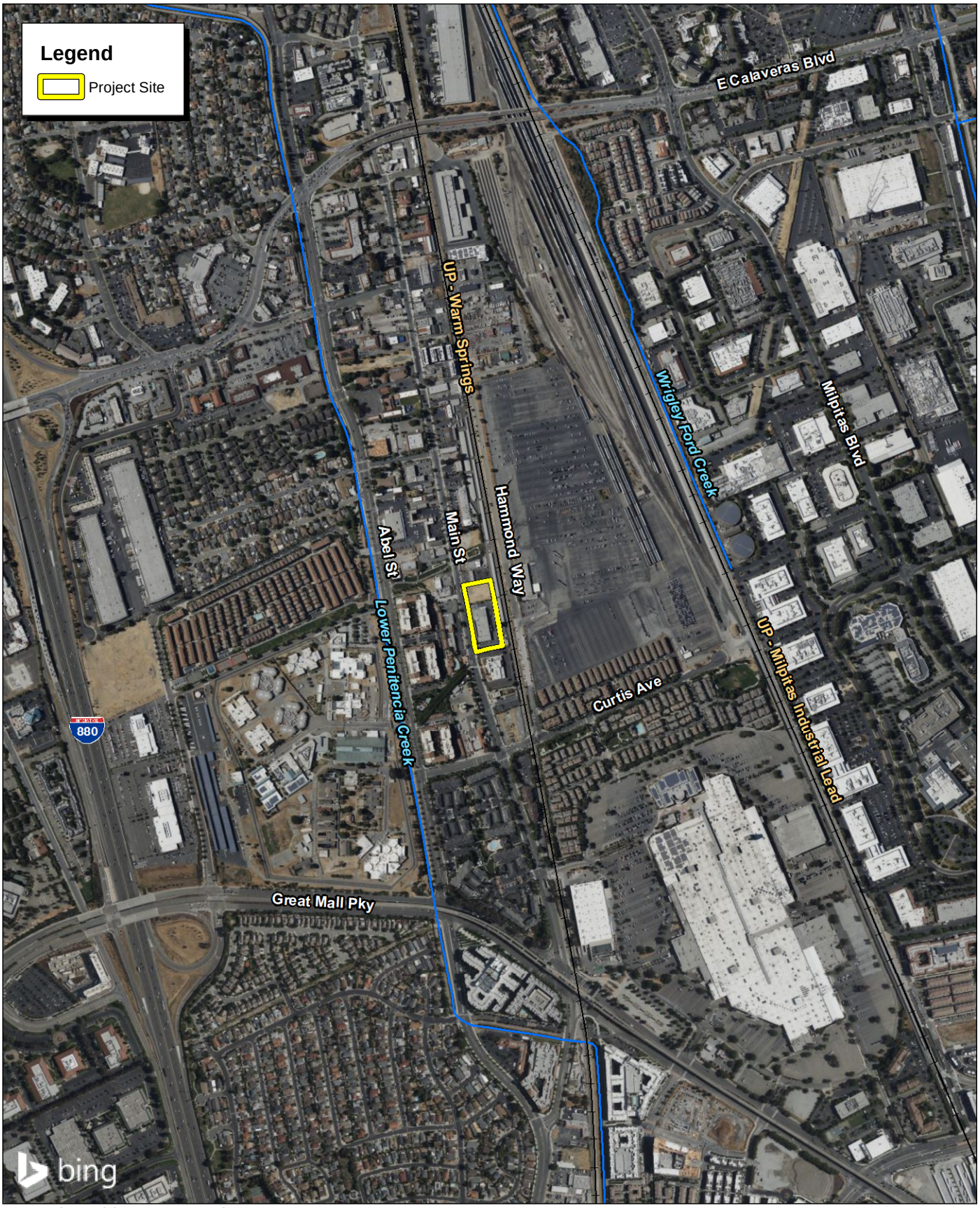
Exhibit 1
Regional Location Map



Source: Bing Aerial Imagery. Santa Clara County.

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Exhibit 2
Local Vicinity Map

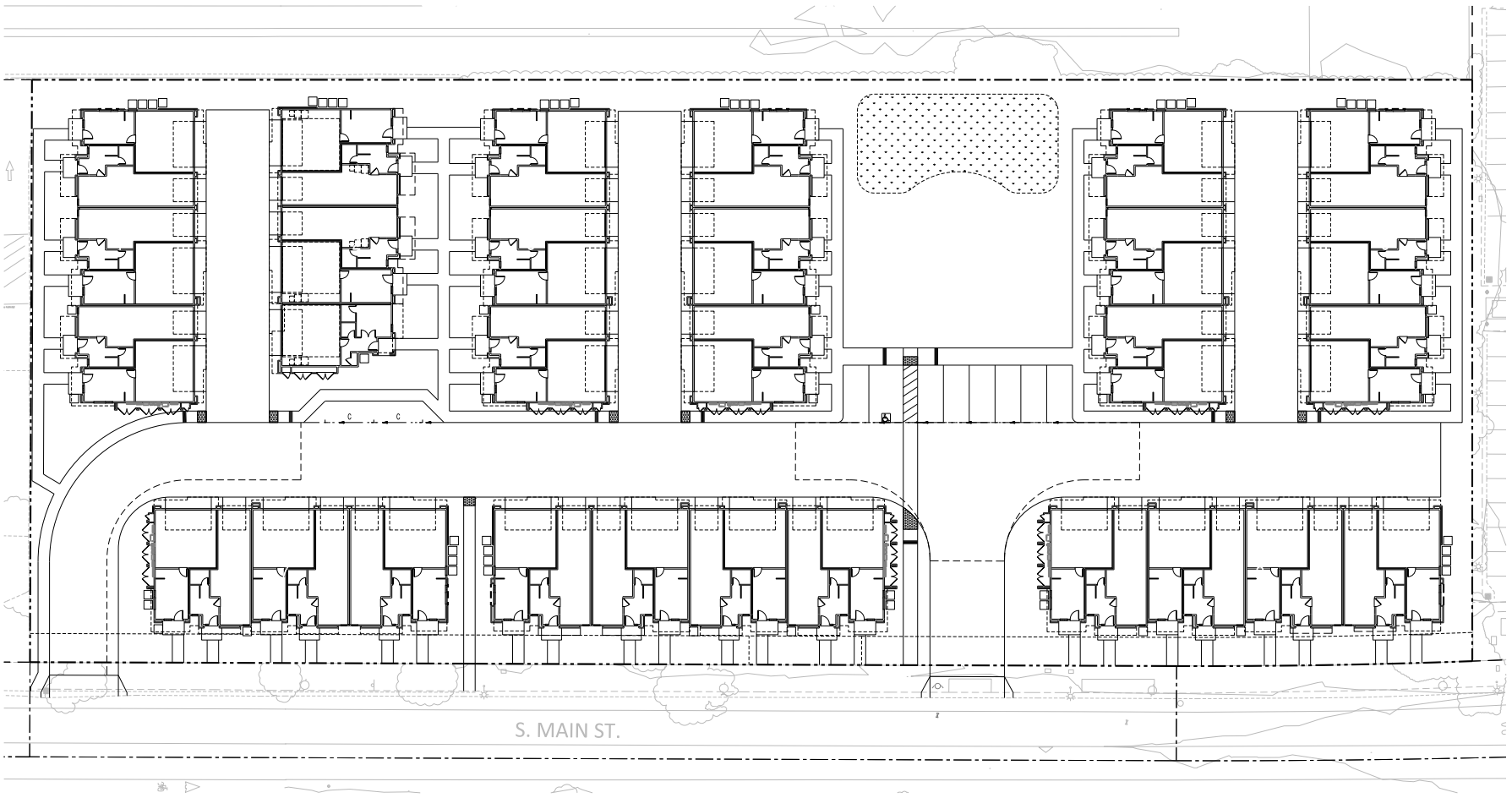

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Exhibit 3
Site Plan

ENVIRONMENTAL SETTING AND REGULATORY FRAMEWORK

The City of Milpitas is located within the San Francisco Bay Area Air Basin (Air Basin or SFBAAB). The Air Basin is approximately 5,600 square miles in area and consists of nine counties that surround the San Francisco Bay, including all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa counties; the southwestern portion of Solano County; and the southern portion of Sonoma County. The San Francisco Bay Area has a Mediterranean climate characterized by mild, dry summers and mild, moderately wet winters, moderate daytime onshore breezes, and moderate humidity.

A semi-permanent, high-pressure area centered over the northeastern Pacific Ocean dominates the summer climate of the West Coast. Because this high-pressure cell is persistent, storms rarely affect the California coast during the summer. Thus, the conditions that persist along the coast of California during summer are a northwest airflow and negligible precipitation. A thermal low-pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the Bay Area much of the summer.

The steady northwesterly flow around the eastern edge of the Pacific High (a high-pressure cell) exerts stress on the ocean surface along the West Coast. This airflow pattern induces upwelling of cold water from below the surface. Upwelling produces a band of cold water off San Francisco that is approximately 80 miles wide. During July, the surface waters off San Francisco are 3°F (degrees Fahrenheit) cooler than those off Vancouver, British Columbia, more than 900 miles to the north. Air approaching the California coast, already cool and moisture-laden from its long trajectory over the Pacific Ocean is further cooled as it flows across this cold bank of water near the coast, thus accentuating the temperature contrast across the coastline. This cooling is often sufficient to produce condensation–a high incidence of fog and stratus clouds along the Northern California coast in summer.

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the gap in the western Coast Ranges, known as the Golden Gate, and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream, producing southwest winds at Berkeley and northwest winds at San José; a branch also curves eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Golden Gate, the Carquinez Strait, or San Bruno Gap. For example, the average wind speed at San Francisco International Airport from 3:00 a.m. to 4:00 p.m. in July is about 20 miles per hour (mph), compared with only about 8 mph at San José and less than 7 mph at the Farallon Islands.

The sea breeze between the coast and the Central Valley[2] commences near the surface along the coast in late morning or early afternoon; it may first be observed only through the Golden Gate. Later in the day, the layer deepens and intensifies while spreading inland. As the breeze intensifies and deepens, it flows over the lower hills farther south along the peninsula. This process frequently can be observed as a bank of stratus clouds “rolling over” the coastal hills on the west side of the Bay. The depth of the sea breeze depends in large part upon the height and strength of the inversion. The generally low elevation

of this stable layer of air prevents marine air from flowing over the coastal hills. It is unusual for the summer sea breeze to flow over terrain exceeding 2,000 feet in elevation.

In winter, the SFBAAB experiences periods of storminess, moderate-to-strong winds, and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon, and otherwise light and variable winds.

A primary factor in air quality is the mixing depth (the vertical air column available for diluting contaminant sources). Generally, the air temperature decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation caused by the sun converting large amounts of energy to sensible heat at the ground, which warms the air at the surface. The warm air rises in the atmosphere, where it expands and cools. Sometimes, however, the temperature of air increases with height. This condition is known as a temperature inversion because the atmosphere's temperature profile is "inverted" from its usual state. Over the SFBAAB, the frequent occurrence of temperature inversions limits mixing depth and, consequently, limits the availability of air for dilution.

Air Pollutant Types, Sources, and Effects

Criteria Air Pollutants

Air pollutants are termed criteria air pollutants if they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Table 1 provides a summary of the types, sources, and effects of criteria air pollutants.

Table 1: Description of Criteria Pollutants of National and California Concern

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Ozone	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), nitrous oxides (NO_X), and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_X) are mobile sources (on-road and off-road vehicle exhaust).	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.
Particulate matter (PM_{10})	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction	Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute
Particulate matter ($PM_{2.5}$)			

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (one micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	bronchitis; those with heart disease can suffer heart attacks and arrhythmias. Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Nitrogen dioxide (NO_2)	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_X is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_X can react with compounds to form nitric acid and related small particles and result in particulate matter related health effects.	NO_X is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide forms quickly from NO_X emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contributions to atmospheric discoloration; increased visits to hospital for respiratory illnesses.
Carbon monoxide (CO)	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.
Sulfur dioxide (SO_2)	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 parts per million (ppm), the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_X) include sulfur dioxide and sulfur	Human caused sources include fossil fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-

Criteria Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below State and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	source of sulfur dioxide. The gas can also be produced in the air by dimethyl sulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.	based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.
Lead (Pb)	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded State or federal standards at any monitoring station since 1982.	Lead ore crushing, lead ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Sources:

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Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of air quality conditions. Air pollutant human exposure standards are identified for many TACs, including the following common TACs relevant to development projects: particulate matter, fugitive dust, lead, and asbestos. These air pollutants are called TACs because they are air pollutants that may cause or contribute to an increase in mortality or in serious illness or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health impact may pose a threat to public health even at low concentrations. TACs can cause long-term health effects (such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage) or short-term acute affects (such as eye watering, respiratory irritation, runny nose, throat pain, or headaches).

TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to a particular TAC. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is typically expressed as excess cancer cases per million exposed individuals, typically over a lifetime exposure or other prolonged duration. For noncarcinogenic substances, there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels may vary depending on the specific pollutant. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to an acceptable reference exposure levels (RELs). Table 2 provides a summary of the types, sources, and effects of TACs.

Table 2: Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Diesel Particulate Matter (DPM)	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and	Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	various pieces of stationary construction equipment.	Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.
VOCs	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.	Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as TACs.
Benzene	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at 1 to 2 percent by volume. The primary route of human exposure is through inhalation.	Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.
Asbestos	Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of	Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.	Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
	asbestos are chrysotile, amosite, and crocidolite.		causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.
Hydrogen Sulfide	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.
Sulfates	Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardiopulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.
Visibility-Reducing Particles	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal; and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravates existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Vinyl Chloride	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, the California Air Resources Board (ARB) identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.
Lead (Pb)	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded State or federal standards at any monitoring station since 1982.	Lead ore crushing, lead ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

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Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

Regional Air Quality

The Bay Area Air Quality Management District (BAAQMD) is the regional agency regulating air quality within the nine-county SFBAAB. The SFBAAB includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the western portion of Solano County, and the southern portion of Sonoma County.

Air Pollutant Standards and Attainment Designations

Air pollutant standards have been adopted by the EPA and the ARB for the following six criteria air pollutants that affect ambient air quality: ozone, NO_2, CO, SO_2, lead, and PM, which is subdivided into two classes based on particle size: PM with aerodynamic diameters equal to or less than 10 microns (PM_{10}), and PM with aerodynamic diameters equal to or less than 2.5 microns ($PM_{2.5}$). These air pollutants are called "criteria air pollutants" because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. California has also established standards for TACs such as visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 3 presents the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for these aforementioned air pollutants. Note that there are no State or federal ambient air quality standards for reactive organic gases (ROGs), benzene, or DPM.

Table 3: Federal and State Air Quality Standards in the San Francisco Bay Area Air Basin

Air Pollutant	Averaging Time	California Standard (CAAQS)	Federal Standard[a] (NAAQS)
Ozone	1 Hour	0.09 ppm	—
	8 Hours	0.070 ppm	0.070 ppm[f]
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm
	Annual	0.030 ppm	0.053 ppm

Air Pollutant	Averaging Time	California Standard (CAAQS)	Federal Standard[a] (NAAQS)
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm
	8 Hours	9.0 ppm	9 ppm
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm
	3 Hours	—	0.5 ppm
	24 Hours	0.04 ppm	0.14 (for certain areas)
	Annual	—	0.030 ppm (for certain areas)
Lead[e]	30-day	1.5 µg/m^3	—
	Quarter	—	1.5 µg/m^3
	Rolling 3-month average	—	0.15 µg/m^3
Particulate matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3
	Mean	20 µg/m^3	—
Particulate matter ($PM_{2.5}$)	24 Hours	—	35 µg/m^3
	Annual	12 µg/m^3	12.0 µg/m^3
Visibility-reducing particles	8 Hours	See note below[d]	
Sulfates	24 Hours	25 µg/m^3	—
Hydrogen sulfide	1 Hour	0.03 ppm	—
Vinyl chloride[e]	24 Hours	0.01 ppm	—

Notes:
ppm = parts per million (concentration)
µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean
30-day = 30-day average
Quarter = Calendar quarter

a Federal standard refers to the primary National Ambient Air Quality Standard (NAAQS), or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3-Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

b To attain the 1-hour nitrogen dioxide national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (0.100 ppm).

c On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 part per billion (ppb). The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

d Visibility-reducing particles: In 1989, the ARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the Statewide and Lake Tahoe Air Basin standards, respectively.

Air Pollutant	Averaging Time	California Standard (CAAQS)	Federal Standard[a] (NAAQS)

e The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for implementing control measures at levels below the ambient concentrations specified for these pollutants.
f The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard went into effect 60 days after publication the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015, and became effective on December 28, 2015.
Source:
California Air Resources Board (ARB). 2016. Ambient Air Quality Standards. May 4. Website: https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf. December 2, 2021.

Air quality monitoring stations operated by the ARB and BAAQMD measure ambient air pollutant concentrations in the SFBAAB. In general, the SFBAAB experiences low concentrations of most pollutants compared to federal or State standards.

Both the EPA and ARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. These designations identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. "Attainment" status refers to those regions that are meeting federal and/or State standards for a specified criteria pollutant. "Nonattainment" refers to regions that do not meet federal and/or State standards for a specified criteria pollutant. "Unclassified" refers to regions with insufficient data to determine the region's attainment status for a specified criteria air pollutant. Each standard has a different definition, or "form" of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the 3-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

Table 4 shows the current attainment designations for the SFBAAB. The SFBAAB is designated as nonattainment for the State ozone, PM_{10}, and $PM_{2.5}$ standards, and the national ozone and $PM_{2.5}$ standards.

Table 4: San Francisco Bay Area Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	N/A
PM_{10}	Nonattainment	Unclassified

Pollutant	State Status	National Status
$PM_{2.5}$	Nonattainment	Nonattainment
Sulfates	Attainment	N/A
Hydrogen Sulfates	Unclassified	N/A
Visibility-reducing Particles	Unclassified	N/A
Lead	N/A	Attainment
Notes: N/A = information not available. Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. January 5. Website: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. December 2, 2021.		

Air Quality Index

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest comparison is to the State and federal ozone standards. If concentrations are below the standard, it is safe to say that no health impact would occur to anyone. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 5 provides a general description of the health impacts of ozone at different concentrations.

Table 5: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI—0–50—Good Concentration 0–54 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: None.
	Cautionary Statements: None.
AQI—51–100—Moderate Concentration 55–70 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI—101–150—Unhealthy for Sensitive Groups Concentration 71–85 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults, and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI—151–200—Unhealthy Concentration 86–105 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI—201–300—Very Unhealthy Concentration 106–200 ppb	**Sensitive Groups**: Children and people with asthma are the groups most at risk.
	Health Effects Statements: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Source: Air Now. n.d. AQI Calculator: AQI to Concentration Calculator. Website: https://www.airnow.gov/aqi/aqi-calculator. Accessed December 2, 2021.	

Local Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. The air quality monitoring station closest to the project site is the San José–Jackson Street Air Monitoring Station, located approximately 5 miles south of the project site. Table 6 summarizes the recorded ambient air data at the representative monitoring station for the years 2018 through 2020, which is the most current data available at the time of this analysis. As Table 6 shows, the recorded data show exceedances of the California standards for ozone (1-hour and 8-hour) and PM_{10}, and national standards for 8-hour ozone, NO_2, $PM_{2.5}$, and PM_{10} on multiple occasions from 2018 through 2020. No recent monitoring data for Santa Clara County or the SFBAAB was available for CO or SO_2. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 6: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2018	2019	2020
Ozone	1 Hour	Max 1-Hour (ppm)	0.078	0.095	0.106
		Days > State Standard (0.09 ppm)	0	1	1

Air Pollutant	Averaging Time	Item	2018	2019	2020
	8 Hour	Max 8-Hour (ppm)	0.061	0.082	0.086
		Days > State Standard (0.07 ppm)	0	2	2
		Days > National Standard (0.070 ppm)	0	2	2
CO	8 Hour	Max 8-Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
NO_2	Annual	Annual Average (ppm)	0.012	0.010	0.009
	1 Hour	Max 1-Hour (ppm)	0.086	0.060	0.052
		Days > State Standard (0.18 ppm)	0	0	0
SO_2	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24-Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})	Annual	Annual Average (µg/m^3)	23.1	19.1	24.8
	24 Hour	Max 24-Hour (µg/m^3)	121.8	77.1	137.1
		Days > State Standard (50 µg/m^3) (3)	4	4	10
		Days > National Standard (150 µg/m^3)	0	0	0
Fine particulate matter ($PM_{2.5}$)	Annual	Annual Average (µg/m^3)	12.9	9.1	11.5
	24 Hour	Max 24-Hour (µg/m^3)	133.9	34.4	120.5
		Days > National Standard (35 µg/m^3)	15	0	12

Notes:
> = exceed
ppm = parts per million
µg/m^3 = micrograms per cubic meter
ID = insufficient data
ND = no data
max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard (CAAQS).
National Standard = National Ambient Air Quality Standard (NAAQS).

Sensitive Receptors

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others are. Land uses such as residences, schools, day care centers, hospitals, nursing and convalescent homes, and parks are considered the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would receive exposure to air pollution 24 hours per day, 350 days per year, for 30 years. The BAAQMD defines sensitive receptors as children, adults, and seniors

occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior care facilities.

Project Vicinity

The closest off-site air pollution sensitive receptors near the project site in each direction include the following:

- Ready Preschool approximately 790 feet northwest of the project site.
- A multi-family residence approximately 370 feet west of the project site.
- A multi-family residence approximately 580 feet southwest of the project site.
- A multi-family residence approximately 430 feet southeast of the project site.

Project Vicinity

The primary sources of air pollutants (both criteria air pollutant and TACs) in the project site vicinity include the various other surrounding industrial properties, building-related energy use, and motor-related vehicle trips associated with the local business use, particularly from the Union Pacific Railroad Company. The project site is located approximately 1,500 feet west of Union Pacific and approximately 2,900 feet east of Interstate 880 (I-880). Other activities that result in emissions include space and water heating, landscape maintenance, and any surrounding industrial uses that can store, produce, decommission, or otherwise handle hazardous materials.

