TOWN OF COLMA

775 SERRAMONTE BLVD. COLMA CAR DEALERSHIP

INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

JUNE 2020

775 Serramonte Blvd. Colma Car Dealership

Initial Study / Mitigated Negative Declaration

Town of Colma

1198 El Camino Real, Colma, CA 94014

June 2020

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775 Serramonte Blvd. Colma Car Dealership Project
Draft Mitigated Negative Declaration

Project: 775 Serramonte Blvd. Colma Car Dealership

Project Proponent: Mr. T. Wayne Bogart
President TMW & Associates, Inc.
725 Sanguinetti Lane
Stockton, CA 95205-3416

Property Owner: Cornerstone Automotive Properties USA, LLC.
8767 Wilshire Boulevard
Beverly Hills, CA 90211

Lead Agency: Town of Colma

Availability of Documents: The Initial Study for this Mitigated Negative Declaration is available for review at: https://www.colma.ca.gov/current-projects/ ; or

Town of Colma
1198 El Camino Real
Colma, CA 94014
(650) 997-8300

Contact – Michael Laughlin, City Planner

PROJECT DESCRIPTION

The Town of Colma has received an application for the construction and operation of a Cadillac car dealership on the site of a former Babies R Us retail site. The proposed project (Project) is located at 775 Serramonte Boulevard in the central part of the Town of Colma on a 3.72-acre parcel (Assessor Parcel Number: 008-374-040) which is zoned as Commercial (C). The site currently contains a single. 38,135 sq. ft two-story vacant retail building, a former Babies 'R' Us store, which is surrounded by asphalt-paved parking areas to the southwest, northwest, and northeast and accessed via three driveways connecting to Serramonte Boulevard. The vicinity surrounding the parcel is predominantly comprised of car dealerships.

The Project applicant, TMW and Associates, Inc. (Applicant), proposes to demolish the rear portions (approximately two-thirds, or 22,348 square feet) of the existing building and construct an extension to the building, using the front of the existing building as the rear of the proposed building and use the site as a Cadillac dealership. The front of the proposed building would house the sales floor with a footprint of approximately 15,557 sq. ft. The mid-section of the proposed building (1,612 sq. ft.) will be a covered service driveway that will also be new construction. The rear portion of the proposed building, which forms the front of the existing building, will form the service area of the dealership A detached car wash is proposed at the back of site. The area of the service area and car wash is approximately 17,216 sq. ft.

A vehicle staging area would be located behind the service building. This area would include temporary storage of retail service vehicles and vehicles awaiting disposition, and a non-public carwash. The non-public carwash would be used by employees to clean vehicles prior to being placed in the vehicle display area or presented to customers. The site would contain 241 parking spaces for both visitors to the dealership as well as cars for sale.

Parts of previously paved areas would be repaved in a high-grade asphalt, using the existing parking lot material which will be reused on-site. The old paving material will be recycled on-site and the asphalt and rock material would be used for fill material to minimize importing new material. Additionally, pervious paving would be used on portions of the site to allow water permeation into ground water basins. To meet C.3 requirements, stormwater run-off from the site would be directed to a series of bioretention swales that allow for the cleansing and infiltration of stormwater before draining to the Town's storm drain system. The water treatment planter areas will be located at each corner of the site, and along the frontage.

Partial demolition of the existing building and grading of the site would result in approximately 3,070 cubic yards of off haul.

PROPOSED FINDINGS

The Town of Colma has reviewed the attached Initial Study and determined that the Initial Study identifies potentially significant project effects, but:

1. Revisions to the Project plans incorporated herein as mitigation would avoid or mitigate the effects to a point where no significant effects would occur; and
2. There is no substantial evidence, in light of the whole record before the agency, that the Project may have a significant effect on the environment. Pursuant to California Environmental Quality Act (CEQA) Guidelines Sections 15064(f)(3) and 15070(b), a Mitigated Negative Declaration has been prepared for consideration as the appropriate CEQA document for the Project.

BASIS OF FINDINGS

Based on the environmental evaluation presented in the attached Initial Study, the Project would not cause significant adverse effects related to; agricultural and forestry resources, energy, greenhouse gas emissions, hazards and hazardous emissions, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, utilities/service systems, and wildfire. The Project does not have impacts that are individually limited, but cumulatively considerable.

The environmental evaluation has determined that the Project would have potentially significant impacts on aesthetics, air quality, biological resources, cultural resources, geology and soils, transportation and tribal cultural resources, as described below.

Mitigation Measures

The Project could result in significant adverse effects to aesthetics, air quality, biological resources, cultural resources, geology/paleontological resources, transportation, and tribal cultural resources. However, the Project has been revised to include the mitigation measures listed below, which reduce these impacts to a less-than-significant level. With implementation of these mitigation measures, the Project would not substantially degrade the quality of the environment, reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. Nor would the Project cause substantial adverse effects on humans, either directly or indirectly.

Impact AES-1: The Project has the potential to create a new source of substantial light or glare which would adversely affect nighttime views in the area.

Mitigation Measure AES-1: The Project applicant shall submit a lighting plan to the Town of Colma Planning Department prior to obtaining a building permit. The lighting plan shall demonstrate that proposed lighting has been designed to minimize spillover lighting to all surrounding properties immediately adjacent to the Project site. If spillover beyond what is approved is observed during operation, the Project applicant shall be required to correct the lighting by one or more of the following measures: adjusting light fixtures to reduce lighting levels; adding diffusers or hoods; or reducing wattage of bulbs.

Effectiveness: These measures would minimize and/or avoid impacts to light and glare to less than significant levels.

Implementation: The Applicant and its contractor.

Timing: Prior to issuance of building permit.

Monitoring: The Town will approve the lighting plan before the building permit is approved.

Impact AIR-1: Project construction could result in significant dust emissions.

Mitigation Measure AIR-1: To reduce fugitive dust that would be generated during Project construction activities, the Town shall require the Applicant and/or its designated contractors, contractor's representatives, or other appropriate personnel to implement the following BAAQMD basic dust control measures.

- Water all exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) two times per day during construction and adequately wet demolition surfaces to limit visible dust emissions.
- Cover all haul trucks transporting soil, sand, or other loose materials off the Project site.
- Use wet power vacuum street sweepers at least once per day to remove all visible mud or dirt track-out onto adjacent public roads (dry power sweeping is prohibited) during construction of the proposed Project.
- Vehicle speeds on unpaved roads/areas shall not exceed 15 miles per hour.
- Complete all areas to be paved as soon as possible and lay building pads as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time of diesel-powered construction equipment to five minutes and post signs reminding workers of this idling restriction at access points and equipment staging areas during construction of the proposed Project
- Maintain and properly tune all construction equipment in accordance with manufacturer's specifications and have a CARB-certified visible emissions evaluator check equipment prior to use at the site.
- Post a publicly visible sign with the name and telephone number of the construction contractor and Town staff person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The publicly visible sign shall also include the contact phone number for the Bay Area Air Quality Management District to ensure compliance with applicable regulations.

Effectiveness: These measures would minimize and/or avoid local impacts from fugitive dust to less than significant levels.

Implementation: The Applicant shall include these measures on all appropriate plans (e.g., building, grading, and improvement plans) documents.

Timing: During construction activities.

Monitoring: The Town shall review all plans for inclusion of dust control measures.

Impact BIO-1: The proposed Project could impact nesting birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game code. Birds could nest in the vacant building or in trees or shrubs bordering the site.

Mitigation Measure BIO-1A: Pre-Construction/Pre-Disturbance Survey for Nesting Birds. To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside of the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game code would be avoided. The nesting season for this Project extends from February 1 through August 31.

If it is not possible to schedule construction activities between September 1 and January 31, then a preconstruction survey for nesting birds will be conducted by a qualified biologist to ensure that nesting will not be disrupted during Project implementation. A qualified biologist is a biologist with experience in nesting bird surveys, and who is familiar with bird species present in the Project area. This survey will be conducted no more than five days prior to the initiation of any site disturbance activities and equipment mobilization. If Project activities are delayed by more than five days, an additional nesting bird survey will be performed. During the survey, the biologist will inspect the vacant building and all trees and shrubs in and immediately adjacent to the impact area, for nests. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the survey will be documented.