Existing Emission Sources

The Montessori School of Silicon Valley and Game Time Elite Gymnastics currently operate on the 1.6-acre site. There is regular activity from the business that would generate greenhouse gas (GHG) emissions. However, because the operative status of existing uses is unknown at the time this analysis was prepared, the emissions generated from operation of land uses currently on the project site were not quantified and considered when analyzing net emission generation from the proposed project. As such, this approach represents a conservative assessment of the proposed project's emissions generation.

Regulatory Framework

Federal

Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground-level ozone, CO, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards. The NAAQS provide benchmarks for determining whether air quality is healthy at specific locations and

whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO_2)
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The NAAQS were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal CAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies.

EPA Emission Standards for New Off-Road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, the EPA established emission standards for hydrocarbons, NO_X, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the EPA, as well as by the ARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

State

California Air Quality Control Plan (State Implementation Plan)

An SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The SIP for the State of California is administered by the ARB, which has overall responsibility for Statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to the ARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms for attaining and maintaining air quality standards.

Areas designated nonattainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional State and local regulation is required to achieve the standards.

California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation, and required additional actions beyond the federal mandates. The ARB administers the CAAQS for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six federal standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are more stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

Other ARB responsibilities include but are not limited to overseeing local air district compliance with California and federal laws; approving local air quality plans; submitting SIPs to the EPA; monitoring air quality; determining and updating area designations and maps; conducting basic research aimed at providing a better understanding between emissions and public well-being, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

California Health and Safety Code Section 39655 and California Code of Regulations Title 17 Section 93000 (Substances Identified as Toxic Air Contaminants)

The ARB identifies substances as TACs as defined in Health and Safety Code Section 39655 and listed in Title 17, Section 93000 of the California Code of Regulations, "Substances Identified As Toxic Air Contaminants." A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there are thresholds set by regulatory agencies below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal government have set ambient air quality standards. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM) from diesel-fueled engines.

California Low Emission Vehicle Program

The ARB first adopted Low Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 SIP. In 2012, the ARB adopted the LEV III amendments to California's LEV regulations. These amendments, also known as the Advanced Clean Car Program, include more stringent emission standards for model years 2017 through 2025 for both criteria pollutants and GHG emissions for new passenger vehicles.

California On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. The ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others.

California In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, the ARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_X emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014, for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

The latest amendments to the Truck and Bus regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks.

California Airborne Toxic Control Measures for Asbestos

The ARB has adopted Airborne Toxic Control Measures (ATCM) for sources that emit a particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

In July 2001, the ARB approved an ATCM for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of Best Management Practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading,

quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an ATCM for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near the project site.[1]

Verified Diesel Emission Control Strategies

The EPA and the ARB tiered off-road emission standards only apply to new engines and off-road equipment can last several years. The ARB has developed Verified Diesel Emission Control Strategies (VDECS), which are devices, systems, or strategies used to achieve the highest level of pollution control from existing off-road vehicles, to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of DPM emissions and have been verified by ARB. There are three levels of VDECS, the most effective of which is the Level 3 VDECS. Tier 4 engines are not required to install VDECS because they already meet the emissions standards for lower tiered equipment with installed controls.

California Diesel Risk Reduction Plan

The ARB Diesel Risk Reduction Plan has led to the adoption of new State regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines, and vehicles to reduce DPM emissions in 2020 by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full

[1] Department of Conservation. 2011. Map Sheet 59: Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Website: https://www.conservation.ca.gov/cgs/Documents/Publications/Map-Sheets/MS_059_Plate.pdf. Accessed December 3, 2021.

implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020.

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), also known as the Hot Spots Act. To date, the ARB has identified more than 21 TACs, and has adopted the EPA's list of Hazardous Air Pollutants (HAPs) as TACs.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), a partnership between the ARB and local air districts, issues grants to replace or retrofit older engines and equipment with engines and equipment that exceed current regulatory requirements to reduce air pollution. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the SFBAAB, the BAAQMD administers the Carl Moyer Program. The program has established guidelines and criteria for the funding of emissions reduction projects and has established cost-effectiveness criteria for funding emission reductions projects, which under the final 2017 Carl Moyer Program Guidelines are $30,000 per weighted ton of NO_X, ROG, and PM.

Regional

BAAQMD California Environmental Quality Act Air Quality Guidelines

The BAAQMD is the primary agency responsible for ensuring that air quality standards (NAAQS and CAAQS) are attained and maintained in the SFBAAB through comprehensive planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB and prepares ozone attainment plans for the national ozone standard, clean air plans for the California standard, and PM plans to fulfill federal air quality planning requirements. The BAAQMD also inspects stationary sources of air pollution; responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA and the CCAA.

The BAAQMD developed quantitative thresholds of significance for its California Environmental Quality Act (CEQA) Guidelines in 2010, which were also included in its updated 2011 Guidelines. The BAAQMD's adoption of the 2010 thresholds of significance was later challenged in court. In an opinion issued on December 17, 2015, related to the BAAQMD CEQA Guidelines, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the proposed project would exacerbate existing environmental hazards. The California Supreme Court also found that CEQA requires the analysis of exposing people to environmental hazards in specific circumstances, including the location of development near airports, schools near sources of toxic contamination, and certain exemptions for infill and workforce housing.

The California Supreme Court also held that public agencies remain free to voluntarily conduct this analysis not required by CEQA for their own public projects (*CBIA v. BAAQMD (2016)* 2 Cal.App.5th 1067, 1083).

In view of the California Supreme Court's opinion, the BAAQMD published a new version of its CEQA Guidelines in May 2017. The BAAQMD CEQA Guidelines state that local agencies may rely on thresholds designed to reflect the impact of locating development near areas of toxic air contamination where CEQA requires such an analysis, or where the agency has determined that such an analysis would assist in making a decision about the proposed project. However, the thresholds are not mandatory, and agencies should apply them only after determining that they reflect an appropriate measure of a project's impacts. The BAAQMD's guidelines for implementing the thresholds are for informational purposes only, to assist local agencies.

BAAQMD Particulate Matter Plan

To fulfill federal air quality planning requirements, the BAAQMD adopted a $PM_{2.5}$ emissions inventory for the year 2010 at a public hearing on November 7, 2012. The Bay Area Clean Air Plan also included several measures for reducing PM emissions from stationary sources and wood burning. On January 9, 2013, the EPA issued a final rule determining that the Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS, suspending federal SIP planning requirements for the SFBAAB. Despite this EPA action, the SFBAAB will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until the BAAQMD submits a redesignation request and a maintenance plan to the EPA, and the EPA approves the proposed redesignation.

The Air Basin is designated nonattainment for the State PM_{10} and $PM_{2.5}$ standards, but the Air Basin is currently unclassified for the federal PM_{10} standard and nonattainment for federal $PM_{2.5}$ standards. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006, and designated the Air Basin as nonattainment for the new $PM_{2.5}$ standard effective December 14, 2009.

On December 8, 2011, the ARB submitted a "clean data finding" request to the EPA on behalf of the Bay Area. If the clean data finding request is approved, then EPA guidelines provide that the region can fulfill federal $PM_{2.5}$ SIP requirements by preparing either a redesignation request and a $PM_{2.5}$ maintenance plan, or a "clean data" SIP submittal. Because peak $PM_{2.5}$ levels can vary from year to year based on natural, short-term changes in weather conditions, the BAAQMD believes that it would be premature to submit a redesignation request and $PM_{2.5}$ maintenance plan at this time. Therefore, the BAAQMD will prepare a "clean data" SIP to address the required elements, including:

- An emission inventory for primary $PM_{2.5}$, as well as precursors to secondary PM formation
- Amendments to the BAAQMD's New Source Review regulation to address $PM_{2.5}$

BAAQMD 2017 Clean Air Plan

In May 2017, the BAAQMD adopted the final Bay Area 2017 Clean Air Plan. The BAAQMD prepared the 2017 Clean Air Plan in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). The goals of the 2017 Clean Air Plan are to reduce

regional air pollutants and climate pollutants to improve the health of Bay Area residents for the next decades. The 2017 Clean Air Plan aims to lead the region into a post-carbon economy, continue progress toward attaining all State and federal air quality standards, and eliminate health risk disparities from air pollution exposure in Bay Area communities. The Plan includes 85 distinct control measures to help the region reduce air pollutants and has a long-term strategic vision that forecasts what a clean air Bay Area will look like in the year 2050. The 2017 Clean Air Plan envisions a future whereby the year 2050:

- Buildings will be energy efficient—heated, cooled and powered by renewable energy.
- Transportation will be a combination of electric vehicles, both shared and privately owned; autonomous public transit fleets; with a large share of trips by bicycling, walking, and transit.
- The Bay Area will be powered by clean, renewable electricity and will be a leading incubator and producer of clean energy technologies leading the world in the carbon-efficiency of our products.
- Bay Area residents will have developed a low-carbon lifestyle by driving electric vehicles, living in zero-net-energy homes, eating low-carbon foods, and purchasing goods and services with low carbon content.
- Waste will be greatly reduced, waste products will be re-used or recycled, and all organic waste will be composted and put to productive use.

The focus of control measures includes aggressively targeting the largest source of GHG, ozone pollutants and particulate matter emissions—transportation. This includes more incentives for electric vehicle (EV) infrastructure, off-road electrification projects such as Caltrain and shore power at ports, and reducing emissions from trucks, school buses, marine vessels, locomotives, and off-road equipment. Additionally, the BAAQMD will continue to work with regional and local governments to reduce vehicle miles traveled through the further funding of rideshare, bike and shuttle programs.

BAAQMD Regulations

Regulation 2, Rule 1 (Permits–General Requirements)

The BAAQMD regulates new sources of air pollution and the modification and operation of existing sources through the issuances of authorities to construct and permits to operate. Regulation 2, Rule 1 provides an orderly procedure which the project would be required to comply with to receive authorities to construct or permits to operate from the BAAQMD for new sources of air pollutants, as applicable.

Regulation 2, Rule 5 (New Source Review Permitting)

The BAAQMD regulates backup emergency generators, fire pumps, and other sources of TACs through its New Source Review (Regulation 2, Rule 5) permitting process. Although emergency generators are intended for use only during periods of power outages, monthly testing of each generator is required; however, the BAAQMD limits testing to no more than 50 hours per year. Each emergency generator installed is assumed to meet a minimum of Tier 2 emission standards (before control measures). As part of the permitting process, the BAAQMD limits the excess cancer risk from any facility to no more than 10 per 1-million-population for any permits that are applied for within a 2-year period and would require

any source that would result in an excess cancer risk greater than 1 per 1 million to install BACT for Toxics.

Regulation 6, Rule 1 (Particulate Matter–General Requirements)

The BAAQMD regulates particulate matter emissions through Regulation 6 by means of establishing limitations on emission rates, emissions concentrations, and emission visibility and opacity. Regulation 6, Rule 1 provides existing standards for particulate matter emissions that could result during project construction or operation that the project would be required to comply with, as applicable, such as the prohibition of emissions from any source for a period or aggregate periods of more than three minutes in any hour which are equal to or greater than 20 percent opacity.

Regulation 6, Rule 6, (Particulate Matter–Prohibition of Trackout)

One rule by which the BAAQMD regulates particulate matter includes Regulation 6, Rule 6, which prohibits particulate matter trackout during project construction and operation. Regulation 6, Rule 6 requires the prevention or timely cleanup of trackout of solid materials onto paved public roads outside the boundaries of large bulk material sites, large construction sites, and large disturbed surface sides such as landfills.

Regulation 8, Rule 3 (Architectural Coatings)

This rule governs the manufacture, distribution, and sale of architectural coatings and limits the ROG content in paints and paint solvents. Although this rule does not directly apply to the proposed project, it does dictate the ROG content of paint available for use during the construction.

Regulation 8, Rule 15 (Emulsified and Liquid Asphalts)

Although this rule does not directly apply to the proposed project, it does dictate the reactive organic gases content of asphalt available for use during the construction through regulating the sale and use of asphalt and limits the ROG content in asphalt.

Regulation 9, Rule 8 (Inorganic Gaseous Pollutants – Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines)

Under Regulation 9, Rule 8, the BAAQMD regulates the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower. As such, any proposed stationary source equipment (e.g., backup generators, fire pumps) which would be greater than 50 horsepower would require a BAAQMD permit under Regulation 9, Rule 8 to operate.

Regulation 11, Rule 2 (Hazardous Pollutants – Asbestos Demolition, Renovation, and Manufacturing)

Under Regulation 11, Rule 2, the BAAQMD regulates emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing, and establish appropriate waste disposal procedures. Any of these activities which pose the potential to generate emissions of airborne asbestos are required to comply with the appropriate provisions of this regulation.

Regulation 1, Rule 301 (Odorous Emissions)

The BAAQMD is responsible for investigating and controlling odor complaints in the Bay Area. The agency enforces odor control by helping the public to document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year, averaged over 3 years is considered to have a substantial effect on receptors.

Several BAAQMD regulations and rules apply to odorous emissions. Regulation 1, Rule 301 is the nuisance provision that states that sources cannot emit air contaminants that cause nuisance to several people. Regulation 7 specifies limits for the discharge of odorous substances where the BAAQMD receives complaints from 10 or more complainants within a 90-day period. Among other things, Regulation 7 precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with four parts of odor-free air and specifies maximum limits on the emission of certain odorous compounds.

Lastly, the BAAQMD enforces the Portable Equipment Registration Program (PERP) ATCM on behalf of the ARB. Under the PERP, owners or operators of portable engines and other types of equipment which meet the qualifications of the ATCM can register their equipment to operate throughout California. However, owners and operators of portable engines which meet the qualifications of this ATCM that do not register their equipment under the PERP must obtain individual permits from local air districts. Permits issued under the PERP must be honored by all air districts throughout California.

Plan Bay Area

On July 18, 2013, ABAG and the MTC approved the Plan Bay Area. The Plan Bay Area includes integrated land use and transportation strategies for the region and was developed through OneBayArea, a joint initiative between ABAG, BAAQMD, MTC, and the San Francisco Bay Conservation and Development Commission. The plan's transportation policies focus on maintaining the extensive existing transportation network and utilizing these systems more efficiently to handle density in Bay Area transportation cores. Assumptions for land use development come from local and regional planning documents. Emission forecasts in the Bay Area Clean Air Plan rely on projections of vehicle miles traveled, population, employment, and land use projections made by local jurisdictions during development of Plan Bay Area. The Plan Bay Area 2050 was adopted 2021 and is the most recent update to the Plan Bay Area.

Plan Bay Area 2050, published by the MTC and ABAG, is a long-range integrated transportation and land use/housing strategy through 2050 for the Bay Area. Plan Bay Area 2050 functions as the sustainable communities' strategy mandated by Senate Bill (SB) 375. As a regional land use plan, Plan Bay Area 2050 aims to reduce per capita GHG emissions by promoting more compact, mixed-use residential and commercial neighborhoods located near transit. Plan Bay Area 2050 is a limited and focused update that builds upon a growth pattern and strategies developed in the original Plan Bay Area but with updated

planning assumptions that incorporate key economic, demographic, and financial trends from the release of the previous Plan Bay Area version.

Local

City of Milpitas General Plan 2040

The City of Milpitas adopted its General Plan on March 9, 2021, which contains objectives and policies that help address air quality and reduce the community's vulnerability to air pollution. The following objectives and policies from the City's General Plan are relevant to air quality and apply to the proposed project:

CON 7-1 Ensure that land use and transportation plans support air quality goals through a logical development pattern that focuses growth in and around existing urbanized areas, locates new housing near places of employment, encourages alternative modes of transportation, supports efficient parking strategies, reduces vehicle miles traveled, and requires projects to mitigate significant air quality impacts

CON 7-2 Minimize exposure of the public to toxic or harmful air emissions and odors through requiring an adequate buffer or setback distance between residential and other sensitive land uses and land uses that typically generate air pollutants, toxic air contaminants, or obnoxious fumes or odors, including but not limited to industrial, manufacturing, and processing facilities, high-volume roadways, and industrial rail lines. New sensitive receptors, such as residences (including residential care and assisted living facilities for the elderly), childcare centers, schools, playgrounds, churches, and medical facilities shall be located away from existing point sources of air pollution such that excessive levels of exposure do not result in unacceptable health risks. Compliance shall be verified through the preparation of a Health Risk Assessment when deemed necessary by the Planning Director.

CON 7-3 Require projects which generate high levels of air pollutants, such as heavy industrial, manufacturing facilities and hazardous waste handling operations, to incorporate air quality mitigations in their design to reduce impacts to the greatest extent feasible.

CON 7-4 Require projects to adhere to the requirements of the Bay Area Air Quality Management District (BAAQMD).

CON 7-5 Use the City's development review process and the California Environmental Quality Act (CEQA) to evaluate and mitigate the local and cumulative effects of new development on air quality.

CON 7-6 Coordinate with the California Air Resources Board (ARB) and the Bay Area Air Quality Management District to properly measure air quality emission sources and enforce the standards of the Clean Air Act.

CON 7-7 Comply with regional and federal standards and programs for control of all airborne pollutants and noxious odors, regardless of source.

CON 7-8 Consider the health risks associated with Toxic Air Contaminants (TACs) when reviewing development applications.

CON 7-9 Coordinate with Santa Clara County and nearby cities to implement regional GHG reduction plans and to consolidate efforts to reduce GHGs throughout the county as appropriate.

CON 7-10 Implement policies and action from the Land Use and Circulation Elements to provide mixed-use developments, locate high-density uses near transit facilities, provide neighborhood-serving retail uses convenient to residential neighborhoods, and other Transportation Demand Management (TDM) programs that would reduce vehicle trips and vehicle miles traveled, thus reducing air pollutant emissions.

CON 7-11 Encourage improvements and design features that reduce vehicle delay such as bus turnouts, and synchronized traffic signals for new development to reduce excessive vehicle emissions caused by idling.

CON 7-12 Encourage and prioritize infrastructure investments and improvements that promote safe walking, bicycling and increased transit ridership.

CON 7-13 Implement energy policies and actions that have co-benefits of reduced air pollution and greenhouse gases by increasing energy efficiency, conservation, and the use of renewable resources.

City of Milpitas Climate Action Plan

The City of Milpitas Climate Action Plan (Milpitas CAP) contains the following GHG actions and measures.

Measure 5.1 Increased densities: continue to promote the increase of density and mixed uses in key opportunity areas, including the Midtown Specific Plan, Transit Area Specific Plan, and town center areas.

Action A Require new development to include two or more uses per building if located along identified corridors or in a specific plan area.

Measure 5.2 Urban plazas: encourage development of urban plazas in new development in the Transit Area Specific Plan, Midtown Specific Plan, and town center areas to encourage pedestrian activity and vibrant mixed-use centers that reduce vehicular activity.

Measure 6.1 Transit density: support high levels of ridership at the new BART station by encouraging higher density, mixed uses, and connectivity along transit corridors and at transit nodes.

Measure 12.1 Lawn and garden equipment support a community-wide transition to cleaner outdoor lawn and garden equipment.

Action C Require new buildings to provide accessible exterior electrical outlets to charge electric powered lawn and garden equipment.

Milpitas Midtown Specific Plan Mitigation Measures

The following mitigation measures from the Milpitas Midtown Specific Plan apply to residential development projects proposed in the City of Milpitas to ensure that associated air quality impacts are less than significant. These mitigation measures are incorporated into this report as project design features required by the Midtown Specific Plan Draft EIR.

MM AIR-1 The following basic control measures are required to be implemented at all construction sites in the Midtown area. These measures shall be incorporated into construction contracts for projects in the Midtown area:

a.) Water all active construction areas twice daily and more often during windy periods. Active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives.
b.) Cover all trucks hauling soil, sand and other loose materials, or require all trucks to maintain at least two feet of freeboard.
c.) Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
d.) Sweep daily all paved access roads, parking areas and staging areas at construction sites.
e.) Sweep streets daily if visible soil material is carried on to adjacent public streets.
f.) Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
g.) Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.)
h.) Limit traffic speeds on unpaved roads to 15 miles per hour.
i.) Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
j.) Replant vegetation in disturbed areas as quickly as possible.
k.) Suspend excavation and grading activity whenever the wind is so high that it results in visible dust plumes despite control efforts.

After implementation of the listed mitigation measures, construction-related emissions would be less than significant.

MM AIR-2 The Specific Plan contains policies directed at reducing vehicle miles traveled. The Specific Plan encourages a compatible mixture of land uses, provides for a land use mix that supports major transit facilities, locates higher density development around hubs and commercial centers, provides for the continuation of pedestrian-oriented retail

development and provides pedestrian connections between the transit stations and important destinations.

Though these policies would help to reduce emissions, they would not reduce them to a level of insignificance. Due to the intensity of the development proposed, the proposed Specific Plan could not be feasibly developed without an increase in air emissions above the significance thresholds of 15 tons per year for ROG, NOX, and PM10. This impact is considered significant and unavoidable.

MM AIR-3 Due to the intensity of the development proposed, the Specific Plan could not be feasibly developed without causing an increase in regional emissions, and all feasible mitigation measures have been incorporated into the specific plan as policies. This impact is considered significant and unavoidable.

AIR QUALITY IMPACTS CONSTRAINTS ANALYSIS

According to the CEQA Guidelines Appendix G Environmental Checklist, to determine whether impacts to air quality are significant environmental effects, the following questions are analyzed and evaluated.

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?

c) Expose sensitive receptors to substantial pollutant concentrations?

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The above questions are analyzed and evaluated below.

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact with mitigation. The BAAQMD has adopted several air quality policies and plans to address the attainment and maintenance of State and federal air quality standards. The most recent BAAQMD plan is the 2017 Clean Air Plan, which was adopted in April of 2017. The 2017 Clean Air Plan serves as the regional Air Quality Plan (AQP) for the Air Basin for attaining federal ambient air quality standards. The primary goals of the 2017 Clean Air Plan are to protect public health and protect the climate. The 2017 Clean Air Plan acknowledges that the BAAQMD's two stated goals of protection are closely related. As such, the 2017 Clean Air Plan identifies a wide range of control measures intended

to decrease both criteria air pollutants[2] and GHGs.[3] The 2017 Clean Air Plan also accounts for projections of population growth provided by ABAG and Vehicle Miles Traveled (VMT) provided by the MTC and identifies strategies to bring regional emissions into compliance with federal and State air quality standards. A project would be judged to conflict with or obstruct the 2017 Clean Air Plan implementation if it would result in substantial new regional emissions not foreseen in the air quality planning process.

The BAAQMD does not provide a numerical threshold of significance for project-level consistency analysis with AQPs. Therefore, the following criteria will be used for determining a project's consistency with the AQP.

- **Criterion 1:** Does the project support the primary goals of the AQP?
- **Criterion 2:** Does the project include applicable control measures from the AQP?
- **Criterion 3:** Does the project disrupt or hinder implementation of any AQP control measures?

Criterion 1

The primary goals of the 2017 Clean Air Plan, the current AQP to date, are to:

- Attain air quality standards;
- Reduce population exposure to unhealthy air and protecting public health in the Bay Area; and
- Reduce GHG emissions and protect the climate.

A measure for determining whether the proposed project supports the primary goals of the AQP is if the proposed project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs. The development of the AQP is based, in part, on the Land Use General Plan determinations of the various cities and counties that constitute the Air Basin. The project site is designated Mixed-Use Flex (MU-F) on the City's Zoning Map and is designated Mixed Used Flex (7-24 du/ac) on the General Plan Land Use Plan. The proposed project is considered consistent with the General Plan land use designation and associated density limits as the proposed project would only include 57 attached 3-story townhome dwelling units on the approximately 2.35-acre site, resulting in an average development density of 24 dwelling units per acre. Because the proposed project would not increase the population growth, and subsequent VMT, during project operation beyond that assumed in the General Plan, and by extension the AQP, it is reasonable to conclude that the proposed project would not adversely affect the implementation of the AQP. Moreover, as further discussed under Air Quality Impact(b) and Impact(c), the proposed project would not create a localized or contribute to a regional

[2] The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six of the most common air pollutants—carbon monoxide, lead, ground-level ozone, particulate matter, nitrogen dioxide, and sulfur dioxide—known as "criteria" air pollutants (or simply "criteria pollutants").

[3] A greenhouse gas is any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, greenhouse gases are responsible for the greenhouse effect, which ultimately leads to global warming.

violation of State or federal air quality standards. Therefore, the proposed project would be consistent with Criterion 1.

Criterion 2

The 2017 Clean Air Plan contains 85 control measures that describe specific actions to reduce air pollutants and GHGs at the local, regional, and global levels. Along with the traditional stationary, area, mobile source, and transportation control measures, the 2017 Clean Air Plan contains several control measures designed to protect the climate, promote mixed use, and compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources. The 2017 Clean Air Plan also includes an account of the implementation status of control measures identified in the 2010 Clean Air Plan.

Table 7 lists the relevant Clean Air Plan policies to the proposed project and evaluates the proposed project's consistency with the policies. As shown below, the proposed project would be consistent with applicable measures.

Table 7: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
Buildings Control Measures	
BL1: Green Buildings	**Consistent.** The proposed project would not conflict with the implementation of this measure. The proposed project would comply with the latest energy efficiency standards and incorporate applicable energy efficiency features designed to reduce project energy consumption.
BL4: Urban Heat Island Mitigation	**Consistent.** The proposed project would incorporate landscaping throughout the site. The proposed project would provide landscaping, including trees, shrubs, vines, and groundcover according to City standards that would reduce the urban heat island effect.
Energy Control Measures	
EN1: Decarbonize Electricity Generation	**Consistent.** The proposed project would not conflict with the implementation of this measure. The proposed project would comply with the latest energy efficiency standards such as the 2019 California Title 24 Energy Code, including Title 24, Part 6, Subchapter 8, which would require the proposed project to incorporate rooftop solar.

Control Measure	Project Consistency
EN2: Decrease Electricity Demand	**Consistent.** The proposed project would be required to conform to the California Building Standards Code's energy efficiency requirements, also known as Title 24, which was adopted to meet an Executive Order in the Green Building Initiative to improve the energy efficiency of buildings through aggressive standards. The 2019 Title 24 Standards are the current State building regulations, which went into effect on January 1, 2020. Proposed buildings that would receive building permits after January 1, 2020, would be subject to the 2019 Title 24 Standards, including the proposed project.
Natural and Working Lands Control Measures	
NW2: Urban Tree Planting	**Consistent**. The proposed project would incorporate landscaping throughout the site. The proposed project would provide trees according to City standards that would reduce the urban heat island effect.
WA3: Green Waste Diversion	**Consistent.** The proposed project's waste service provider will be required to meet the AB 341 and SB 939 and SB 1374 requirements that require waste service providers to divert green waste.
WA4: Recycling and Waste Reduction	**Consistent.** The proposed project's waste service provider will be required to meet the AB 341 and SB 939 and SB 1374 requirements that require waste to be recycled.
Stationary Control Measures	
SS36: Particulate Matter from Trackout	**Consistent** with Mitigation. Mitigation Measure Air-1 from the Midtown Milpitas Specific Plan requires that basic control measures be incorporated into construction contracts for projects in the Midtown area. As a result, mud and dirt that may be tracked out onto the nearby public roads during construction activities would need to be removed promptly by the contractor based on the Midtown Milpitas Specific Plan requirements.
SS37: Particulate Matter from Asphalt Operations	**Consistent.** Asphalt used during project construction would be subject to BAAQMD Regulation 8, Rule 15-Emulsified and Liquid Asphalts. Although this rule does not directly apply to the proposed project, it does limit the ROG content of asphalt available for use during construction by regulating the sale and use of asphalt. Using asphalt from facilities that meet BAAQMD regulations, the proposed project would be consistent with this Clean Air Plan measure.

Control Measure	Project Consistency
Transportation Control Measures	
TR9: Bicycle and Pedestrian Access and Facilities	**Consistent.** The proposed project would be pedestrian-accessible by providing a sidewalk from the existing face of curb, within the City's existing right-of-way. Therefore, the proposed project would not obstruct or conflict with the BAAQMD's effort to encourage planning for bicycle and pedestrian facilities.
Source: Bay Area Air Quality Management District (BAAQMD). 2017. Final 2017 Clean Air Plan. April 19. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed July 13, 2021.	

In summary, the proposed project would not conflict with any applicable measures under the 2017 Clean Air Plan after implementing *Basic Construction Mitigation Measures*, as required by Mitigation Measure Air-1 Mentioned in the Midtown Milpitas Specific Plan; therefore, the proposed project would be consistent with Criterion 2 after incorporation of mitigation.

Criterion 3

The proposed project would not preclude extension of a transit line or bike path, propose excessive parking beyond parking requirements, or otherwise create an impediment or disruption to implementing any AQP control measures. Table 7 illustrates that the proposed project would incorporate several AQP control measures as project design features, such as utilizing asphalt which would be compliant with BAAQMD regulations, complying with energy efficiency standards contained in the 2019 California Building Code, and installing landscaping across the project site. Considering this information, the proposed project would not disrupt or hinder the implementation of any AQP control measures. Therefore, the proposed project would be consistent with Criterion 3.

Summary

As addressed above, the proposed project would be consistent with all three criteria after incorporating *Basic Construction Mitigation Measures*, as required by Mitigation Measure Air-1. Thus, the proposed project would not conflict with the 2017 Clean Air Plan. Therefore, impacts associated with conflicting with or obstructing the 2017 Clean Air Plan's implementation would be less than significant with mitigation incorporated.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard?

Less than significant impact. This impact is related to the cumulative effect of a project's criteria pollutant emissions. By its nature, air pollution is largely a cumulative impact resulting from emissions generated over a large geographic region. The nonattainment status of regional pollutants results from past and present development within the Air Basin, and this regional impact is a cumulative impact. Therefore, new development projects (such as the proposed project) within the Air Basin would

contribute to this impact only on a cumulative basis. No single project would be sufficient in size, by itself, to result in nonattainment of regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when evaluated in combination with past, present, and future development projects.

Potential impacts could result in exceedances of State or federal standards for nitrogen oxides (NO_X), particulate matter (PM_{10} and $PM_{2.5}$), or carbon monoxide (CO). NO_X emissions are of concern because of potential health impacts from exposure to NO_X emissions during construction and operation and as a precursor in the formation of ground-level ozone. PM_{10} and $PM_{2.5}$ are of concern during construction because of the potential to emit exhaust emissions from the operation of off-road construction equipment and fugitive dust during earth-disturbing activities (construction fugitive dust). Particulate matter is also of concern during both construction and operation due to the operation of motor vehicles generating aerated brake particulates and aerated tire particulates from vehicle wear and tear. CO emissions are of concern during project operation because operational CO hotspots are related to increases in on-road vehicle congestion and their consequential health impacts.

ROG emissions are also important because of their participation in the formation of ground-level ozone. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections that can cause substantial damage to vegetation and other materials. Excessive ozone concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children.

The cumulative analysis focuses on whether a specific project would result in cumulatively considerable emissions. According to Section 15064(h)(4) of the CEQA Guidelines, the existence of significant cumulative impacts caused by other projects alone does not constitute substantial evidence that the project's incremental effects would be cumulatively considerable. Rather, the determination of cumulative air quality impacts for construction and operational emissions is based on whether that project would result in emissions that exceed the BAAQMD thresholds of significance for construction and operations on a project level. The thresholds of significance represent the allowable emissions each project can generate without generating a cumulatively considerable contribution to regional air quality impacts. Therefore, a project that would not exceed the BAAQMD thresholds of significance on a project level also would not be considered to result in a cumulatively considerable contribution to these regional air quality impacts. Construction and operational emissions are discussed separately below.

Construction Emissions

Construction Fugitive Dust

The BAAQMD bases the determination of significance for fugitive dust on considering the control measures to be implemented. If the appropriate emissions control measures are implemented for a project as recommended by the BAAQMD, then fugitive dust emissions during construction are not considered significant. The proposed project would implement the Midtown Milpitas Specific Plan's Mitigation Measure Air-1, which includes the following measures:

a) Water all active construction areas twice daily and more often during windy periods. Active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives.

b) Cover all trucks hauling soil, sand and other loose materials, or require all trucks to maintain at least two feet of freeboard.

c) Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.

d) Sweep daily all paved access roads, parking areas and staging areas at construction sites.

e) Sweep streets daily if visible soil material is carried on to adjacent public streets.

f) Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.

g) Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.)

h) Limit traffic speeds on unpaved roads to 15 miles per hour.

i) Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

j) Replant vegetation in disturbed areas as quickly as possible.

k) Suspend excavation and grading activity whenever the wind is so high that it results in visible dust plumes despite control efforts.

With the incorporation of the above dust control measures, the proposed project would result in a less than significant impact related to short-term construction fugitive dust emissions.

Construction Air Pollutant Emissions: ROG, NO_X, Exhaust PM_{10}, and Exhaust $PM_{2.5}$

CalEEMod, Version 2020.4.0, was used to estimate the proposed project's construction emissions. CalEEMod provides a consistent platform for estimating construction and operational emissions from various land use projects and is the model recommended by the BAAQMD for estimating project emissions. Estimated construction emissions are compared with the applicable thresholds of significance established by the BAAQMD to assess ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ construction emissions to determine significance for this impact. The predominant activity which would generate ROG, NO_X, exhaust PM_{10}, and exhaust $PM_{2.5}$ during project construction would be the operation of construction equipment and vehicles.

At the time of this analysis, the construction of the proposed project was anticipated to begin in Fall of 2023 and be completed 11 months later. If the construction schedule moves to later years, construction emissions would likely decrease because of improvements in technology and more stringent regulatory requirements.

Construction activities such as grading, excavation, and travel on unpaved surfaces would generate dust and lead to elevated concentrations of PM_{10} and $PM_{2.5}$. According to the project applicant, approximately 3,430 cubic yards of soil is anticipated to be imported during grading activities. Table 8 presents

construction-period emissions that would result from the development of the proposed project, which considers implementation of Mitigation Measure Air-1.

Table 8: Construction Emissions

Construction Activity	Criteria Pollutant Emissions (tons)			
	ROG	NOX	PM10 (Exhaust)	PM2.5 (Exhaust)
Demolition	0.02	0.16	0.01	0.01
Site Preparation	<0.01	0.02	<0.01	<0.01
Grading	<0.01	0.07	<0.01	<0.01
Building Construction	0.20	1.51	0.06	0.06
Paving	0.01	0.04	<0.01	<0.01
Architectural Coating	0.85	0.01	<0.01	<0.01
Total Construction Emissions (tons)	**1.07**	**1.82**	**0.07**	**0.07**
BAAQMD Significance Thresholds (tons/year)	10	10	15	10
Significant Impact?	**No**	**No**	**No**	**No**
Average Daily Emissions				
Total Construction Emissions (lbs)	2,138.70	3,631.70	145.34	138.58
Average Daily Construction Emissions (lbs/day)	**7.95**	**13.50**	**0.54**	**0.52**
BAAQMD Significance Thresholds (lbs/day)	54	54	82	54
Significant Impact?	**No**	**No**	**No**	**No**

Notes:
This analysis relies on a 269-day construction schedule, consistent with the construction schedule and modeling results contained in Attachment A.
lbs = pounds
ROG = reactive organic gases
NO_X = nitrogen oxides
PM_{10} = particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
BAAQMD = Bay Area Air Quality Management District
Source: Attachment A.

As shown in Table 8, emissions generated during project construction would not exceed BAAQMD significance thresholds. Therefore, construction emissions would be less than significant with the implementation of Mitigation Measure Air-1.

Operational Emissions

Operational Air Pollutant Emissions: ROG, NO_X, PM_{10}, and $PM_{2.5}$

Operational emissions would include area, energy, and mobile sources. Area sources would include emissions from architectural coatings, consumer products, and landscape equipment. Energy sources include emissions from the combustion of natural gas for water and space heating. Mobile sources include exhaust and road dust emissions from the vehicles that would travel to and from the project site. Pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$ and are shown in Table 9. As previously mentioned, because the operative status of existing uses was unknown at the time this analysis was prepared, the emissions generated from operation of land uses currently on the project site were not quantified and considered when analyzing net emission generation from the proposed project. As such, this approach represents a conservative assessment of the proposed project's emissions generation.

Table 9: Operational Emissions

Emissions Source	Criteria Pollutant Emissions (Tons)[1]			
	ROG	NO_X	PM_{10} (Total)	$PM_{2.5}$ (Total)
Area	0.56	<0.01	<0.01	<0.01
Energy	0.01	0.05	<0.01	<0.01
Mobile	0.11	0.12	0.25	0.07
Total (tons/year)	**0.67**	**0.17**	**0.26**	**0.07**
BAAQMD Significance Thresholds (tons/year)	10	10	15	10
Significant Impact?	**No**	**No**	**No**	**No**
Average Daily Operational Emissions (lbs/day)				
Total Emissions (tons)	0.67	0.17	0.26	0.07
Total Emissions (lbs)	1,349.80	338.76	510.44	147.24
Average Daily Emissions (lbs/day)	**3.70**	**0.93**	**1.40**	**0.40**
BAAQMD Significance Thresholds (lbs/day)	54	54	82	54
Project Exceeds Threshold?	**No**	**No**	**No**	**No**

Notes:
lbs = pounds
ROG = reactive organic gases
NO_X = nitrogen oxides
PM_{10} = particulate matter, including dust, 10 micrometers or less in diameter
$PM_{2.5}$ = particulate matter, including dust, 2.5 micrometers or less in diameter
BAAQMD = Bay Area Air Quality Management District
Source: Attachment A.

Table 9 indicates that the proposed project would result in operational-related criteria air pollutants or ozone precursors which would not exceed the BAAQMD's thresholds of significance. Therefore, long-term operational impacts associated with criteria pollutant emissions generated by the proposed project would be less than significant.

Operational Carbon Monoxide Hotspot

The CO emissions from traffic generated by the proposed project are a concern at the local level because congested intersections can result in high, localized concentrations of CO (referred to as a CO hotspot).

The BAAQMD recommends a screening analysis to determine whether a project has the potential to contribute to a CO hotspot. The screening criteria identify when site-specific CO dispersion modeling is necessary. The proposed project would result in a less than significant impact to air quality for local CO if the following screening criteria are met:

1. The proposed project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; and
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Based on the information provided in the Transportation Generation Study prepared by TJKM,[4] the proposed project would generate an estimated 21 total AM peak-hour trips, 23 total PM peak-hour trips, and 259 daily vehicle trips. Fehr Peers in 2020 prepared a Draft Local Transportation Analysis Report for a land use development near the project site which forecasted cumulative 2040 traffic volumes for roadway segments and intersections around the project site.[5] According to the Draft Local Transportation Analysis Report, the intersection of South Main Street and Montague Expressway would experience an estimated 8,134 vehicles during the AM peak-hour and 9,597 vehicles during the PM peak-hour under cumulative 2040 conditions. As the proposed project would introduce an estimated 21 vehicles to the AM peak-hour and 23 vehicles to the PM peak-hour, resulting in 8,155 AM peak-hour vehicles and 9,620 PM peak-hour vehicles under 2040 cumulative conditions including trips generated by the proposed project. Therefore, the new traffic volumes introduced by the proposed project would not result in any nearby intersection or roadway segment exceeding 44,000 vehicles per hour.

Nonetheless, CO hotspots can occur when a transportation facility's design or orientation prevents the adequate dispersion of CO emissions from vehicles, resulting in the accumulation of local CO concentrations. The design or orientation of a transportation facility that may prevent CO emissions

[4] TKJM. 2022. Trip Generation Study for 612 South Main Street, Milpitas, California, April 2, 2022

[5] Fehr Peers. 2020. Draft Local Transportation Analysis. Website: https://www.ci.milpitas.ca.gov/wp-content/uploads/2021/03/Appendix-G_Traffic-Data.pdf. Accessed May 25, 2022.

dispersion includes tunnels, parking garages, bridge underpasses, natural or urban canyons, below-grade roadways, or other features where vertical or horizontal atmospheric mixing is substantially limited. The adjacent roadways are not located in an area where vertical or horizontal atmospheric mixing is substantially limited.

In addition, as the proposed project would result in a net decrease in vehicle trips when compared with existing land uses if they were operable at the time of development, the proposed project would be considered consistent with the region's congestion management plan. Therefore, based on the above criteria, the proposed project would not exceed the CO screening criteria and would have a less than significant impact related to CO.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact. The BAAQMD defines sensitive receptors as the following: "Facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and residential areas."

Project Construction

As previously mentioned, the proposed project would involve the development of 57 townhomes on a 2.35-acre site. In addition, construction of the small-scale proposed project would be of short duration and does not involve extensive site preparation or soil hauling. The closest sensitive receptor to the project site, located approximately 370 feet west of the project site, was identified as Multi-Family Residential Very High Density per the City of Milpitas Zoning & Land Use Map.[6] In addition, as shown in Table 8, emissions generated during project construction would be well below the BAAQMD's significance thresholds and are not anticipated to result in exposing receptors to substantial pollutant concentrations. Given the distance to closest sensitive receptor, the low intensity nature of proposed construction, and relatively small project site size, construction of the proposed project is not anticipated to result in a significant impact to nearby sensitive receptors.

Project Operation

Since the proposed project is a small residential development. As shown in Table 9, operational emissions would primarily be attributed to gasoline powered passenger vehicles, and overall operational emissions generated by the proposed project would be well below the BAAQMD's significance thresholds. As described in the Trip Generation Study, the proposed project is expected to generate 259 daily vehicle trips.[7] The proposed project would primarily generate trips from a mix of residents and employees traveling to and from the project site, which would primarily consist of passenger vehicles. Because nearly all passenger vehicles are gasoline-fueled, the proposed project would not generate a significant amount of diesel particulate matter (DPM) emissions during operation; however, gasoline-

[6] City of Milpitas. 2021. Zoning & Land Use Map. Website: https://milpitas.maps.arcgis.com/apps/webappviewer/index.html?id=89ef3a70704844d18fd61f6e49b26715. Accessed April 15, 2022

[7] TKJM. 2022. Trip Generation Study for 612 South Main Street, Milpitas, California, April 2, 2022

fueled vehicles would still emit relatively small amounts of gasoline TACs such as benzene, isopentane, and toluene during project operation. Nonetheless, the potential cancer risks associated with non-diesel TACs emitted from gasoline vehicles in the San Francisco Bay Air Basin are substantially less than the potential cancer risks associated with DPM emissions[8] and are therefore not included in this analysis. Furthermore, these emissions would be dispersed throughout the local roadway network and would not solely be generated at the project site.

As discussed above under Air Quality Impact (b), the intersection to receive project-generated traffic that would experience the greatest traffic volumes would be the intersection of South Main Street and Montague Expressway with an estimated 9,597 vehicle trips during the PM peak-hour. This level of peak-hour vehicle trips would not substantially add to nearby intersection traffic volumes causing an exceedance in the BAAQMD screening thresholds of 44,000 vehicles per hour or 24,000 vehicles per hour through an intersection with limited vertical and/or horizontal mixing. Therefore, the proposed project is not reasonably expected to exceed the BAAQMD's CO screening criteria and would have a less than significant impact related to localized CO hotspots. Therefore, the proposed project would not result in significant health impacts to nearby sensitive receptors during operation.

d) Would the project result in other emissions (such as those leading to odors or) adversely affecting a substantial number of people?

As stated in the BAAQMD 2017 Air Quality Guidelines, odors are generally regarded as an annoyance rather than a health hazard. The ability to detect odors varies considerably among the populations and is subjective. The BAAQMD does not have a recommended odor threshold for construction activities. However, the BAAQMD recommends operational screening criteria based on the distance between receptors and types of sources known to generate odors.

The type of uses that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. One such facility was identified within the applicable odor screening distances, a meat processing center. Nonetheless, public records retrieved from the BAAQMD show that no odor complaints were filed for these locations between January 1, 2018, and the time at which this analysis was prepared. Moreover, as the proposed project is a residential project, it is not anticipated to generate objectionable odors that may affect nearby sensitive receptors, the closest of which is a multi-family residential development located approximately 370 feet west of the project site. Therefore, this impact would be less than significant.