If active nests are observed within the Project site or immediately adjacent to the impact area, **Mitigation Measure BIO-1B** shall apply.

Mitigation Measure BIO-1B: Active Nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the biologist will determine the extent of a construction-free buffer zone to be established around the nest, to ensure that active nesting protected by the MBTA and California Fish and Game Code will not be disturbed during construction. Within the buffer zone, no site disturbance and mobilization of heavy equipment, including but not limited to equipment staging, fence installation, demolition, and grading will be permitted until the chicks have fledged. Monitoring will be required to ensure compliance with MBTA and relevant California Fish and Game Code requirements. Monitoring dates and findings will be documented.

Effectiveness: This measure would minimize and/or avoid impacts to nesting birds to less than significant levels

Implementation: The Applicant and its contractor.

Timing: Pre-construction phase (no more than five days prior to site disturbance) and construction phase (if nest monitoring is required).

Monitoring: Town acceptance of a report provided by the qualified biologist. The qualified biologist's written report will include all survey and monitoring results, and implementation of any avoidance and minimization measures

Impact BIO-2: The proposed Project has the potential to impact bats roosting in the vacant building which are protected by California Fish and Game code. Although unlikely, this could include special-status bats listed under the federal or California Endangered Species Acts or listed as a California species of special concern.

Mitigation Measure BIO-2A: Pre-Construction Survey for Roosting Bats. A survey of the vacant building and any trees with cavities, cervices, or peeling bark within 50 feet of the Project site will be conducted by a qualified biologist no less than 30 days before the start of construction-related activities (including but not limited to mobilization and staging, clearing, grubbing, tree removal, vegetation removal, fence installation, demolition, and grading). A qualified biologist is a biologist with experience in day and night surveys for roosting bats, bat ecology, and bat species present in the Project area. If construction activities are delayed by more than 30 days, an additional bat survey will be performed.

The survey may be conducted at any time of year but should be conducted in such a way to allow sufficient time to determine if special-status bats or maternity colonies are present on the site, provide replacement habitat (if required), and exclude bats during the appropriate time of year (e.g. outside the maternity season from March 1 to August 31). The results of the survey will be documented.

If no signs of bats are detected during the habitat suitability survey, no further surveys are warranted. If signs of bat occupancy (e.g., guano pellets or urine staining) are detected, **Mitigation Measure BIO-2B** shall apply.

Mitigation Measure BIO-2B: If an occupied maternity or colony roost is detected or evidence of bat occupancy is found, the California Department of Fish and Wildlife will be consulted to determine the appropriate mitigation measures, which may include exclusion prior to removal if the roost cannot be avoided, a buffer zone, seasonal restrictions on construction work, construction noise reduction measures, and construction of an alternate roost structure.

Effectiveness: These measures would minimize and/or avoid impacts to roosting bats to less than significant levels.

Implementation: The Applicant and its contractor.

Timing: Pre-construction phase, no less than 30 days before the start of construction-related activities.

Monitoring: Monitoring reports, and exclusion recommendations. The qualified biologist shall prepare a written record of all survey and monitoring results, including the implementation of any avoidance and minimization measures for the Town's review. If bats are detected and an exclusion plan is warranted, the qualified biologist shall prepare the bat exclusion plan, including the exclusion methods and the type of replacement roost habitat to be used. If a replacement roost habitat will be required, it shall be monitored according to California Department of Fish and Wildlife recommendations. The qualified biologist shall prepare a written record of the monitoring results.

Impact CUL-1: Ground moving activity below the existing topsoil may unearth previously unidentified buried cultural resources during Project construction.

Mitigation Measure CUL-1:

In the event archaeological resources are unearthed during ground-disturbing activities, all ground-disturbing activities within 100 feet of the find shall be halted so that the find can be evaluated. Ground moving activities shall not be allowed to continue until a qualified archaeologist has examined the newly discovered artifact(s) and has evaluated the area of the find.

All archaeological resources unearthed by Project construction activities shall be evaluated by a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. In anticipation of additional discoveries during construction, Archaeological Sensitivity Training shall then be carried out by a qualified archaeologist for all personnel who will engage in ground moving activities on the site.