Recommended Mitigation

None.

[8] California Air Resources Board (ARB). 2008. Health Risk Assessment for the Union Pacific Railroad Oakland Railyard. Website: https://ww2.arb.ca.gov/sites/default/files/classic//railyard/hra/up_oak_hra.pdf?_ga=2.229617876.913681903.1594937953-503090677.1594937953. Accessed May 25, 2022.

GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

According to the CEQA Guidelines Appendix G Environmental Checklist, to determine whether impacts to GHG emissions are significant environmental effects, the following questions are analyzed and evaluated.

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The above questions are analyzed and evaluated below.

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Both construction and operational activities have the potential to generate GHG emissions. The proposed project would generate GHG emissions during temporary (short-term) construction activities such as demolition, site preparation, grading, building construction, paving, and architectural coating activities; running of construction equipment engines including movement of on-site heavy-duty construction vehicles; hauling materials to and from the project site; asphalt paving; coating, and construction worker motor vehicle trips.

Long-term, operational GHG emissions would result from project-generated vehicular traffic, on-site combustion of natural gas, operation of any landscaping equipment, off-site generation of electrical power over the life of the project, the energy required to convey water to and wastewater from the project site, and the emissions associated with the hauling and disposal of solid waste from the project site.

The 2017 BAAQMD Thresholds contain the following for GHGs:

> For land use development projects (including residential, commercial, industrial, and public land uses and facilities), the threshold is compliance with a qualified GHG Reduction Strategy; or annual emissions less than 1,100 metric tons per year of carbon dioxide equivalent (CO_2e); or 4.6 metric tons CO_2e/service population/year (residents + employees).

As such, to determine significance for GHG Impact(a), the proposed project's GHG emissions are assessed against the following thresholds: 1,100 metric tons (MT) CO_2e/year for the first operational year.

Construction Emissions

The proposed project would emit GHG emissions during construction from the use of off-road construction equipment, worker vehicles, vendor trucks, and haul trucks. Attachment A includes detailed construction assumptions used in estimating the construction GHG emissions. The BAAQMD does not presently provide a construction GHG generation threshold but recommends that construction GHG emissions be quantified and disclosed. Table 10 presents the total GHG emissions generated during all construction activities.

Table 10: Construction Greenhouse Gas Emissions

Construction Activity	Construction MT CO_2e[1]
Demolition	31
Site Preparation	3
Grading	19
Building Construction	312
Paving	8
Architectural Coating	2
Total	375
Amortized Over 30 Years	13

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent
[1] Construction GHG emissions are amortized over the 30-year lifetime of the project.
Source: CalEEMod Output (Attachment A).

As shown in Table 10, the proposed project's construction is estimated to generate approximately 375 MT CO_2e over the entire duration of project construction. As discussed above, neither the City of Milpitas nor BAAQMD has an adopted threshold of significance for construction GHG emissions. Because construction would be temporary and would not result in a permanent increase in emissions, construction of the proposed project would not interfere with the implementation of AB 32 or SB 32. Nonetheless, to account for potential impacts related to construction, the total project construction GHG emissions were amortized over an assumed 30-year project life and added to the operational emissions to determine the total emissions from the project. As presented in Table 10, project construction emissions were estimated to be 375 MT CO_2e for the entire construction duration. When amortized over 30 years, construction emissions equal 13 MT CO_2e per year.

Operational Emissions

Operational or long-term emissions occur over the life of a project. The major sources for operational GHG emissions include:

Motor Vehicles

These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the project site. Vehicle trips associated with project operations would primarily include residents and visitors traveling to and from the project site. Trip generation rates used in estimating mobile source emissions were consistent with those presented in the Transportation Analysis Report prepared for the proposed project by TJKM.[9]

Natural Gas

These emissions refer to the GHG emissions that occur when natural gas is burned on the project site.

Indirect Electricity

These emissions refer to those generated by off-site power plants to supply the electricity required for the proposed project. The proposed project would be required to incorporate rooftop solar; however, according to the calculations presented in Title 24, Part 6, Subchapter 8 of the 2019 California Building Code and contained in Attachment A of this analysis, the required solar system would not satisfy 100 percent of the proposed project's electricity demand. Both Pacific Gas and Electric Company (PG&E) and Silicon Valley Clean Energy are potential electricity suppliers to the proposed project for the electricity that is not covered by the required solar system. PG&E was chosen as the utility providing electricity and natural gas service to the proposed project for a conservative assessment. GHG emissions from energy consumption were calculated using PG&E's energy intensity factors for CO_2, N_2O, and CH_4.

Water Transport

These emissions refer to those generated by the electricity required to transport and treat the water to be used on the project site.

Waste

These emissions refer to the GHG emissions produced by decomposing waste generated by the project.

Attachment A provides a more detailed description of the assumptions used to estimate project-generated GHG emissions as well as detailed modeling results. Table 11 shows the operational GHG emissions by source including the amortized construction emissions.

The estimated total annual project emissions, including operational emissions and amortized construction emissions, were compared with the bright-line threshold of 1,100 MT CO_2e/year to determine significance at project buildout assumed for the year 2022. As previously discussed, because the operative status of existing uses was unknown at the time this analysis was prepared, the emissions generated from operation of land uses currently on the project site were not quantified and considered

[9] TJKM. April 2, 2022. Trip Generation Study for 612 South Main Street, Milpitas, California.

when analyzing net emission generation from the proposed project. In addition, should project construction and the commencement of operation move to later years, emissions are likely to be less than what is disclosed here as a result of increasingly stringent requirements for emission control technology and vehicle and equipment fuel efficiency. As such, this approach represents a conservative assessment of the proposed project's emissions generation.

Table 11: Operational Greenhouse Gas Emissions

Emissions Source	Year 2022 (MT CO_2e/Year)
Area	1
Energy	67
Mobile	208
Waste	8
Water	7
Total Operational Emissions	**291**
Amortized Construction Emissions	13
Total Project Emissions	304
Significance Threshold (MT CO_2e/year)	**1,100**
Exceeds Threshold?	**No**

Notes:
MT CO_2e = metric tons of carbon dioxide equivalent
[1] Construction GHG emissions are amortized over the 30-year lifetime of the project.
Source: CalEEMod Output (Attachment A).

As shown in Table 11, the proposed project's combined long-term net operational emissions and amortized construction emissions would not exceed the BAAQMD recommended thresholds for GHG emissions. Since total emissions do not exceed BAAQMD thresholds, this analysis would not include baseline emissions from existing land uses as a conservative approach. Therefore, the proposed project's generation of GHG emissions would not significantly impact the environment.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than significant impact. The Milpitas CAP was adopted on May 7, 2013. The CAP contains goals and policies that serve as actions to reduce GHG emissions.[10] Project consistency with the Milpitas CAP is provided in Table 12. Significance for this impact is determined by project compliance with the City's CAP, and project consistency with the ARB 2017 Climate Change Scoping Plan Update. Goals and

[10] City of Milpitas. 2013. Climate Action Plan. Adopted 2013. Website: https://www.ci.milpitas.ca.gov/_pdfs/Climate_ActionPlan.pdf. Accessed November 10, 2021.

policies of the City's CAP which apply to the proposed project are listed below. A project consistency analysis with the ARB 2017 Scoping Plan Update is provided in Table 13.

Table 12: City of Milpitas Climate Action Plan

2013 Climate Action Plan	Project Consistency
Measure 5.1: Increased Densities	**Consistent.** This residential project is located in the Milpitas Midtown Specific Plan. The proposed project is a combination of one 5-plex, two 8-plex, and six 6-plex dense 3-story townhomes in the Transit Area Specific Plan Therefore, the proposed project would not require mixed use.
Measure 5.2: Urban Plazas	**Consistent.** This residential project is located in the Midtown Milpitas Specific Plan which includes mixed uses within the area.
Measure 6.1: Transit Density	**Consistent.** The proposed project are 3-story townhomes that are high in density and is located 1.1 miles from the nearest BART station.
Measure 12.1: Lawn And Garden	**Consistent.** New proposed buildings have access to exterior electrical outlets to charge electric powered lawn and garden equipment.
Sources: [1] Midtown Specific Plan. 2010. Figure 1.1: Aerial View of Midtown Milpitas. https://www.ci.milpitas.ca.gov/_pdfs/plan_plan_midtown.pdf. Accessed April 15, 2022 [2] City of Milpitas. Milpitas Specific Plan. Adopted 2002. Updated 2010.Website: https://www.ci.milpitas.ca.gov/_pdfs/plan_plan_midtown.pdf. Accessed April 15, 2022.	

As shown above, the proposed project would be consistent with the applicable policies and measures contained in the City's CAP. The proposed project is also evaluated below for its consistency with the ARB-adopted 2017 Climate Change Scoping Plan Update. The 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017.[11] Table 13 provides an analysis of the project's consistency with the 2017 Scoping Plan Update measures. As shown therein, none of the measures apply to the proposed project.

Table 13: Consistency with SB 32 2017 Scoping Plan Update

2017 Scoping Plan Update Reduction Measure	Project Consistency
SB 350: 50 Percent Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33 percent in 2020 to 50 percent in 2030.	**Not applicable.** This measure would apply to utilities and not to individual development projects. The proposed project would, however, purchase electricity from a utility provider subject to the SB 350 and SB 100 RPS requirements for any operational electricity demand that is not satisfied with the required solar system.

[11] California Air Resource Board (ARB). 2017. California's 2017 Climate Change Scoping Plan. November. Website: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed April 15, 2022.

2017 Scoping Plan Update Reduction Measure	Project Consistency
SB 350: Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels.	**Not applicable.** This measure applies to existing buildings. The proposed project would involve new development and remodeling that would meet the latest applicable building code standards.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Not applicable.** This is a Statewide measure that cannot be implemented by a project applicant or lead agency. However, vehicles accessing the proposed building at the project site would benefit from the standards.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million Zero Emission Vehicles (ZEVs) on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Not applicable.** This measure is not applicable to the proposed project; however, vehicles accessing the building at the project site would benefit from the increased availability of cleaner technology and fuels.
Sustainable Freight Action Plan. The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	**Not applicable.** The proposed project is a residential development that would not support freight operations.
Short-lived Climate Pollutant (SLCP) Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Not applicable.** The proposed project would not include major sources of black carbon. In compliance with BAAQMD Regulation 6, Rule 3,[1] the proposed project would not include installing any woodstoves or fireplaces.
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a Sustainable Communities Strategy for reduction of per capita Vehicle Miles Traveled (VMT).	**Not applicable.** The proposed project does not include the development of a Regional Transportation Plan.
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Not applicable.** The proposed project is not one targeted by the cap-and-trade system regulations, and, therefore, this measure does not apply to the project.
Natural and Working Lands Action Plan. The ARB is working in coordination with several other agencies at the federal, State, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not applicable**. The proposed project is in a built-up urban area and would not be considered natural or working lands.

Source:

[1] Bay Area Air Quality Management District (BAAQMD). 2015. Regulation 6 Particulate Matter and Visible Emissions, Rule 3 Wood Burning Devices. October 21. Website: http://www.baaqmd.gov/~/media/dotgov/files/rules/reg-6-rule-3-woodburning-devices/documents/rg0603.pdf?la=en. Accessed April 15, 2022.

Source of Measures: California Air Resource Board (ARB). 2017. California's 2017 Climate Change Scoping Plan. November. Website: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed April 15, 2022.

Summary

As presented in Table 13, the proposed project is consistent with the ARB's 2017 Scoping Plan Update. Additionally, as previously discussed, the proposed project would be consistent with the applicable policies of the City's CAP and SB 32 Scoping Plan. Considering this information, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of GHGs.

Recommended Mitigation

None.

CONCLUSION

Based on the project understanding described above, the proposed project would result in less than significant impacts to air quality after incorporation of Milpitas Midtown Specific Plan Mitigation Measure Air-1.

The analysis further determined that the proposed project would not generate criteria pollutant, TAC, or GHG emissions, either directly or indirectly, that may have a significant impact on the environment or surrounding receptors; nor would the proposed project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Thank you for the opportunity to conduct an air quality, GHG emissions, and energy impacts analysis. Please feel free to contact Phil Ault (559.930.6191 or pault@fcs-intl.com) or Lance Park (805.535.5412 or lpark@fcs-intl.com) should you have any questions.

Sincerely,

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Attachment A: Air Quality Modeling Results and Supporting Calculations
Attachment B: Transportation Generation Analysis

FIRSTCARBON
SOLUTIONS
FCS INTERNATIONAL, INC.

Attachment A:
Air Quality Modeling Results and Supporting Calculations

Attachment A: Air Quality Supporting Information and Modeling Results

Table of Contents

Demolition Debris Calculations

Parameters[1]			
1	building st	10	cf building volume
1	cf building volume	0.25	cf waste volume
1	cf	0.037	cy
1	cy waste volume	0.5	ton waste weight
1	**sf**	**0.04625**	**ton waste material**

Existing	Description	square feet[2]	height/ depth (ft)[3]	density (lbs/cf)[4]	Demolition Weight (pounds)	Demolition Weight (tons)
Building gsf	Buildings	29,000				1,341.25
Hardscape	Pavement	41,278	0.5	150	3,095,850	1,547.93
Totals					3,095,850	**2,889**

Notes:
cy = cubic yard
gsf = gross square feet
sf = square feet
cf = cubic feet

[1] Source: California Air Pollution Control Officers Association (CAPCOA). 2017. Appendix A Calculation Details for CalEEMod. October.

[2] Source: Aerial imagery retrieved from GoogleEarth.

[3] Source: DC Construction Services. 2017. How Thick Is Parking Lot Asphalt? Website: https://dccpaving.com/how-thick-is-parking-lot-asphalt/. Accessed December 21, 2021.

[4] Source: SFGate. 2019. How to Calculate Asphalt Weight Per Yard. Website: https://homeguides.sfgate.com/calculate-asphalt-weight-per-yard-81825.html. Accessed December 21, 2021.

Operational Vehicle Trip Generation Rate Adjustments

Trip-Generating CalEEMod Land Use	Size Metric	Size	Default Trip Generation Rates[1]			Adjusted Trip Generation Rates (Based on proportional change to weekday trips)		
			Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
City Park	Acre	0.57	0.78	1.96	2.19	0.00	0.00	0.00
Condo/Tonwhouse	Dwelling Unit	57	7.32	8.14	6.28	4.54	5.05	3.89
Parking Lot	Space	124	0	0	0	0.00	0.00	0.00

Notes/Sources:

[1] California Air Pollution Control Officers Association (CAPCOA). 2021. California Emissions Estimator Model (CalEEMod), Version 2020.4.0.

Project Construction Emissions

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Construction Emissions (tons)

	ROG	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
on site	0.01	0.14	0.01	0.01
off site	0.00	0.02	0.00	0.00
Demolition	**0.02**	**0.16**	**0.01**	**0.01**
on site	0.00	0.02	0.00	0.00
off site	0.00	0.00	-	-
Site Preparation	**0.00**	**0.02**	**0.00**	**0.00**
on site	0.00	0.04	0.00	0.00
off site	0.00	0.03	0.00	0.00
Grading	**0.00**	**0.07**	**0.00**	**0.00**
on site	0.18	1.42	0.06	0.06
off site	0.02	0.10	0.00	0.00
Building Construction	**0.20**	**1.51**	**0.06**	**0.06**
on site	0.01	0.04	0.00	0.00
off site	0.00	0.00	-	-
Paving	**0.01**	**0.04**	**0.00**	**0.00**
on site	0.85	0.01	0.00	0.00
off site	0.00	0.00	-	-
Architectural Coating	**0.85**	**0.01**	**0.00**	**0.00**
On Site	**1.05**	**1.67**	**0.07**	**0.07**
Off Site	**0.02**	**0.14**	**0.00**	**0.00**

Note: Values above which represent true zeros are represented with "-" while values that are less than 0.005 are automatically rounded down to "0.00."

Average Daily Construction Emissions (lbs/day)

	ROG	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Total Emissions (tons)	1.07	1.82	0.07	0.07
Total Emissions (lbs)	2,138.70	3,631.70	145.34	138.58
Average Daily Emissions (lbs/day)	**7.95**	**13.50**	**0.54**	**0.52**

Construction Phase	Workdays
Demolition	20
Site Preparation	3
Grading	6
Building Construction	220
Paving	10
Architectural Coating	10
Total Nonoverlapping Workdays	**269**

Project Operational Emissions

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Emissions Source	ROG	NO_x	PM_{10} (Total)	$PM_{2.5}$ (Total)
	Tons per Year			
Area	0.56	0.00	0.00	0.00
Energy	0.01	0.05	0.00	0.00
Mobile	0.11	0.12	0.25	0.07
Waste	-	-	-	-
Water	-	-	-	-
Total	**0.67**	**0.17**	**0.26**	**0.07**
BAAQMD Significance Thresholds	10	10	15	10
Exceeds Threshold?	**No**	**No**	**No**	**No**

Note: All zeros displayed in the above table represent emission values which are below 0.005 tons per year and have subsequently rounded down. All true zero values are represented with "-".

Average Daily Operational Emissions (lbs/day)

Emissions/Thresholds	ROG	NO_x	PM_{10} (Total)	$PM_{2.5}$ (Total)
Total Emissions (tons)	0.67	0.17	0.26	0.07
Total Emissions (lbs)	1,349.80	338.76	510.44	147.24
Average Daily Emissions (lbs/day)	**3.70**	**0.93**	**1.40**	**0.40**
BAAQMD Significance Thresholds	54	54	82	54
Project Exceeds Threshold?	**No**	**No**	**No**	**No**

Project Operational GHG Emissions

Construction GHG Emissions

File Name: TTLC Milpitas Project - Santa Clara County, Annual

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Emissions Source	Construction
	MT CO_2e
Demolition	31
Site Preparation	3
Grading	19
Building Construction	312
Paving	8
Architectural Coating	2
Total	**375**
Amortized Over 30 Years	13

Operational GHG Emissions

File Name: TTLC Milpitas Project - Santa Clara County, Annual

Timestamp: Date: 05/24/22 10:00 AM

Emissions Source	Year 2022
	(MT CO_2e/Year)
Area	1
Energy	67
Mobile	208
Waste	8
Water	7
Total Operational Emissions	**291**
Amortized Construction Emissions	13
Total Project Emissions	304
Significance Threshold (MT CO_2e/year)	**1,100**
Exceeds Threshold?	**No**

Note: Consistent with BAAQMD guidance, the GHG emission estimates shown above discount

5647.0001 TTLC Milpitas Main St CalEEMod Notes

Note 1 Land uses and sizes associated with development of the proposed project are drawn the SDG Architects, Inc. Architectural Site Plans for South Main Street Milpitas, dated April 8, 2022. Land uses in the model represent the following:

Residential > Condo/Townhouse High Rise > 118,846 sqft = Proposed 57 attached townhomes. Total building footprint was identified as 38,782 square feet.

Recreational > City Park > 0.57 acre = Designated open space and landscaping.

Parking > Parking Lot > 124 spaces = Parking and other paved surfaces. Area assumed to be the balance of the 2.35-acre project site after accounting for all other uses.

Note 2 According to information provided by the Applicant on October 2, 2021, approximately 3,430 cubic yards of fill material would be imported during grading activities.

Note 3 Square footage of existing building and hardscape were provided by the Applicant. The existing buildings and hardscape include approximately 29,000 square feet of building space for the Montessori School structure and 41,278 square feet of pavement. Therefore, an estimated 2,889 tons of building and pavement debris would be removed during demolition activities. Please see the demolition calculations contained in Attachment A for more information.

Note 4 According to the BAAQMD's Regulation 6, Rule 3, new residential developments are prohibited from installing wood-burning stoves and fireplaces. As a result, the model was adjusted to remove the inclusion of wood-burning devices.

Note 5 Mitigation Measure Air-1 of the Midtown Specific Plan EIR requires the implementation of various dust control measures. Therefore, BAAQMD *Basic Construction Mitigation Measures Recommended For All Proposed Projects* was applied to this project, which includes watering exposed areas at minimum twice per day and limiting construction vehicle speeds to 15 miles per hour on unpaved roads.

Note 6 According to project information provided by the project applicant, each dwelling unit would include solar panel electricity generation in compliance with the California Building Code. According to the California Code of Regulations, Title 24, Part 6, Subchapter 8 – Low-Rise Residential Building – Performance and Prescriptive Compliance Approaches, "[a]ll low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output equal or greater than the dwelling's annual electrical usage as determined by Equation 150.1-C:"[1]

[1] California Code of Regulations, Title 24, Part 6, Subchapter 8. "Low-Rise Residential Buildings". Website: https://codes.iccsafe.org/content/CAEC2019/subchapter-8-low-rise-residential-buildings-performance-and-prescriptive-compliance-approaches

Equation 150.1-C Annual Photovoltaic Electrical Output

$$kWPV = (CFA \times A)/1{,}000 + (NDwell \times B)$$

Where:

kWPV = kWdc size of the PV system

CFA = conditioned floor area

NDwell = number of dwelling units

A = Adjustment factor from Table 150.1-C

B = Dwelling adjustment factor from Table 150.1-C

As the project is located in climate zone 4, the A adjustment factor mentioned above is identified as 0.586 and the B adjustment factor mentioned above is identified as 1.21. The conditioned floor area is based on the building square footage.

Therefore:

$$kWPV = (118{,}846 \times 0.586)/1{,}000 + (57 \times 1.21) = 153.24$$

While this accounts for the entire project's kW PV system, it does not provide the annual production rate that would be generated by this size of system. Therefore, the total kW PV system was reduced to a per-dwelling-unit kW PV system to determine the expected annual production rate. 153.24 kW PV divided by 57 dwelling units results in an average 2.69 kW PV system per dwelling unit.

According to TheEcoExperts.com[2], a 2 kW PV system has an average annual production rate of 1,750 kWh/year. The below equation proportionally applies the same average annual production rate to the calculated 2.69 kW system per each dwelling unit.

$$(2.69/2) * 1{,}750 \text{ kWh/year} = 2{,}352 \text{ kWh/year}$$

Therefore, the proposed project is expected to result in an average on-site electricity generation rate of 2,352 kWh per dwelling unit per year. As such, after multiplying by 57 dwelling units, the proposed project would generate an estimated 134,084 kWh annually.

Note 7 TJKM prepared a Trip Generation Study (Attachment B) for the proposed project that analyzes the trip generation rates for the proposed project. As disclosed therein, the proposed project would result in an average 4.54 vehicle trips per day per dwelling unit. As such, the model was adjusted to account for this trip generation rate and adjusted the Saturday and Sunday trip generation rates consistent with the same proportional change experienced during the weekday generation rate adjustments.

[2] TheEcoExperts. 2016. "Solar Panel Output." Website: http://www.theecoexperts.com/solar-panel-output/. Accessed June 9, 2021.

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

TTLC Milpitas Project

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	124.00	Space	0.89	38,725.00	0
City Park	0.57	Acre	0.57	24,859.00	0
Condo/Townhouse	57.00	Dwelling Unit	0.89	118,846.00	163

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - CalEEMod Note 1

Demolition - CalEEMod Note 3

Grading - CalEEMod Note 2

Vehicle Trips - CalEEMod Note 7

Woodstoves - CalEEMod Note 4

Construction Off-road Equipment Mitigation - CalEEMod Note 5

Energy Mitigation - CalEEMod Note 6

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Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblGrading	MaterialImported	0.00	3,430.00
tblLandUse	LandUseSquareFeet	49,600.00	38,725.00
tblLandUse	LandUseSquareFeet	24,829.20	24,859.00
tblLandUse	LandUseSquareFeet	57,000.00	118,846.00
tblLandUse	LotAcreage	1.12	0.89
tblLandUse	LotAcreage	3.56	0.89
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	8.14	5.05
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	6.28	3.89
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	7.32	4.54
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0371	0.3729	0.3182	8.3000e-004	0.0674	0.0148	0.0821	0.0187	0.0139	0.0326	0.0000	74.8018	74.8018	0.0122	3.9100e-003	76.2726
2024	1.0323	1.4429	1.6772	3.4600e-003	0.0676	0.0579	0.1255	0.0182	0.0554	0.0736	0.0000	296.2603	296.2603	0.0438	6.0900e-003	299.1715
Maximum	**1.0323**	**1.4429**	**1.6772**	**3.4600e-003**	**0.0676**	**0.0579**	**0.1255**	**0.0187**	**0.0554**	**0.0736**	**0.0000**	**296.2603**	**296.2603**	**0.0438**	**6.0900e-003**	**299.1715**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0371	0.3729	0.3182	8.3000e-004	0.0373	0.0148	0.0520	0.0103	0.0139	0.0242	0.0000	74.8017	74.8017	0.0122	3.9100e-003	76.2725
2024	1.0323	1.4429	1.6772	3.4600e-003	0.0676	0.0579	0.1255	0.0182	0.0554	0.0736	0.0000	296.2600	296.2600	0.0438	6.0900e-003	299.1712
Maximum	**1.0323**	**1.4429**	**1.6772**	**3.4600e-003**	**0.0676**	**0.0579**	**0.1255**	**0.0182**	**0.0554**	**0.0736**	**0.0000**	**296.2600**	**296.2600**	**0.0438**	**6.0900e-003**	**299.1712**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**22.31**	**0.00**	**14.50**	**22.70**	**0.00**	**7.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-30-2023	1-29-2024	0.5692	0.5692
2	1-30-2024	4-29-2024	0.5031	0.5031
3	4-30-2024	7-29-2024	0.5016	0.5016
4	7-30-2024	9-30-2024	0.3472	0.3472
		Highest	0.5692	0.5692

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5642	4.8800e-003	0.4242	2.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	0.6936	0.6936	6.7000e-004	0.0000	0.7103
Energy	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	79.3234	79.3234	5.3500e-003	1.4900e-003	79.9006
Mobile	0.1054	0.1192	1.0359	2.2300e-003	0.2477	1.5700e-003	0.2492	0.0661	1.4600e-003	0.0676	0.0000	205.3370	205.3370	0.0126	9.4300e-003	208.4630
Waste						0.0000	0.0000		0.0000	0.0000	5.3326	0.0000	5.3326	0.3152	0.0000	13.2112
Water						0.0000	0.0000		0.0000	0.0000	1.1782	2.8374	4.0156	0.1215	2.9100e-003	7.9205
Total	**0.6749**	**0.1695**	**1.4794**	**2.5400e-003**	**0.2477**	**7.5900e-003**	**0.2552**	**0.0661**	**7.4800e-003**	**0.0736**	**6.5108**	**288.1914**	**294.7022**	**0.4553**	**0.0138**	**310.2057**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5642	4.8800e-003	0.4242	2.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	0.6936	0.6936	6.7000e-004	0.0000	0.7103
Energy	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	66.9174	66.9174	3.3400e-003	1.2500e-003	67.3720
Mobile	0.1054	0.1192	1.0359	2.2300e-003	0.2477	1.5700e-003	0.2492	0.0661	1.4600e-003	0.0676	0.0000	205.3370	205.3370	0.0126	9.4300e-003	208.4630
Waste						0.0000	0.0000		0.0000	0.0000	5.3326	0.0000	5.3326	0.3152	0.0000	13.2112
Water						0.0000	0.0000		0.0000	0.0000	1.1782	2.8374	4.0156	0.1215	2.9100e-003	7.9205
Total	**0.6749**	**0.1695**	**1.4794**	**2.5400e-003**	**0.2477**	**7.5900e-003**	**0.2552**	**0.0661**	**7.4800e-003**	**0.0736**	**6.5108**	**275.7854**	**282.2962**	**0.4533**	**0.0136**	**297.6770**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.30**	**4.21**	**0.44**	**1.74**	**4.04**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2023	11/24/2023	5	20	
2	Site Preparation	Site Preparation	11/25/2023	11/29/2023	5	3	
3	Grading	Grading	11/30/2023	12/7/2023	5	6	
4	Building Construction	Building Construction	12/8/2023	10/10/2024	5	220	
5	Paving	Paving	10/11/2024	10/24/2024	5	10	
6	Architectural Coating	Architectural Coating	10/25/2024	11/7/2024	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.89

Residential Indoor: 240,663; Residential Outdoor: 80,221; Non-Residential Indoor: 2; Non-Residential Outdoor: 1; Striped Parking Area: 2,324

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	286.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	429.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	68.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0309	0.0000	0.0309	4.6800e-003	0.0000	4.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1432	0.1346	2.4000e-004		6.7700e-003	6.7700e-003		6.3300e-003	6.3300e-003	0.0000	21.0866	21.0866	5.3500e-003	0.0000	21.2202
Total	**0.0147**	**0.1432**	**0.1346**	**2.4000e-004**	**0.0309**	**6.7700e-003**	**0.0377**	**4.6800e-003**	**6.3300e-003**	**0.0110**	**0.0000**	**21.0866**	**21.0866**	**5.3500e-003**	**0.0000**	**21.2202**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-004	0.0194	4.5100e-003	9.0000e-005	2.4300e-003	1.6000e-004	2.5800e-003	6.7000e-004	1.5000e-004	8.2000e-004	0.0000	8.5636	8.5636	2.9000e-004	1.3600e-003	8.9755
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.3000e-004	2.9000e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	0.0000	2.8000e-004	0.0000	0.7849	0.7849	2.0000e-005	2.0000e-005	0.7920
Total	**6.2000e-004**	**0.0197**	**7.4100e-003**	**1.0000e-004**	**3.4600e-003**	**1.7000e-004**	**3.6200e-003**	**9.4000e-004**	**1.5000e-004**	**1.1000e-003**	**0.0000**	**9.3485**	**9.3485**	**3.1000e-004**	**1.3800e-003**	**9.7675**

Mitigated Construction On-Site

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0139	0.0000	0.0139	2.1100e-003	0.0000	2.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.1432	0.1346	2.4000e-004		6.7700e-003	6.7700e-003		6.3300e-003	6.3300e-003	0.0000	21.0865	21.0865	5.3500e-003	0.0000	21.2202
Total	**0.0147**	**0.1432**	**0.1346**	**2.4000e-004**	**0.0139**	**6.7700e-003**	**0.0207**	**2.1100e-003**	**6.3300e-003**	**8.4400e-003**	**0.0000**	**21.0865**	**21.0865**	**5.3500e-003**	**0.0000**	**21.2202**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-004	0.0194	4.5100e-003	9.0000e-005	2.4300e-003	1.6000e-004	2.5800e-003	6.7000e-004	1.5000e-004	8.2000e-004	0.0000	8.5636	8.5636	2.9000e-004	1.3600e-003	8.9755
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.3000e-004	2.9000e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	0.0000	2.8000e-004	0.0000	0.7849	0.7849	2.0000e-005	2.0000e-005	0.7920
Total	**6.2000e-004**	**0.0197**	**7.4100e-003**	**1.0000e-004**	**3.4600e-003**	**1.7000e-004**	**3.6200e-003**	**9.4000e-004**	**1.5000e-004**	**1.1000e-003**	**0.0000**	**9.3485**	**9.3485**	**3.1000e-004**	**1.3800e-003**	**9.7675**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	**1.9500e-003**	**0.0214**	**0.0147**	**4.0000e-005**	**2.3900e-003**	**8.1000e-004**	**3.2000e-003**	**2.6000e-004**	**7.5000e-004**	**1.0100e-003**	**0.0000**	**3.2317**	**3.2317**	**1.0500e-003**	**0.0000**	**3.2578**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0731
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0725**	**0.0725**	**0.0000**	**0.0000**	**0.0731**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	**1.9500e-003**	**0.0214**	**0.0147**	**4.0000e-005**	**1.0700e-003**	**8.1000e-004**	**1.8800e-003**	**1.2000e-004**	**7.5000e-004**	**8.7000e-004**	**0.0000**	**3.2317**	**3.2317**	**1.0500e-003**	**0.0000**	**3.2578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0731
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0725**	**0.0725**	**0.0000**	**0.0000**	**0.0731**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0214	0.0000	0.0214	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**4.0000e-003**	**0.0434**	**0.0261**	**6.0000e-005**	**0.0214**	**1.8100e-003**	**0.0233**	**0.0103**	**1.6700e-003**	**0.0120**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0292	6.7600e-003	1.3000e-004	3.6400e-003	2.4000e-004	3.8800e-003	1.0000e-003	2.3000e-004	1.2300e-003	0.0000	12.8454	12.8454	4.4000e-004	2.0400e-003	13.4632
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	6.7000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1811	0.1811	1.0000e-005	1.0000e-005	0.1828
Total	**5.2000e-004**	**0.0292**	**7.4300e-003**	**1.3000e-004**	**3.8800e-003**	**2.4000e-004**	**4.1200e-003**	**1.0600e-003**	**2.3000e-004**	**1.2900e-003**	**0.0000**	**13.0265**	**13.0265**	**4.5000e-004**	**2.0500e-003**	**13.6460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.6500e-003	0.0000	9.6500e-003	4.6400e-003	0.0000	4.6400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**4.0000e-003**	**0.0434**	**0.0261**	**6.0000e-005**	**9.6500e-003**	**1.8100e-003**	**0.0115**	**4.6400e-003**	**1.6700e-003**	**6.3100e-003**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0292	6.7600e-003	1.3000e-004	3.6400e-003	2.4000e-004	3.8800e-003	1.0000e-003	2.3000e-004	1.2300e-003	0.0000	12.8454	12.8454	4.4000e-004	2.0400e-003	13.4632
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	6.7000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1811	0.1811	1.0000e-005	1.0000e-005	0.1828
Total	**5.2000e-004**	**0.0292**	**7.4300e-003**	**1.3000e-004**	**3.8800e-003**	**2.4000e-004**	**4.1200e-003**	**1.0600e-003**	**2.3000e-004**	**1.2900e-003**	**0.0000**	**13.0265**	**13.0265**	**4.5000e-004**	**2.0500e-003**	**13.6460**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0137	0.1090	0.1137	2.0000e-004		4.9100e-003	4.9100e-003		4.7000e-003	4.7000e-003	0.0000	16.6162	16.6162	3.1400e-003	0.0000	16.6947
Total	**0.0137**	**0.1090**	**0.1137**	**2.0000e-004**		**4.9100e-003**	**4.9100e-003**		**4.7000e-003**	**4.7000e-003**	**0.0000**	**16.6162**	**16.6162**	**3.1400e-003**	**0.0000**	**16.6947**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	6.0600e-003	1.9100e-003	3.0000e-005	9.0000e-004	4.0000e-005	9.3000e-004	2.6000e-004	3.0000e-005	2.9000e-004	0.0000	2.7041	2.7041	6.0000e-005	4.0000e-004	2.8239
Worker	1.3600e-003	9.5000e-004	0.0121	4.0000e-005	4.3100e-003	2.0000e-005	4.3400e-003	1.1500e-003	2.0000e-005	1.1700e-003	0.0000	3.2846	3.2846	9.0000e-005	9.0000e-005	3.3143
Total	**1.5100e-003**	**7.0100e-003**	**0.0141**	**7.0000e-005**	**5.2100e-003**	**6.0000e-005**	**5.2700e-003**	**1.4100e-003**	**5.0000e-005**	**1.4600e-003**	**0.0000**	**5.9887**	**5.9887**	**1.5000e-004**	**4.9000e-004**	**6.1382**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0137	0.1090	0.1137	2.0000e-004		4.9100e-003	4.9100e-003		4.7000e-003	4.7000e-003	0.0000	16.6162	16.6162	3.1400e-003	0.0000	16.6947
Total	**0.0137**	**0.1090**	**0.1137**	**2.0000e-004**		**4.9100e-003**	**4.9100e-003**		**4.7000e-003**	**4.7000e-003**	**0.0000**	**16.6162**	**16.6162**	**3.1400e-003**	**0.0000**	**16.6947**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	6.0600e-003	1.9100e-003	3.0000e-005	9.0000e-004	4.0000e-005	9.3000e-004	2.6000e-004	3.0000e-005	2.9000e-004	0.0000	2.7041	2.7041	6.0000e-005	4.0000e-004	2.8239
Worker	1.3600e-003	9.5000e-004	0.0121	4.0000e-005	4.3100e-003	2.0000e-005	4.3400e-003	1.1500e-003	2.0000e-005	1.1700e-003	0.0000	3.2846	3.2846	9.0000e-005	9.0000e-005	3.3143
Total	**1.5100e-003**	**7.0100e-003**	**0.0141**	**7.0000e-005**	**5.2100e-003**	**6.0000e-005**	**5.2700e-003**	**1.4100e-003**	**5.0000e-005**	**1.4600e-003**	**0.0000**	**5.9887**	**5.9887**	**1.5000e-004**	**4.9000e-004**	**6.1382**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1629	1.3080	1.4382	2.5500e-003		0.0549	0.0549		0.0526	0.0526	0.0000	211.8682	211.8682	0.0395	0.0000	212.8547
Total	**0.1629**	**1.3080**	**1.4382**	**2.5500e-003**		**0.0549**	**0.0549**		**0.0526**	**0.0526**	**0.0000**	**211.8682**	**211.8682**	**0.0395**	**0.0000**	**212.8547**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8500e-003	0.0773	0.0239	3.5000e-004	0.0114	4.6000e-004	0.0119	3.3000e-003	4.4000e-004	3.7400e-003	0.0000	33.9701	33.9701	7.2000e-004	4.9800e-003	35.4725
Worker	0.0162	0.0108	0.1445	4.4000e-004	0.0550	2.6000e-004	0.0553	0.0146	2.4000e-004	0.0149	0.0000	40.5405	40.5405	1.1000e-003	1.0900e-003	40.8921
Total	**0.0181**	**0.0881**	**0.1684**	**7.9000e-004**	**0.0664**	**7.2000e-004**	**0.0671**	**0.0179**	**6.8000e-004**	**0.0186**	**0.0000**	**74.5106**	**74.5106**	**1.8200e-003**	**6.0700e-003**	**76.3646**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1629	1.3080	1.4382	2.5500e-003		0.0549	0.0549		0.0526	0.0526	0.0000	211.8680	211.8680	0.0395	0.0000	212.8545
Total	**0.1629**	**1.3080**	**1.4382**	**2.5500e-003**		**0.0549**	**0.0549**		**0.0526**	**0.0526**	**0.0000**	**211.8680**	**211.8680**	**0.0395**	**0.0000**	**212.8545**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8500e-003	0.0773	0.0239	3.5000e-004	0.0114	4.6000e-004	0.0119	3.3000e-003	4.4000e-004	3.7400e-003	0.0000	33.9701	33.9701	7.2000e-004	4.9800e-003	35.4725
Worker	0.0162	0.0108	0.1445	4.4000e-004	0.0550	2.6000e-004	0.0553	0.0146	2.4000e-004	0.0149	0.0000	40.5405	40.5405	1.1000e-003	1.0900e-003	40.8921
Total	**0.0181**	**0.0881**	**0.1684**	**7.9000e-004**	**0.0664**	**7.2000e-004**	**0.0671**	**0.0179**	**6.8000e-004**	**0.0186**	**0.0000**	**74.5106**	**74.5106**	**1.8200e-003**	**6.0700e-003**	**76.3646**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.2100e-003	0.0405	0.0585	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7574	7.7574	2.4600e-003	0.0000	7.8188
Paving	1.1700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3800e-003**	**0.0405**	**0.0585**	**9.0000e-005**		**1.9800e-003**	**1.9800e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.7574**	**7.7574**	**2.4600e-003**	**0.0000**	**7.8188**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.5600e-003	0.0000	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4384	0.4384	1.0000e-005	1.0000e-005	0.4422
Total	**1.8000e-004**	**1.2000e-004**	**1.5600e-003**	**0.0000**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4384**	**0.4384**	**1.0000e-005**	**1.0000e-005**	**0.4422**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.2100e-003	0.0405	0.0585	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7573	7.7573	2.4600e-003	0.0000	7.8188
Paving	1.1700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3800e-003**	**0.0405**	**0.0585**	**9.0000e-005**		**1.9800e-003**	**1.9800e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.7573**	**7.7573**	**2.4600e-003**	**0.0000**	**7.8188**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.5600e-003	0.0000	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4384	0.4384	1.0000e-005	1.0000e-005	0.4422
Total	**1.8000e-004**	**1.2000e-004**	**1.5600e-003**	**0.0000**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4384**	**0.4384**	**1.0000e-005**	**1.0000e-005**	**0.4422**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8447					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.8456**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.4600e-003	0.0000	5.6000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4092	0.4092	1.0000e-005	1.0000e-005	0.4127
Total	**1.6000e-004**	**1.1000e-004**	**1.4600e-003**	**0.0000**	**5.6000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4092**	**0.4092**	**1.0000e-005**	**1.0000e-005**	**0.4127**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8447					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.8456**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.4600e-003	0.0000	5.6000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4092	0.4092	1.0000e-005	1.0000e-005	0.4127
Total	**1.6000e-004**	**1.1000e-004**	**1.4600e-003**	**0.0000**	**5.6000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4092**	**0.4092**	**1.0000e-005**	**1.0000e-005**	**0.4127**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1054	0.1192	1.0359	2.2300e-003	0.2477	1.5700e-003	0.2492	0.0661	1.4600e-003	0.0676	0.0000	205.3370	205.3370	0.0126	9.4300e-003	208.4630
Unmitigated	0.1054	0.1192	1.0359	2.2300e-003	0.2477	1.5700e-003	0.2492	0.0661	1.4600e-003	0.0676	0.0000	205.3370	205.3370	0.0126	9.4300e-003	208.4630

TTLC Milpitas Project - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Condo/Townhouse	258.78	287.85	221.73	670,159	670,159
Parking Lot	0.00	0.00	0.00		
Total	258.78	287.85	221.73	670,159	670,159

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	100	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
Condo/Townhouse	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
Parking Lot	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.4182	14.4182	2.3300e-003	2.8000e-004	14.5608
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	26.8242	26.8242	4.3400e-003	5.3000e-004	27.0894
NaturalGas Mitigated	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	52.4992	52.4992	1.0100e-003	9.6000e-004	52.8112
NaturalGas Unmitigated	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	52.4992	52.4992	1.0100e-003	9.6000e-004	52.8112

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	983798	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	52.4992	52.4992	1.0100e-003	9.6000e-004	52.8112
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.3000e-003**	**0.0453**	**0.0193**	**2.9000e-004**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**52.4992**	**52.4992**	**1.0100e-003**	**9.6000e-004**	**52.8112**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	983798	5.3000e-003	0.0453	0.0193	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	52.4992	52.4992	1.0100e-003	9.6000e-004	52.8112
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.3000e-003**	**0.0453**	**0.0193**	**2.9000e-004**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**52.4992**	**52.4992**	**1.0100e-003**	**9.6000e-004**	**52.8112**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	276363	25.5701	4.1400e-003	5.0000e-004	25.8230
Parking Lot	13553.8	1.2540	2.0000e-004	2.0000e-005	1.2664
Total		**26.8242**	**4.3400e-003**	**5.2000e-004**	**27.0894**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	-44694.7	-4.1353	-0.0007	-0.0001	-4.1762
Condo/Townhouse	231668	21.4348	3.4700e-003	4.2000e-004	21.6468
Parking Lot	-31140.9	-2.8813	-0.0005	-0.0001	-2.9098
Total		**14.4182**	**2.3300e-003**	**2.8000e-004**	**14.5608**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5642	4.8800e-003	0.4242	2.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	0.6936	0.6936	6.7000e-004	0.0000	0.7103
Unmitigated	0.5642	4.8800e-003	0.4242	2.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	0.6936	0.6936	6.7000e-004	0.0000	0.7103

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0845					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4669					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0128	4.8800e-003	0.4242	2.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	0.6936	0.6936	6.7000e-004	0.0000	0.7103
Total	**0.5642**	**4.8800e-003**	**0.4242**	**2.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**0.6936**	**0.6936**	**6.7000e-004**	**0.0000**	**0.7103**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0845					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4669					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0128	4.8800e-003	0.4242	2.0000e-005		2.3500e-003	2.3500e-003		2.3500e-003	2.3500e-003	0.0000	0.6936	0.6936	6.7000e-004	0.0000	0.7103
Total	**0.5642**	**4.8800e-003**	**0.4242**	**2.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.3500e-003**	**2.3500e-003**	**0.0000**	**0.6936**	**0.6936**	**6.7000e-004**	**0.0000**	**0.7103**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.0156	0.1215	2.9100e-003	7.9205
Unmitigated	4.0156	0.1215	2.9100e-003	7.9205

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.679144	0.2199	4.0000e-005	0.0000	0.2221
Condo/Townhouse	3.71378 / 2.3413	3.7957	0.1214	2.9100e-003	7.6984
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.0156**	**0.1215**	**2.9100e-003**	**7.9205**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.679144	0.2199	4.0000e-005	0.0000	0.2221
Condo/Townhouse	3.71378 / 2.3413	3.7957	0.1214	2.9100e-003	7.6984
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.0156**	**0.1215**	**2.9100e-003**	**7.9205**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.3326	0.3152	0.0000	13.2112
Unmitigated	5.3326	0.3152	0.0000	13.2112

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.05	0.0102	6.0000e-004	0.0000	0.0252
Condo/Townhouse	26.22	5.3224	0.3146	0.0000	13.1861
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.3326**	**0.3152**	**0.0000**	**13.2112**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.05	0.0102	6.0000e-004	0.0000	0.0252
Condo/Townhouse	26.22	5.3224	0.3146	0.0000	13.1861
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.3326**	**0.3152**	**0.0000**	**13.2112**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

FIRSTCARBON
SOLUTIONS
FCS INTERNATIONAL, INC.