All Native American artifacts (tribal finds) shall be considered as a significant Tribal Cultural Resource, pursuant to PRC 21074 until the lead agency has enough evidence to make a determination of significance.

The Town shall coordinate with the archaeologist to develop an appropriate treatment plan for the resources. The plan may include implementation of archaeological data recovery excavations to address treatment of the resource along with subsequent laboratory processing and analysis. If appropriate, the archaeologist may introduce archaeological monitoring on all or part of the site. An archaeological report will be written detailing all archaeological finds and submitted to the Town and the Northwest Information Center.

Effectiveness: This measure would minimize and/or avoid impacts on undetected archaeological resources to less than significant levels.

Implementation: The Applicant and/or its contractor(s) shall implement this measure in the event archaeological resources are unearthed.

Timing: During all earth disturbing phases of Project construction.

Monitoring: An archaeological report, if appropriate, will be written detailing all archaeological finds and submitted to the Town and the Northwest Information Center.

Impact CUL-2: Ground moving activity below the existing topsoil may disturb human remains during Project construction.

Mitigation Measure CUL-2: If human remains are unearthed during ground-disturbing activities, Section 7050.5(b) of the California Health and Safety code will be implemented. Section 7050.5(b) states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the NAHC within 24 hours. The Commission has various powers and duties, including the appointment of a Most Likely Descendant (MLD) to the Project. The MLD, or in lieu of the MLD, the NAHC, has the responsibility to provide guidance as to the ultimate disposition of any Native American remains.

Effectiveness: This measure would reduce impacts on previously unknown human remains to less than significant levels.

Implementation: The Applicant and/or its contractor(s) shall implement this measure in the event human remains are discovered.

Timing: During all earth disturbing phases of Project construction.

Monitoring: The County Coroner will detail the findings in a coroner's report.

Impact GEO-1: Project construction could unearth paleontological resources, including fossils.

Mitigation Measure GEO-1:

If paleontological resources are discovered during construction, ground-disturbing activities shall halt immediately until a qualified paleontologist can assess the significance of the discovery. Depending on determinations made by the paleontologist, work may either be allowed to continue once the discovery has been recorded, or if recommended by the paleontologist, recovery of the resource may be required, in which ground-disturbing activity within the area of the find would be temporarily halted until the resource has been recovered. If treatment and salvage is required, recommendations shall be consistent with Society of Vertebrate Paleontology guidelines and current professional standards.

The Town will ensure that information on the nature, location, and depth of all finds is readily available to the scientific community through university curation or other appropriate means.

Effectiveness: This measure would reduce impacts on paleontological resources to less than significant.

Implementation: The Applicant and/or its contractor(s) shall implement this measure in the event any paleontological resources are discovered.

Timing: During all earth disturbing phases of Project construction.

Monitoring: If paleontological resources are uncovered, a report shall be prepared by the qualified paleontologist describing the find and its deposition.

Impact TRA-1: The Project could conflict with an existing plan; the Serramonte Boulevard and Collins Avenue Master Plan.

Mitigation Measure TRA-1:

To meet consistency with the Serramonte Boulevard and Collins Avenue Master Plan Project, the applicant will share in the cost of the installation of a traffic signal at the intersection of Serramonte Boulevard/Serra Center Driveway. Based on the volume of traffic the Project will contribute to the intersection, the applicant will pay 4.3 percent of the cost of the installation of the traffic signal.

Effectiveness: This measure would ensure consistency with the Serramonte Boulevard and Collins Avenue Master Plan.

Implementation: The applicant will pay 4.3 percent of the cost of the signalization of the Serramonte Boulevard/Serra Center Driveway

Timing: Prior to Project occupancy.

Monitoring: The Town will not grant a certificate of occupancy until payment from the applicant has been formally received.

Impact TRA-2: Proposed signage and landscaping could obscure views of traffic leaving the car dealership and increase hazards as a result of a design feature.

Mitigation Measure TRA-2:

Recommendations set out in the Project specific traffic report relating to Project signage and landscaping will be followed to ensure safe design of the Project frontage. Landscaping and signage will be placed back from the frontage to allow unobstructed views from both entrances to the site along Serramonte Boulevard.

The Town will approve the final signage and landscaping design prior to Project approval.

Effectiveness: This measure would minimize and/or avoid impacts to traffic design features.

Implementation: The applicant will design the landscaping and signage to be compliant with the mitigation measure.

Timing: At the design phase, prior to Project approval.

Monitoring: The Town will approve the signage and landscaping plan prior to building permit issuance.

RECORD OF PROCEEDINGS AND CUSTODIAN OF DOCUMENTS

The record, upon which all findings and determinations related to the approval of the Project are based, includes the following:

1. The Mitigated Negative Declaration and all documents referenced in or relied upon by the Mitigated Negative Declaration.
2. All information (including written evidence and testimony) provided by Town of Colma staff to the decision maker(s) relating to the Mitigated Negative Declaration, the approvals, and the Project.
3. All information (including written evidence and testimony) presented to the Town of Colma by the environmental consultant who prepared the Mitigated Negative Declaration or incorporated into reports presented to the Town of Colma.
4. All information (including written evidence and testimony) presented to the Town of Colma from other public agencies and members of the public related to the Project or the Mitigated Negative Declaration.
5. All applications, letters, testimony, and presentations relating to the Project.
6. All other documents composing the record pursuant to Public Resources Code section 21167.6 (e).

The Town of Colma is the custodian of the documents and other materials that constitute the record of the proceedings upon which the Town of Colma's decisions are based. The contact for this material is:

Michael Laughlin, City Planner
Town of Colma
1198 El Camino Real
Colma, CA 94014
(650) 997-8300

775 SERRAMONTE BLVD. COLMA CAR DEALERSHIP PROJECT INITIAL STUDY

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Chapter 1. Introduction

This Initial Study (IS) evaluates the potential environmental effects of the demolition of an existing retail and the construction of a car dealership in the Town of Colma (Town). These proposed activities constitute a project under the California Environmental Quality Act (CEQA).

1.1 PROJECT BACKGROUND AND OVERVIEW

The project proposes to redevelop a parcel of land, which currently contains a vacant retail , and construct in its place a car dealership for Cadillac vehicles (Project).

1.2 REGULATORY GUIDANCE

The California Environmental Quality Act (CEQA; Public Resources Code § 21000 et seq.) and the CEQA Guidelines (14 CCR §15000 et seq.) establish the Town as the lead agency for the Project. The lead agency is defined in CEQA Guidelines Section 15367 as, "the public agency which has the principal responsibility for carrying out or approving a project." The lead agency is responsible for preparing the appropriate environmental review document under CEQA. The Colma Town Council serves as the decision-making body for the Town and is responsible for adopting the CEQA document and approving the Project.

CEQA Guidelines Section 15070 states a public agency shall prepare a proposed Negative Declaration or a Mitigated Negative Declaration when:

1. The Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the Project may have a significant effect on the environment, or
2. The Initial Study identifies potentially significant effects, but:
   - Revisions in the Project plans made before a proposed Mitigated Negative Declaration and Initial Study are released for public review would avoid the effects or mitigate the effects to a point where no significant effects would occur, and
   - There is no substantial evidence, in light of the whole record before the agency, that the Project as revised may have a significant effect on the environment.

Pursuant to Section 15070, the Town has determined a Mitigated Negative Declaration is the appropriate environmental review document for the Project.

To ensure that the mitigation measures and project revisions identified in a Mitigated Negative Declaration are implemented, CEQA Guidelines Section 15097(a) requires the Town to adopt a program for monitoring or reporting on the revisions which it has required in the Project and the measures it has imposed to mitigate or avoid significant environmental effects. The Town shall prepare a Mitigation, Monitoring and Reporting Plan based on the mitigation measures contained in this IS/MND.