Attachment B:
Transportation Generation Analysis

April 2, 2022

Leah Beniston
Vice President-Entitlements
The True Life Companies
12657 Alcosta Boulevard, Suite 470
San Ramon, CA 94583

Re: Trip Generation Study for 612 South Main Street, Milpitas, California

Dear Ms. Beniston:

At your request, TJKM has prepared this trip generation analysis of the proposed development located at 612 South Main Street in Milpitas, California. The site is currently occupied by a 6,413 square feet (sf) Montessori School for preschool aged students and an 11,700 gymnastics facility. The project also incorporates an adjacent vacant lot. The project site will consist of 57 three-story townhouse style dwelling units with two-car garage and seven on-site guest parking spaces.

To determine the proposed project trips, the following trip rates are applicable, based on the Institute of Transportation Engineer's (ITE) *Trip Generation, 11th Edition.* The land use for Multi-family Housing, Mid-Rise (code 221) was used because it has three or more stories and are connected by three or more dwelling units. Trip Generation for the school is based on the number of students. Because there is no ITE land use for the gymnastics facility, trip generation was estimated based on information provided by the tenant. The net trips for proposed use is shown in the table below:

Land Use (ITE Code)	*Size*		*Daily*		*A.M. Peak Hour*				*P.M. Peak Hour*			
			Rate	*Trips*	*Rate*	*In*	*Out*	*Total*	*Rate*	*In*	*Out*	*Total*
Proposed												
Multifamily Housing, Mid- Rise (221)	57	DU	4.54	**259**	0.37	4	17	**21**	0.39	13	10	**23**
Existing												
Montessori School/Day Care (565)	72	Students	4.09	**294**	0.78	30	26	**56**	0.79	27	30	**57**
Gymnastics	11.7	ksf		**80**						12	12	**24**
Net Total Trips				**-115**		**-26**	**-9**	**-35**		**-26**	**-32**	**-58**

Notes: DU- Dwelling Units; ksf: thousand square feet
Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, 2021, Gymnastics tenant operations

The proposed project will not generate any net new trips during the daily, a.m. peak hour (7:00 a.m. to 9:00 a.m.) trips or p.m. peak hour (4:00 p.m. to 6:00 p.m.).

Per the Valley Transportation Authority (VTA) Congestion Management Program Transportation Impact Analysis (TIA) Guidelines, dated October 2014, transportation impacts of all land uses that are projected to generate 100 or more net new weekday a.m. or p.m. peak hour, including both inbound and outbound trips are required to prepare a TIA. Based on the trip generation, this project would be exempt from preparing a TIA.

Please contact me if there are questions on this matter.

Very truly yours,

Chris D. Kinzel, P.E.
Vice President

Exhibit 3, Part 5:
Preliminary Stormwater Quality Control Plan for South Main Street Milpitas 600 & 612 South Main Street prepared by MacKay & Somps dated June 2022.

PRELIMINARY
STORMWATER QUALITY CONTROL PLAN

For

SOUTH MAIN STREET MILPITAS

600 & 612 South Main Street

June 2022

Prepared by:

MacKay & Somps

5142 Franklin Drive, Suite B

Pleasanton, CA 94588

(925) 225-0690

Mariana Mena

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TABLES

FIGURES

I. PROJECT DATA

I.A. Project Description

The site consists of two parcels located at 600 and 612 South Main Street in the city of Milpitas within Santa Clara County. The 0.70-acre parcel at 600 S. Main Street is a vacant lot and the 2.35-acre parcel at 612 is occupied by a commercial building. The project proposes to redevelop the combined 2.35 acres into 9 buildings resulting in 57 townhome units. The project also includes a landscape common area, one main drive aisle with two access driveways entrances and three private alleys. Walkways and landscaped areas make up the remainder of the site.

I.B. Site Features and Conditions

The 2.35 -acre rectangular site is currently operating as a commercial site and vacant lot. Grades across the site range from an elevation of 23.8± to 25±and drain East to West of the property. The site is relatively flat, and it drains to the north corner off-site into South Main Street where drainage is picked up along existing storm drain curb inlets. The site is bordered by commercial developments across South Main Street and to the North and South edges. To the East the project is adjacent to the UPRR parcel.

I.C. Opportunities and Constraints for Stormwater Control

Opportunities:

- Landscape areas – A 5-to-10-foot setback along the perimeter of the project will be landscaped and used as self-treating areas. The common landscape open space area is vastly large and is an ideal location for the water quality bioretention basin to be located. In addition, this project proposes a 29% landscape area, exceeding the minimum 25% residential open space requirement.
- Existing SD system - There is an existing 12" storm drain system along South Main Street that serves as the main storm drain connection point to discharge treated water to the public storm drain system.

Constraints:

- Land use – Due to the project density it is difficult to provide dispersed bioretention swales for treatment.
- Topography - Generally flat topography can make it difficult to grade parking lots and driveways to drain into planters or swales located at the site perimeter.

I.D. Hydromodification Management Requirements

The project is exempt from Hydromodification Management Plan requirements since the project is located outside the HM applicability map (green area), see figure 3.

II. MEASURES TO LIMIT IMPERVIOUSNESS

II.A. Measures to Make Development more compact

The site density is 24 DU/acre, which is above the minimum 21 DU/acre required for high density residential development. The site has also been designed to maximize open space and

provide landscape buffer areas with a minimum 10' setback along the perimeter of the project.

II.B. Measures to Limit Directly Connected Impervious Area.

II.B.1. Selection of paving materials

Conventional concrete and conventional asphalt are used throughout the site.

II.B.2. Self-Treating Areas

The project includes three self-treating areas located along the eastern and southern boundaries. As shown in the Stormwater Control Plan Exhibit as DMA 2. Since these self-treating areas do not receive any runoff from impervious areas, runoff will discharge directly to the storm drain system on-site via area drains. Area DMA 2 is shown in the Stormwater BMP Exhibit (figure 6).

III. SELECTION AND PRELIMINARY DESIGN OF STORMWATER TREATMENT BMPS

III.A. Hydrology

Runoff coefficients for existing and proposed on-site conditions were based on the C.3 Stormwater Handbook Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) June 2016 shown in Table 3.

The water quality bioretention basin has been designed to treat the flow of the resultant surface drainage for this project. The basin is sized per the SCVURPPP Appendix B – Section IV "Sizing for Flow and Volume-Based Treatment Measure" natural method A rainfall intensity value of 0.2 inches per hour is used for treatment flows based on the uniform intensity approach. The weighted runoff coefficient is based on the imperviousness percentage for the drainage area.

The basin includes treatment soil and a rock gallery beneath it to function as a bioretention facility to mitigate stormwater quality impacts. Runoff from building, walkways, and alleys will surface drain and/or be conveyed by a storm drain system and then pumped into the bioretention basin for treatment by a ¼ horsepower non-automatic pump with lockable simplex controller that has an audible and visual alarm system and HOA switch. The prefabricated pump system will be installed on a rail system that will allow it to be raised and lowered for maintenance and service, refer to figure 8 and 9. Treated stormwater will drain thru outlet pipe in basin to the existing public storm drain system in South Main Street.

III.B. Recommended Permanent BMPs

The water quality bioretention basin is the best method to fulfill on-site treatment requirements and the recommended BMP solutions are shown in Figures 5, 6, and 7. These BMPs will provide a level of treatment that meets the C.3 requirements for the runoff generated by the project improvements.

- DMA 1:
    - Pavement totaling 24,443 square feet drains to basin via proposed SD system
    - Building Roofs totaling 42,239 square feet drains to basin via proposed SD system
    - Walkway totaling 9,113 square feet drains to basin via proposed SD system
    - Driveway totaling 3,900 square feet drains to basin via proposed SD system
    - Pervious totaling 19,624 square feet drains to basin via proposed SD system

- DMA 2:
  - Self-Treating Areas consisting of the vegetated landscape buffers on the eastern edge of the project boundary, totaling 3,086 square feet.

DMA 1 will be treated by the bioretention basin located in the common area and will be sized to maximize treatment for tributary area. Runoff will infiltrate through a minimum of 18" of bio-treatment soil (as identified in the SCVURPPP Handbook). The treatment soil and the planting material to be used within the bioretention treatment areas must have an infiltration rate of 5 inches per hour to meet the minimum infiltration criteria as described in the SCVURPPP bioretention design and sizing guidelines from appendix B. The mean annual precipitation for the proposed project site is determined from the SCVURPPP Appendix B, Figure B-1 Soil Texture and Mean Annual Precipitation Depths for the Santa Clara Basin. The design calculations were performed for Flow and Volume based treatment Measures per section IV. The combined runoff from streets, alleys, sidewalks, and walkways will be routed through gutter and storm drain system to the water quality bioretention basin.

IV. SOURCE CONTROL MEASURES

IV.A. Structural Control Measures

This project will create a few potential sources of stormwater pollutants.

Sources to be controlled include:

- On-site storm drain inlets
- Need for future indoor and structural pest control
- Interior Floor Drains
- Landscape/outdoor pesticide use
- Vehicle and equipment cleaning
- Vehicle/equipment repair and maintenance
- Fire sprinkler test water

IV.B. Operation Control Measures Table

All areas where these activities occur will drain to stormwater treatment facilities. To further reduce the potential for pollutants to enter runoff, permanent and operational BMPs will be implemented as described below.

Sources and Source Control BMPs

Potential Source	Permanent BMPs	Operational BMPs
On-Site Storm Drain Inlets	Inlets that are accessible from driveways will be marked with city approval "No Dumping – Drains to Creek" curb markers	Inlet markings will be inspected annually and replaced or renewed as needed.

Need for Future Indoor and Structural Pest Control	Standard building design minimizes potential need for future pest control.	Buyers will receive integrated pest management information.
Interior Floor Drains	All interior floor drains shall be plumbed to the sanitary sewer system and shall not connect to storm drains	
Landscape/Outdoor Pesticide Use	Any native trees, shrubs, and ground cover on the site will be preserved to the maximum extent possible. Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. Where possible, pest-resistant plants will be selected, especially for locations adjacent to hardscape. Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	All open space landscaping is to be maintained by a professional landscaping contractor utilizing integrated management methods. Pesticides will only be applied by appropriately licensed contractors.
Vehicle and Equipment Cleaning		Car washing on-site is discouraged. Car washing will be deferred to car wash outlets.
Vehicle/Equipment Repair and Maintenance		Vehicle/equipment repair on-site is prohibited.
Construction Related Pollutants		Regular street sweeping to control pollutants. Controlled construction wash down areas. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and shall not be discharged to a storm drain.

V. PERMITTING AND CODE COMPLIANCE ISSUES

There are no known conflicts between the proposed stormwater control plan and City of Milpitas ordinances or policies. Any conflicts that are found will be resolved through the design review process or during subsequent permitting.

VI. BMP OPERATION AND MAINTENANCE

VI.A. Recommended BMP Maintenance

Ownership and maintenance responsibility for the stormwater facility lies with the resident Homeowner's Association. Operation and Maintenance Agreement and Plan will be recorded with to the recording of the Final Map.

The applicant will prepare and submit, for the City's review, an acceptable Stormwater Control Operation and Maintenance Plan prior to completion of construction and will execute a Stormwater Management Facilities Operation and Maintenance Agreement before sale, transfer, or permanent occupancy of the site. The applicant accepts responsibility for maintenance of stormwater management facilities until such responsibility is transferred to another entity.

The bioretention basin removes pollutants primarily by filtering runoff slowly through an active layer of soil. Routine maintenance is needed to ensure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roots and are biologically active. Typical routine maintenance consists of the following:

- Inspect inlets for channels, exposure of soils, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment. Examine rock or other material used as a splash pad and replenish if necessary.
- Inspect outlets for erosion or plugging.
- Inspect side slopes for evidence of instability or erosion and correct as necessary.
- Observe soil in the swale or planter for uniform percolation throughout. If portions of the swale or filter do not drain within 48 hours after the end of a storm, the soil should be tilled and replanted. Remove any debris or accumulations of sediment.
- Examine the vegetation to ensure that it is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary, remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas. Confirm that irrigation is adequate and not excessive. Replace dead plants and remove invasive vegetation.
- Abate any potential vectors by filling holes in the ground in and around the swale and by ensuring that there are no areas where water stands longer than 48 hours following a storm. If mosquito larvae are present and persistent, contact the Santa Clara County Vector Control District for information and advice. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.

VII. CERTIFICATIONS

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order R2-2015-0049.

_____

By

_____

Print Name

TABLE 1 - Site Data

EXISTING CONDITIONS

Surface Type	Area (ac)	Percentages	C
Impervious			
Roof	0.63	27%	0.9
Streets/Parking/Walkway	0.83	35%	0.8
Total Impervious	1.46	62%	0.43
Pervious			
Landscape	0.89	38%	0.1
Total Pervious	0.89	38%	0.1
Total	2.35	100%	0.78

PROPOSED CONDITIONS

Surface Type	Area (ac)	Percentages	C
Impervious			
Roof	0.97	41%	0.9
Streets/Parking	0.56	24%	0.8
Walkways	0.21	9%	0.8
Driveway Aprons	0.09	4%	0.8
Total Impervious	1.83	78%	0.83
Pervious			
Landscape	0.52	22%	0.1
Total Pervious	0.52	22%	0.1
Total	2.35	100%	0.61

TABLE 2 - Proposed Drainage Area

Drainage Management Area (DMA)	Tributary Area (SF)	Existing Imp. Area (Remaining) (SF)	New/Replaced Imp. Area (SF)	Landscape Area (SF)
1	99,319	0	79,695	19,624
2	3,086	0	0	3,086
Total	102,405	0	79,695	22,710

TABLE 3 - Estimated Runoff Coefficients During Small Storms

(From SCVURPPP, June 2016)

Table B-3 — Estimated Runoff Coefficients for Various Surfaces During Small Storms

Type of Surface	Runoff Coefficients "C" factor
Roofs	0.90
Concrete	0.90
Stone, brick, or concrete pavers with mortared joints and bedding	0.90
Asphalt	0.90
Stone, brick, or concrete pavers with sand joints and bedding	0.90
Pervious concrete	0.10
Porous asphalt	0.10
Permeable interlocking concrete pavement	0.10
Grid pavements with grass or aggregate surface	0.10
Crushed aggregate	0.10
Grass	0.10

Notes: These C-factors are only appropriate for small storm treatment BMP design, and should not be used for flood control sizing. Where available, locally developed small storm C-factors for various surfaces should be used. Sources BASMAA, 2003; Lindeburg, 2003; Hade and Smith, 1988; Smith, 2012.

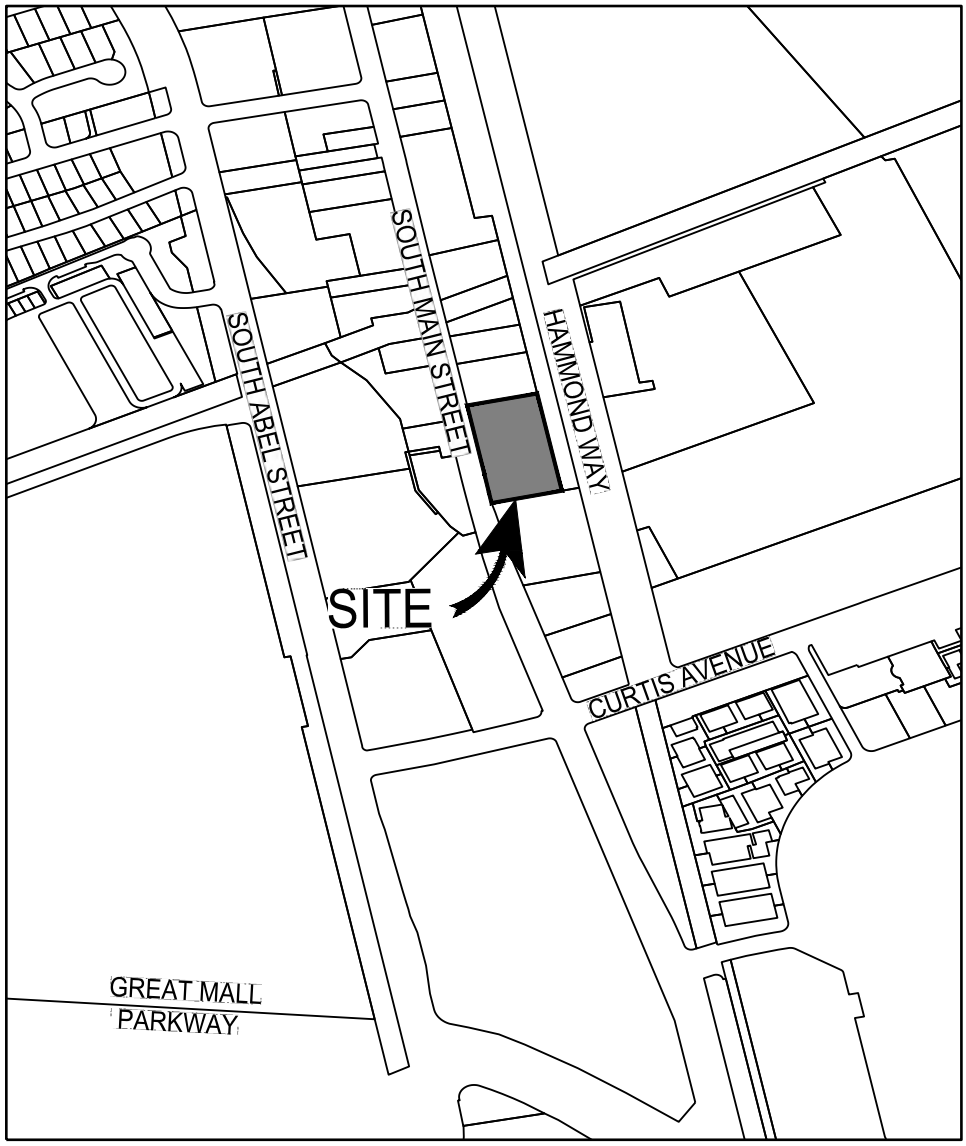

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FIGURE 1-VICINITY MAP

SOUTH MAIN STREET

MILPITAS, CALIFORNIA

DRAWN BY:	JOB NO:	DATE:	REV. DATE:	SCALE:
MM	29086.000	04-07-2022		NTS

04-08-2022 Mariana Mena P:\29086\PLN\VTM\C3.0 VTM.DWG

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FIGURE 2 - AERIAL PHOTO

SOUTH MAIN STREET

MILPITAS, CALIFORNIA

DRAWN BY: MM	JOB NO: 29086.000	DATE: 04-07-2022	REV. DATE:	SCALE: 1" = 60'

04-08-2022 2:14pm Mariana Mena P:\29086\PLN\HYDRO-P\SWCP\EXHIBITS\FIGURE 2.DWG

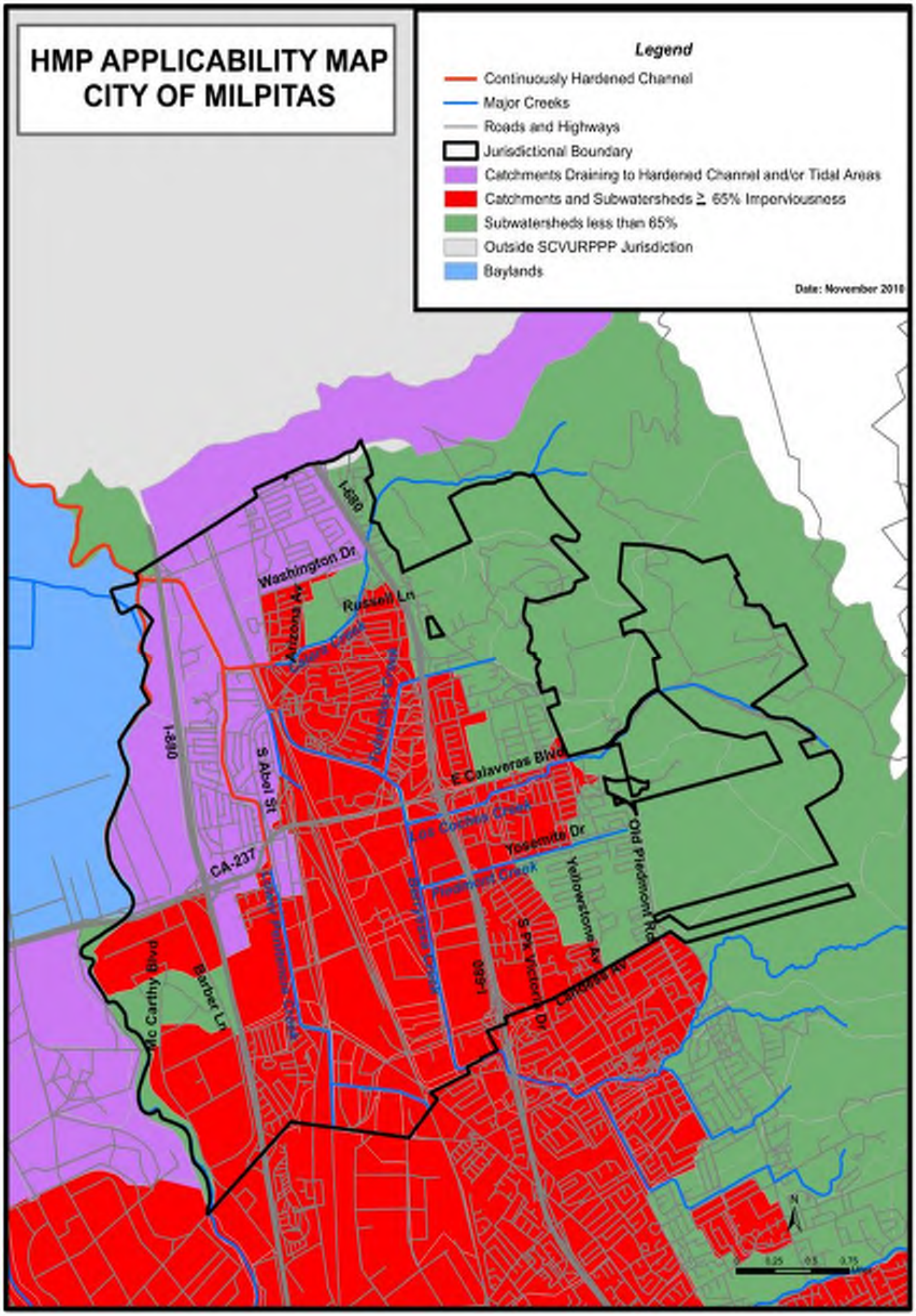
HMP APPLICABILITY MAP
CITY OF MILPITAS
Legend
Continuously Hardened Channel
Major Creeks
Roads and Highways
Jurisdictional Boundary
Catchments Draining to Hardened Channel and/or Tidal Areas
Catchments and Subwatersheds ≥ 65% Imperviousness
Subwatersheds less than 65%
Outside SCVURPPP Jurisdiction
Baylands
Date: November 2010
I-680
Washington Dr
Russell Ln
I-880
S Abel St
E Calaveras Blvd
CA-237
Yosemite Dr
Yellowstone Av
Old Piedmont Rd
Piedmont Creek
S Pk Victoria Dr
Mc Carthy Blvd
Barber Ln
Landess Av
N

FIGURE 3

FIGURE 4 - EXISTING CONDITIONS

SOUTH MAIN STREET

MILPITAS, CALIFORNIA

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MM	29086.000	04-07-2022		1" = 60'

04-09-2022 12:03pm Mariana Mena P:\29086\PLN\HYDRO-P\SWCP\EXHIBITS\FIGURE 4.DWG

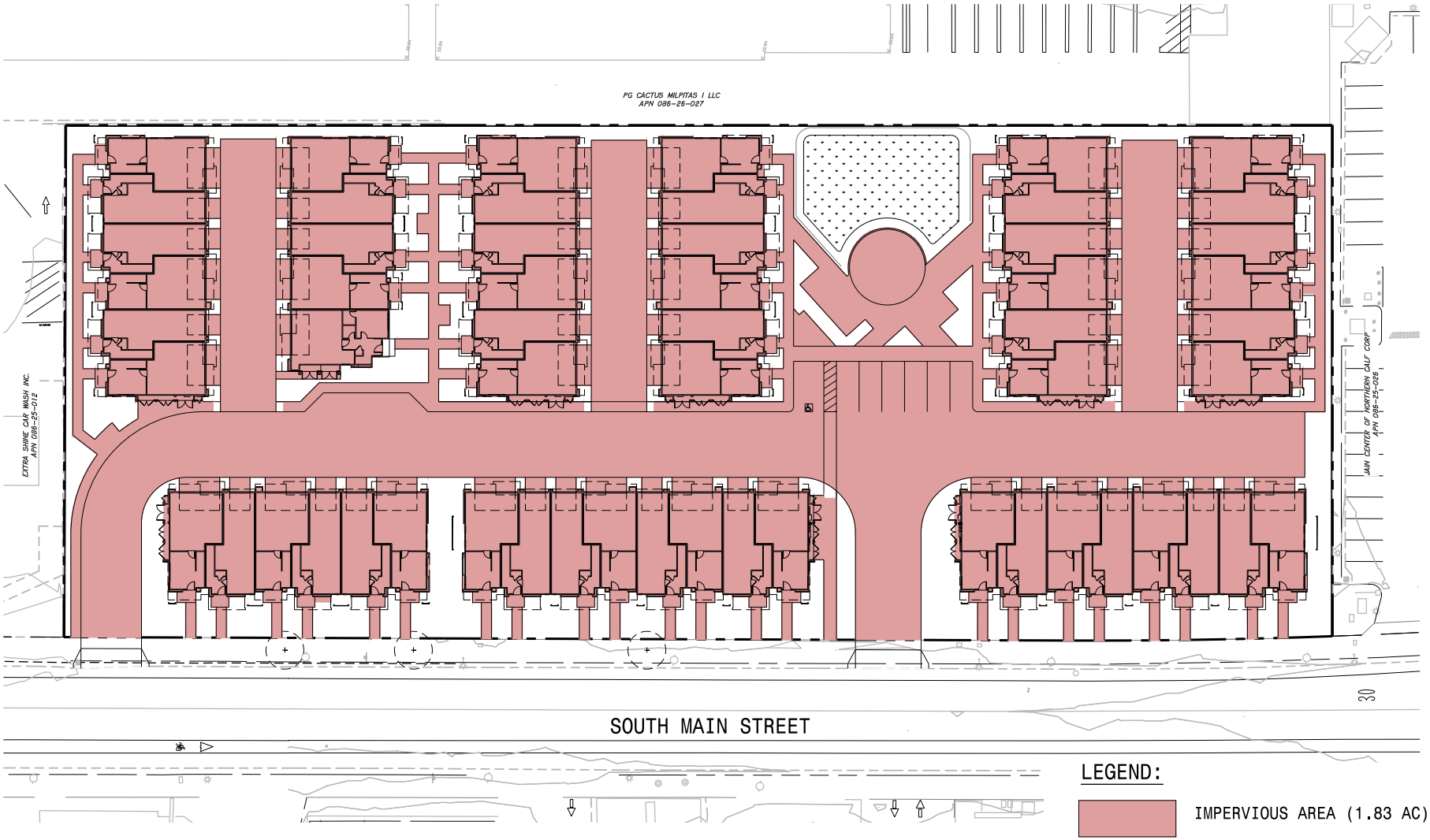

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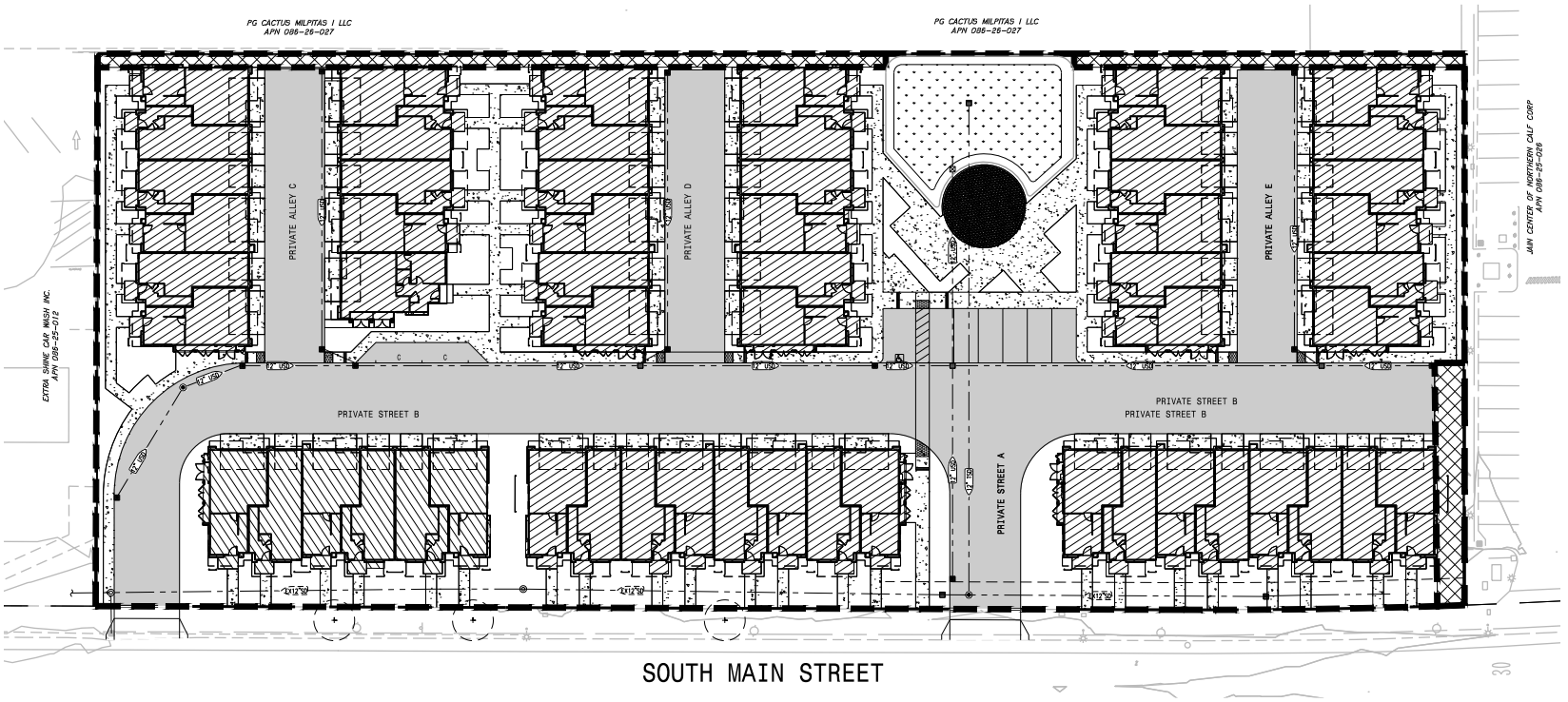
FIGURE 5 - PROPOSED CONDITIONS

SOUTH MAIN STREET

MILPITAS, CALIFORNIA

DRAWN BY:	JOB NO:	DATE:	REV. DATE:	SCALE:
MM	29086.000	06-30-2022		1" = 60'

07-01-2022 12:35am Mariana Mena P:\29086\PLN\HYDRO-P\SWCP\EXHIBITS\FIGURE 5.DWG



LEGEND:

- TREATMENT AREA - BIORETENTION BASIN
- SELF TREATING AREA
- IMPERVIOUS AREA - PAVEMENT
- IMPERVIOUS AREA - BUILDING INCLUDING PORCHES
- IMPERVIOUS AREA - WALKWAY AND DRIVEWAYS
- DRAINAGE SHED BOUNDARY
- DMA 1 DRAINAGE MANAGEMENT AREA NUMBER

Drainage Management Area (DMA)	Total Drainage Area (SF)	Impervious Area[2] (sqft)	Interceptor Tree Reduction[3][4] (sqft)	Pervious Area[4] (sqft)	Effective Impervious Area[5] (sqft)	Water Quality Design Volume[6] (cuft)	Estimated Surface Area w/Sizing Factor 0.03 (sqft)	Treated Runoff Volume (cuft)	Volume in Ponding Area (cuft)	Provided Treatment Area[8] (sqft)	Ponding Depth[9] (in)	Treatment Type	Lined or Unlined Treatment Measure
1	99,319	79,695	0	19,624	51,657	4,676	2,387	2,836	1,759	2,300	10"	Bioretention Basin	Lined
2	3,086		0	3,086		0	0	0	0	0		Self Treating Area	

Notes:

[1] Mean Annual Precipitation (MAP) determined using the Figure 8-1 Soil Texture and Mean Annual Precipitation Depths for the Santa Clara Basin of the C.3 Stormwater Handbook SCVURPPP June 2016.
[2] Impervious Surfaces includes all impervious surfaces (Roof Areas, Porches, Pavement, Driveways, Landscape walkway area, and Sidewalks)
[3] Interceptor trees were not included in planning calculation but are anticipated during the design phase.
[4] Pervious surfaces (Landscaping)
[5] Effective impervious area includes the total impervious Surfaces -Interceptor Tree credit-(0.1)*Pervious Surfaces
[6] WQD Volume is the required treatment volume using Adapted CASQA Stormwater BMP Handbook Approach of Section II.B
[7] Rain Event Duration assumes an intensity of 0.2 in/hr, the Adjusted Unit Basin Volume is divided by the intensity.
[8] The Treatment Area provided on the site design. For dimensions of the irregular shaped treatment area refer to the Preliminary Site plan sheet of the VTM plans.
[9] The depth of ponding the provided Treatment Area will have in the design event

NOTES:

1. BIORETENTION BASIN SIZING IS PER THE SANTA CLARA VALLEY URBAN RUNOFF POLLUTION PREVENTION PROGRAM(SCVURPPP) C.3 STORMWATER HANDBOOK DATED JUNE 2016 APPENDIX B - BIORETENTION BASIN SIZING SECTION IV.B SIZING FOR FLOW AND VOLUME BASED TREATMENT MEASURES BASED ON UNIFORM INTENSITY APPROACH.
2. PER THE SCVURPPP C.3 DATA FORM, THE PROJECT IS EXEMPT FROM HYDROMODIFICATION SINCE THE PROJECT IS LOCATED OUTSIDE THE HM APPLICABILITY MAP (GREEN AREA).

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FIGURE 6 - STORMWATER CONTROL PLAN W/BMP SIZING

SOUTH MAIN STREET

MILPITAS, CALIFORNIA

DRAWN BY: MM	JOB NO: 29086.000	DATE: 06-30-2022	REV. DATE:	SCALE: 1" = 60'

07-01-2022 12:44am Mariana Mena P:\29086\PLN\HYDRO-P\SWCP\EXHIBITS\FIGURE 6.DWG

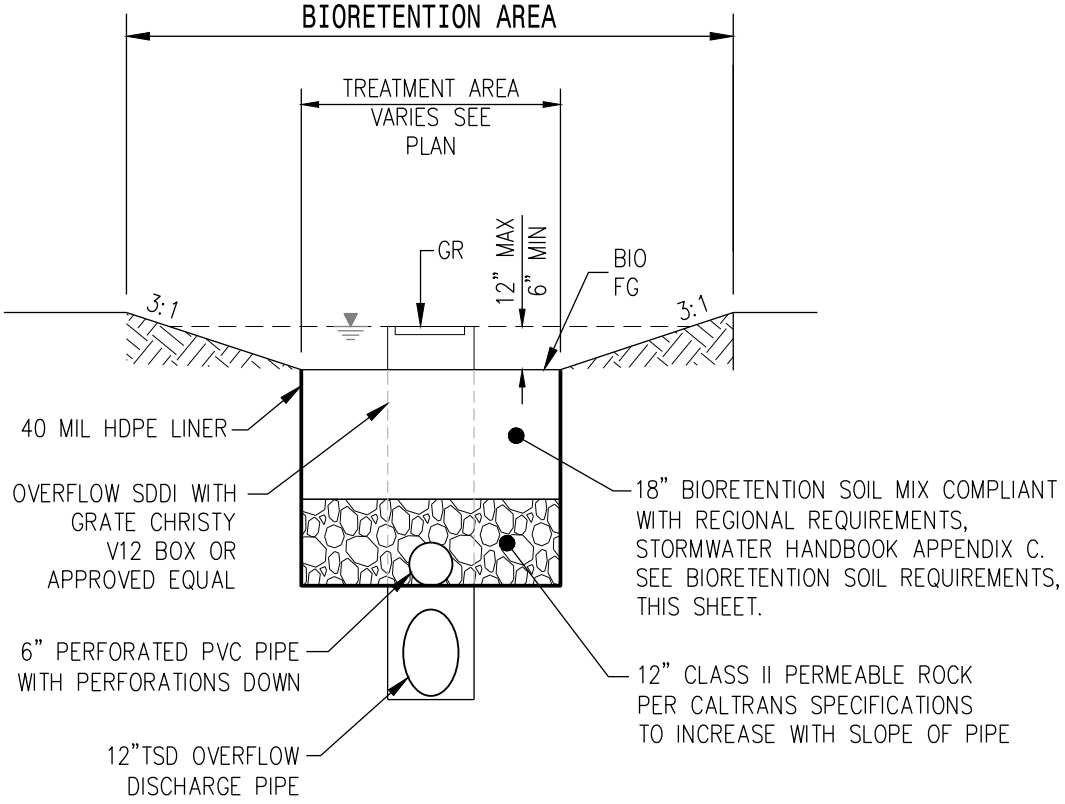

FIGURE 6-5 OF THE SCVURPPP C.3 GUIDANCE DOCUMENT DATED JUNE 2016

BIOTREATMENT SOIL REQUIREMENTS

PRIOR TO ORDERING THE BIOTREATMENT SOIL MIX OR DELIVERY TO THE PROJECT SITE, CONTRACTOR SHALL PROVIDE A BIOTREATMENT SOIL MIX SPECIFICATION CHECKLIST, COMPLETED BY THE SOIL MIX SUPPLIER AND CERTIFIED TESTING LAB.

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FIGURE 7 - BIORETENTION AREA

SOUTH MAIN STREET

MILPITAS, CALIFORNIA

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FIGURE 8

Trusted. Tested. Tough.®

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER® PUMP COMPANY

SECTION: 2.20.050
FM2791
0620
Supersedes
1019

TECHNICAL DATA SHEET

HIGH HEAD WASTE-MATE SERIES
Models 282/4282, 284/4284
Submersible Sewage Pumps

PRODUCT SPECIFICATIONS

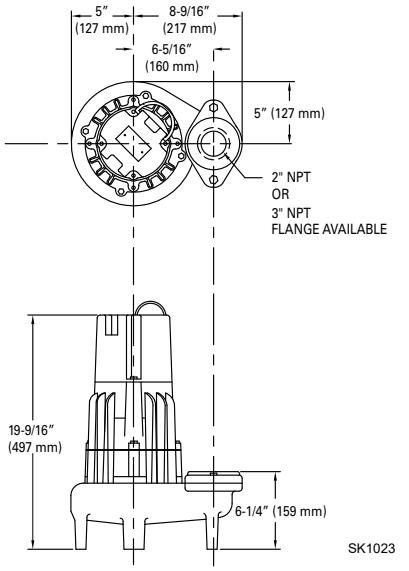
MOTOR	Horse Power	1/2 (282/4282) or 1 (284/4284)
	Voltage	115 - 575
	Phase	1 or 3 Ph
	Hertz	60 Hz
	RPM	1750
	Type	Permanent split capacitor or 3 Ph
	Insulation	Class B
	Amps	1.4 - 10.3
PUMP	Operation	Automatic or nonautomatic
	Auto On/Off Points	16-1/2" (40.6 cm) / 5-1/4" (13 cm)
	Discharge Size	2" or 3" NPT female, flanged vertical
	Solids Handling	2" (50 mm) spherical solids
	Cord Length	10' (3 m) automatic, 15' (5 m) nonautomatic
	Cord Type	1 Ph-UL listed 3-wire neoprene cord and plug 3 Ph-4 wire with no plug
	Max. Head	35' (10.7 m)
	Max. Flow Rate	179 GPM (678 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload (1 Ph)
MATERIALS	Upper Bearing	Ball bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Cast iron
	Hardware	Stainless steel
	Motor Shaft	1117 carbon steel or 416 stainless steel*
	Gasket	Neoprene square ring and gasket

*Single seal models are built with a carbon steel motor shaft, and double seal models are built with a stainless steel motor shaft.

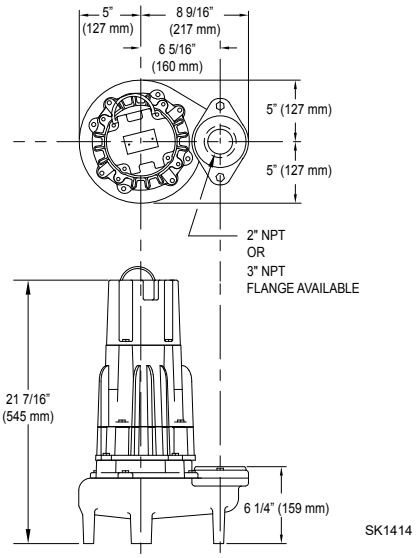
NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

SINGLE SEAL



DOUBLE SEAL



C US Tested to Standard UL778 and Certified to CSA Standard C22.2 No. 108

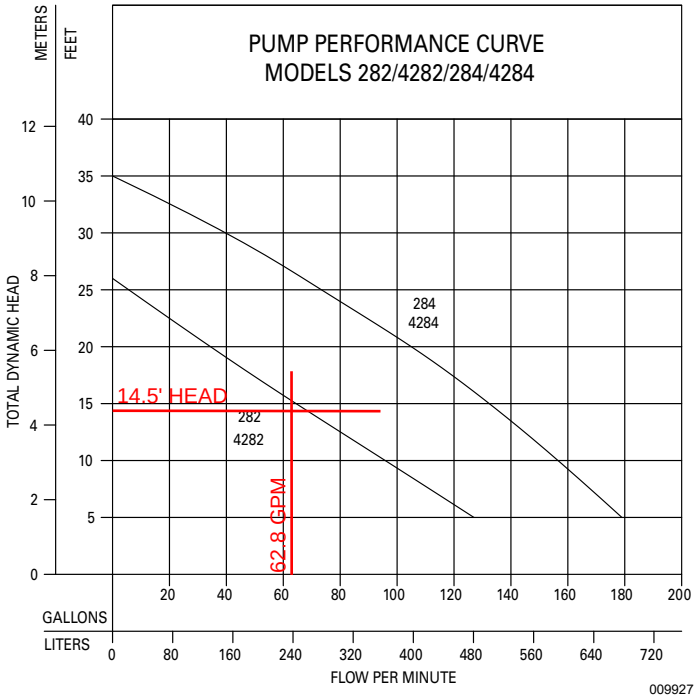
SSPMA

502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

FIGURE 8

TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODELS		282/4282		284/4284	
Feet	Meters	Gal.	Liters	Gal.	Liters
5	1.5	127	481	179	678
10	3.0	96	363	157	594
15	4.6	64	242	133	503
20	6.1	34	129	106	401
25	7.6	6	23	73	276
30	9.1	--	--	42	159
Shut-off Head		26 ft. (7.9m)		35 ft. (10.7m)	



Model	MODEL COMPARISON											CERTIFICATIONS
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex	cCSAus
M282	Single	Auto	115	1	10.3	1/2	60	82	37	1	---	Y
N282/N4282	Single / Dbl	Non	115	1	10.3	1/2	60	82 / 88	37 / 40	2 or 3	4	Y
BN282	Single	Auto	115	1	10.3	1/2	60	83	38	---	---	Y
D282	Single	Auto	230	1	5.0	1/2	60	82	37	1	---	Y
E282/E4282	Single / Dbl	Non	230	1	5.0	1/2	60	82 / 88	37 / 40	2 or 3	4	Y
* H282	Single	Auto	200	1	6.1	1/2	60	82	37	1	---	Y
* I282/I4282	Single / Dbl	Non	200	1	6.1	1/2	60	82 / 88	37 / 40	3	4	Y
* J282/J4282	Single / Dbl	Non	200	3	3.6	1/2	60	82 / 88	37 / 40	3	4	Y
* F282/F4282	Single / Dbl	Non	230	3	3.0	1/2	60	82 / 88	37 / 40	3	4	Y
BE282	Single	Auto	230	1	5.0	1/2	60	83	38	---	---	Y
* CF282	Single	Auto	230	3	3.0	1/2	60	82	37	1	---	N
* G282/G4282	Single / Dbl	Non	460	3	1.7	1/2	60	82 / 88	37 / 40	3	4	Y
* BA282/BA4282	Single / Dbl	Non	575	3	1.4	1/2	60	82 / 88	37 / 40	3	4	Y
D284	Single	Auto	230	1	8.9	1	60	85	39	1	---	Y
E284/E4284	Single / Dbl	Non	230	1	8.9	1	60	85 / 91	39 / 41	2 or 3	4	Y
* H284	Single	Auto	200	1	9.3	1	60	85	39	1	---	Y
* I284/I4284	Single / Dbl	Non	200	1	9.3	1	60	85 / 91	39 / 41	3	4	Y
* J284/J4284	Single / Dbl	Non	200	3	5.5	1	60	85 / 91	39 / 41	3	4	Y
* F284/F4284	Single / Dbl	Non	230	3	5.0	1	60	85 / 91	39 / 41	3	4	Y
BE284	Single	Auto	230	1	8.9	1	60	85	39	---	---	Y
* CF284	Single	Auto	230	3	5.0	1	60	85	39	1	---	N
* G284/G4284	Single / Dbl	Non	460	3	2.6	1	60	85 / 91	39 / 41	3	4	Y
* BA284/BA4284	Single / Dbl	Non	575	3	2.2	1	60	85 / 91	39 / 41	3	4	Y

* no molded plug Additional cord lengths are available in 15' (5 m), 25' (8 m), 35' (11 m) and 50' (15 m).

SELECTION GUIDE

1. Integral float-operated mechanical switch, no external control required.
2. For automatic use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
3. See FM1228 for correct model of simplex control panel.
4. See FM0712 for correct model of duplex control panel.
5. Variable level control switch 10-0743 used as a control activator, specify simplex (3) float or duplex (4) float system. Refer to FM0526.

⚠ CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

FIGURE 9

Trusted. Tested. Tough.®

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER® PUMP COMPANY

SECTION: 2.70.020
FM0787
1120
Supersedes
0418

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
TEL: (502) 778-2731 • 1 (800) 928-PUMP • FAX: (502) 774-3624

Visit our website:
zoellerpumps.com

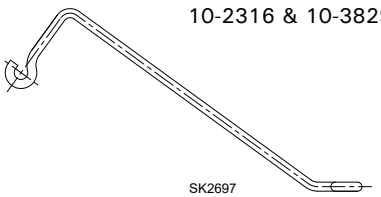
Z-RAIL® DISCONNECT SYSTEMS (1-1/4" - 3" NPT Discharge Pumps)

2" Z-Rail® Disconnect System

FEATURES

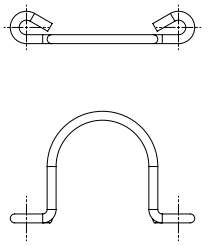
- Sewage, storm water and effluent pump systems
- For concrete, steel, or fiberglass tanks
- Allows for removal of pumps from ground level
- No confined space entry to service pump
- No pull rods or hold down rods
- Disconnect fitting with positive machine fit and o-ring seal provides a reliable seal.
- Seals up to 160 psi, supports a weight up to 300 lbs.
- Guide rails direct the pump to and from the disconnect fitting. Systems are supplied complete with disconnect fitting, guide plate, rail guide, and upper rail support bracket.
- All systems use 3/4" schedule 40 pipe rails (not included).

P/N 10-3560, 10-3561, 10-2316 & 10-3829



SK2697

P/N 10-0789



SK2486

SPECIFICATIONS

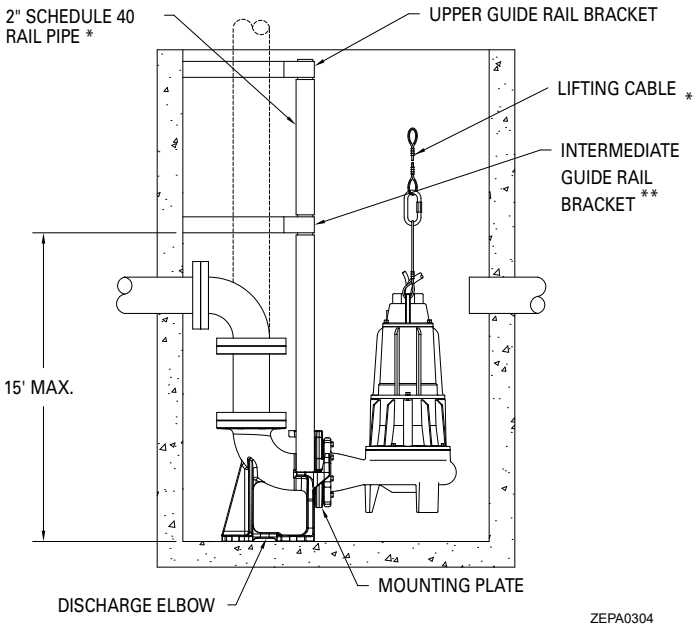
Rail System	Pump Discharge	Rail System Discharge	Materials of Construction*	Weight	Type
39-0134	1-1/4" V	2" V	powder coated, ductile iron	41	Z-Rail®
39-0135	1-1/4" V	2" V	powder coated, ductile iron w/ SS upper rail support bracket	43	Z-Rail®
39-0136	1-1/4" V	2" V	powder coated, ductile iron w/ brass for non-sparking	44	Z-Rail®
39-0143	1-1/4" V	2" V	powder coated, ductile iron w/ SS upper rail support/ brass for non-sparking	44	Z-Rail®
39-0137	1-1/4" H	1-1/4" V	powder coated, ductile iron (810/815 only)	41	Z-Rail®
39-0138	1-1/4" H	1-1/4" V	powder coated, ductile iron w/ SS upper rail support bracket (810/815 only)	43	Z-Rail®
39-0131	1-1/2" V	2" V	powder coated, ductile iron	41	Z-Rail®
39-0132	1-1/2" V	2" V	powder coated, ductile iron w/ SS upper rail support bracket	43	Z-Rail®
39-0133	1-1/2" V	2" V	powder coated, ductile iron w/ brass for non-sparking	44	Z-Rail®
39-0142	1-1/2" V	2" V	powder coated, ductile iron w/ SS upper rail support/ brass for non-sparking	43	Z-Rail®
39-0128	2" V	2" V	powder coated, ductile iron	42	Z-Rail®
39-0129	2" V	2" V	powder coated, ductile iron w/ SS upper rail support bracket	43	Z-Rail®
39-0130	2" V	2" V	powder coated, ductile iron w/ brass for non-sparking	45	Z-Rail®
39-0141	2" V	2" V	powder coated, ductile iron w/ SS upper rail support/ brass for non-sparking	44	Z-Rail®
39-0122	3" V	3" V	powder coated, ductile iron	47	Z-Rail®
39-0123	3" V	3" V	powder coated, ductile iron w/ SS upper rail support bracket	47	Z-Rail®
39-0124	3" V	3" V	powder coated, ductile iron / brass for non-sparking	47	Z-Rail®
39-0125	3" V	3" V	powder coated, ductile iron w/ SS upper rail support/ brass for non-sparking	47	Z-Rail®
ACCESSORIES *Intermediate rail brackets are required for each 12' of basin depth.*					
39-0139	intermediate rail bracket 1-1/4", 1-1/2" and 2" discharge - SS			4	Z-Rail®
39-0140	intermediate stabilizer, SS, for 3" system			4	Z-Rail®
** 10-3560	SS lifting bail for 50, 90 & 150 series			1	Z-Rail®
** 10-3561	SS lifting bail for 140 series			1	Z-Rail®
** 10-2316	SS lifting bail for 130, 260 & 270 series			1	Z-Rail®
** 10-3829	SS lifting bail for 803, 805 & 807 series			1	Z-Rail®
** 10-0789	SS lifting bail for 160, 180, 280, 290, 810/815 and 818/819/820 series (see above)			1	Z-Rail®

* Disconnect fitting, guide rail plate, rail guide and upper rail support bracket SS lifting bail for 160, 180, 280, 290, 810/815 and 818/819/820 series

** Lifting bails are required on these models to balance pump and rail plate evenly. Other models already include proper lifting device.

FIGURE 8

FLANGED RAIL SYSTEMS (3" & 4") - FIELD ASSEMBLED



* Not included

** One intermediate guide rail bracket is required for every
- ☐20 ft. for 3" system or
- ☐15 ft. for 4" system, of basin depth. See chart for part number.

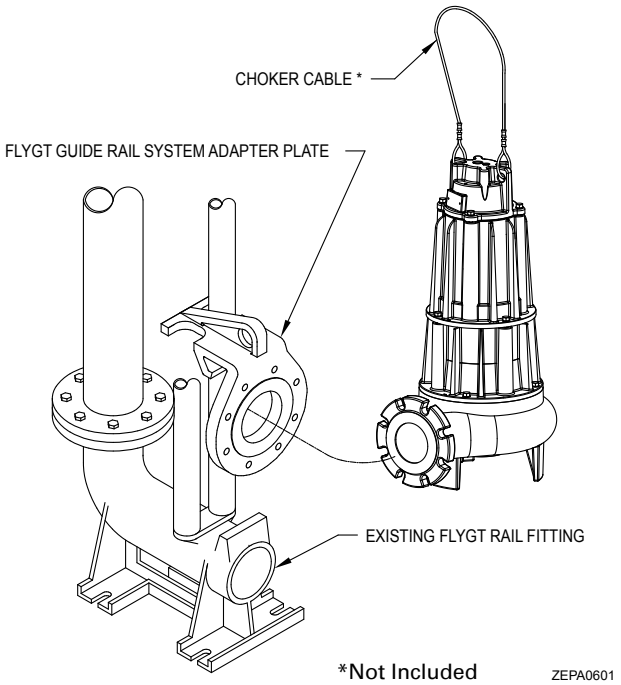
Guide rail system is for removal and installation of flanged, horizontal discharge pumps without getting in or removing fluid from pit.

SPECIFICATIONS			
Part Number	Description	Pump Discharge	Guide Rails *
39-0094	3" guide rail system SS	3" horizontal flange	2" SS or galv.
39-0154	4" guide rail system SS bracket	4" horizontal flange	2" SS or galv.
39-0095	3" guide rail system SS non-sparking for Class I Group C and /or Group D Division 1 Installation	3" horizontal flange	2" SS or galv.
39-0155	4" guide rail system, non-sparking for class I Group C and/or Group D Division 1 Installation	4" horizontal flange	2" SS or galv.
39-0096	Intermediate bracket for 3" rail systems		
39-0014	Intermediate bracket for 4" rail systerms (SS)		

FLYGT GUIDE RAIL SYSTEM ADAPTERS

Adapter plates for retrofitting 3" & 4" horizontal ANSI flange discharge pumps to existing Flygt rail systems.

Pump Discharge	Part Number
3"	6039-0070
4"	6039-0048



DESIGN FEATURES:

Cast iron construction

Flange conforms to ANSI B16.10 fully flat. MSS SP-6

For use with all 400, 600 & 700 series pumps with 3" or 4" discharge and 2" rail pipe.

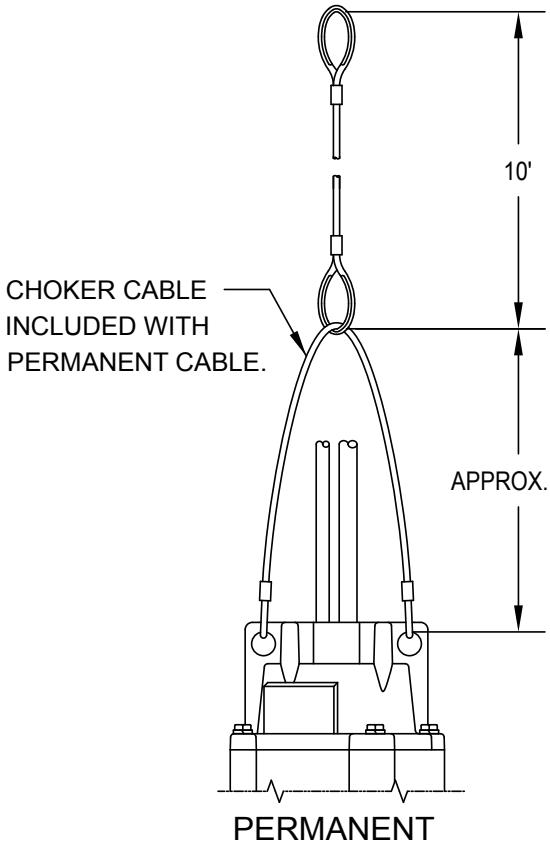
Flange gasket and stainless steel bolts included.

⚠ CAUTION

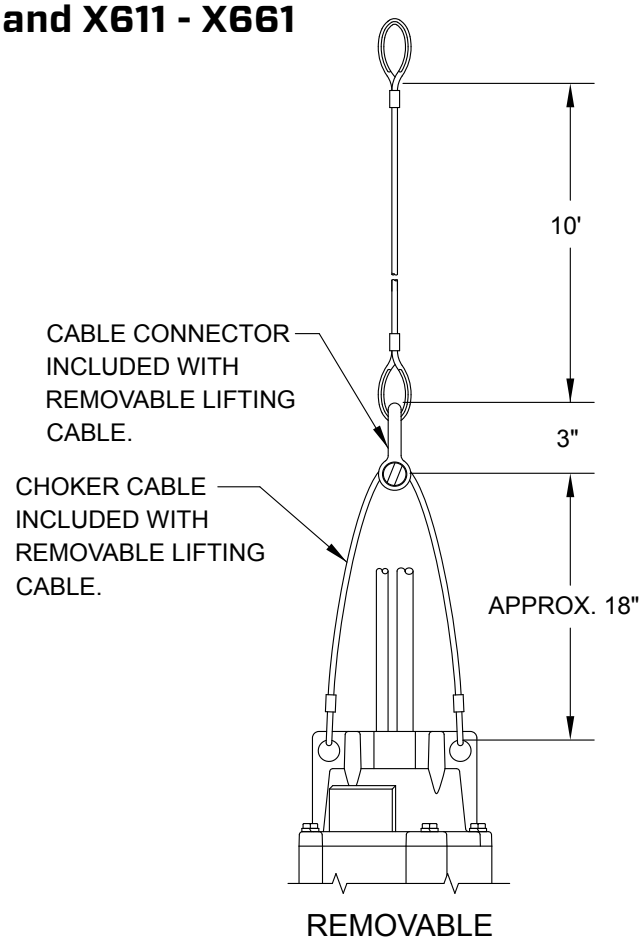
All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

FIGURE 8
PUMP LIFTING CABLES

Lifting Cables for Pump
Model: 611 - 661 and X611 - X661



ZEPA0191A

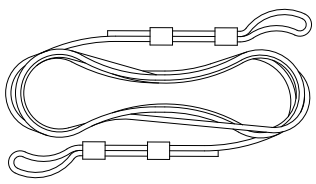


ZEPA0191B

P/N	Description	Material	Wt. Lbs.
6039-0026	Choker Cable	Stainless Steel	1
6039-0027	Choker Cable	Galvanized Steel	1
6039-0028	Permanent Cable 10′	Stainless Steel	4
6039-0029	Permanent Cable 10′	Galvanized Steel	4
6039-0030	Removable Cable 10′	Stainless Steel	5
6039-0031	Removable Cable 10′	Galvanized Steel	5
6039-0032	Permanent Cable 15′	Stainless Steel	6
6039-0061	Permanent Cable 25′	Stainless Steel	8
6039-0062	Permanent Cable 20′	Stainless Steel	7

Additional lengths available. Consult Factory.

Models: Non 600 Series Pumps



SKA1335

1/8" Stainless Steel Lifting Cable*

Part Number	Length
39-0031	8'
39-0032	12'
39-0033	16'
39-0034	20'
39-0035	24'

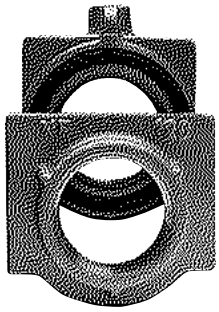
* Limited to 150 lbs.

FIGURE 8
DISCONNECT & RAIL SYSTEMS

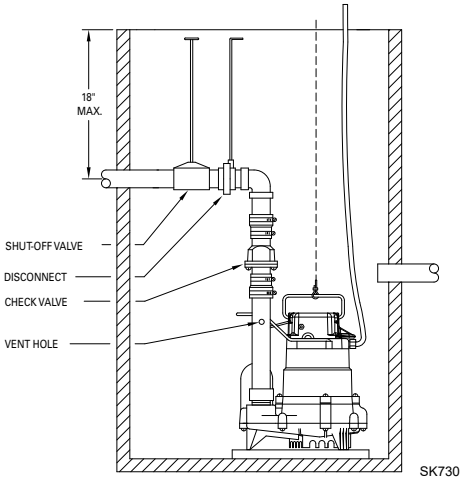
- Economical: reduces time and cost of removing pump.
- Safety: keeps personnel out of pits and out of contact with contaminants.
- Inspections made are fast and easy.

DISCONNECT ONLY (1-1/4", 1-1/2" & 2" Discharge)

Disconnect fitting: used for shallow systems where guide rails are not necessary. (pull rod not included)



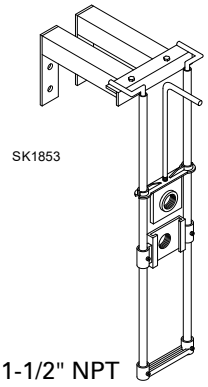
39-0053, 1-1/4" NPT
39-0001, 1-1/2" NPT
39-0002, 2 NPT



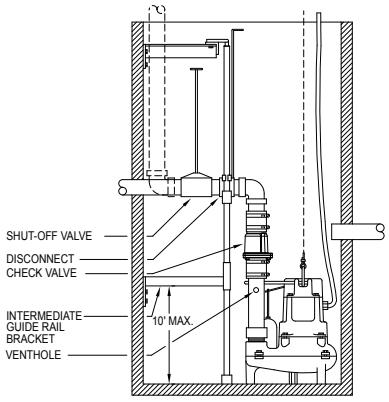
SK730

COMPLETE SYSTEMS (1-1/2" & 2" Discharge)

Rail and disconnect system for effluent or sewage pumps: used for removal and reinstallation of pumps without getting in or removing fluid from the pit. (2 standoffs included)

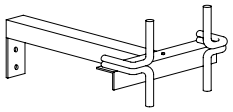


39-0003, 1-1/2" NPT
39-0004, 2" NPT
Pipe rails, pull rods and intermediate brackets not included.



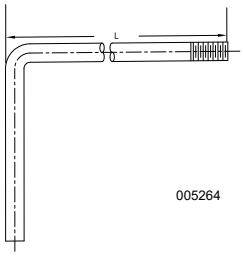
SK731

Intermediate Guide Rail Bracket
One intermediate guide rail bracket is required for every 10 feet of rail.
Use 39-0022 with 39-0003 & 39-0004.



39-0022

SK1260



Stainless Steel Pull Rods

3/8"-16 UNC	
Part Number	**Length**
39-0069	1'
39-0006	2-1/2'
39-0007	3-1/2'
39-0008	4-1/2'
39-0009	5-1/2'
39-0018	7'
39-0010	8'

SPECIFICATIONS					
Part Number	39-0053	39-0001	39-0002	39-0003	39-0004
Pipe size	1-1/4" NPT	1-1/2" NPT	2" NPT	1-1/2" NPT	2" NPT
Disconnect material	brass	brass	brass	brass	brass
Disconnect weight	1.6 lbs.	2.0 lbs.	2.5 lbs.	10.1 lbs.	12 lbs.
Centerline of rails from wall-in 30" basin (minimum)	____	____	____	2.75"	2.75"
Travel to disengage	33/4"	3"	3-1/2"	3-3/8"	3-7/8"
Pressure rating	150 PSI	150 PSI	150 PSI	150 PSI	150 PSI
Pull rods thread size	3/8" - 16 UNC	3/8" - 16 UNC	3/8" - 16 UNC	3/8" - 16 UNC	3/8" - 16 UNC
Support weight	All pumps should be supported underneath with concrete blocks or basin floor.				
Guide rail size & material	____	____	____	3/4" IPS Pipe (S.S./Gal.) (recommended) or PVC Scd. 80 (optional). Supplied by customer.	