1.3 LEAD AGENCY CONTACT INFORMATION

The lead agency for the Project is the Town of Colma. The contact person for the lead agency is:

Michael P. Laughlin, AICP, City Planner
Town of Colma
1198 El Camino Real
Colma, CA 94014
Phone: (650) 757-8888
Email: michael.laughlin@colma.ca.gov

1.4 DOCUMENT PURPOSE AND ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the 775 Serramonte Blvd. Colma Car Dealership Project. This document is organized as follows:

- Chapter 1 – Introduction. This chapter introduces the Project and describes the purpose and organization of this document.
- Chapter 2 – Project Description. This chapter describes the Project location, area, site, objectives, and characteristics.
- Chapter 3 – Environmental Checklist and Responses. This chapter contains the Environmental Checklist that identifies the significance of potential environmental impacts (by environmental issue) and a brief discussion of each impact resulting from implementation of the proposed Project. This chapter also contains the Mandatory Findings of Significance.
- Chapter 4 – Report Preparation. This chapter provides a list of those involved in the preparation of this document.
- Appendices
    - Appendix A: Air Quality/GHG Calculations
    - Appendix B: Cultural Resources Due Diligence Review
    - Appendix C: Geotechnical Report
    - Appendix D: Traffic Study

Chapter 2. Project Description

The purpose of the proposed 775 Serramonte Blvd. Colma Car Dealership Project (Project) is the construction of a new Cadillac dealership on the site of a former Babies 'R' Us retail store, within the Town of Colma. The Project would require a Conditional Use Permit (CUP), building and grading permits, and design review.

2.1 PROJECT LOCATION

The Project site is located in the Town of Colma (Colma), California, in San Mateo County, along the San Francisco Peninsula. The proposed Project is located at 775 Serramonte Boulevard in the central part of the Town of Colma as shown on Figure 1 Project Location. The Assessor Parcel Number (APN) of the parcel is 008-374-040.

Regional vehicular access to the site is provided via Interstate 280 (I-280), Highway 1, and State Route 82 (El Camino Real), located east of the Project site, as well as Hillside Boulevard (transitioning to Sister Cities Boulevard and Interstate 101 in South San Francisco), located east of the Project site.

2.2 PROJECT SITE

The site is a 3.72-acre parcel which contains a single, vacant retail building, a former Babies 'R' Us store as shown on Figure 2 Project Vicinity.

The retail building is surrounded by asphalt-paved parking areas to the southwest, northwest, and northeast (Figure 2). The asphalt-paved parking areas are accessed via three driveways connecting to Serramonte Boulevard.

2.2.1 Land Use and Zoning

The Project parcel is zoned by the Town as Commercial (C). The Town's General Plan designates the parcel and surrounding area as the Commercial Core Area. Under the Commercial Designation, the Town provides maximum building lot coverage of 50 percent and a maximum floor area ratio (FAR) of 1.5:1 for a land use such as a car dealership that is consistent with the Commercial Core Area.

The Commercial zone requires all new commercial land uses and buildings to obtain a Conditional Use Permit from the City Council. Commercial zoning standards specify a maximum building height of 40 feet. This zoning designation also includes parking standards for vehicle repair and sales uses including one space per 200 square feet of vehicle repair, and one space per 200 square feet of sales area. Required setbacks in the Commercial designation include minimum rear and side yard setbacks of five feet from the property line to any structure.

A landscaped strip of varying width is proposed to be provided along the Project frontage and be built alongside bioretention areas. The building would be set back approximately 54 feet from the front property line on Serramonte Boulevard.

2.2.2 Surrounding Land Use

The proposed Project's vicinity is predominantly comprised of car dealerships. The three parcels directly opposite the proposed Project, on the other side of Serramonte Boulevard are car dealerships, (Chrysler Dodge / Jeep Ram, Chevrolet, and Lexus). The parcel to the west of the proposed Project site is a Ford dealership. The parcel to the east is a Dollar Tree store, which is between the proposed Project site and a Subaru dealership (Figure 2).

2.2.3 Existing Building and Site

The single building that is on the current parcel is a 38,135 sq. ft. two-story retail structure that is currently vacant. It was a former Babies R Us which sold supplies, clothing, furniture and toys for infants and small children and has been closed for almost a year. A loading dock is located along the northeastern exterior of the retail building. The building was constructed around 1971. Previous structures have existed on the site but were demolished prior to the construction of the existing retail building. The building currently backs onto a vegetated slope on the south-east of the site, which rises to Collins Drive.

The vegetated slope contains a number of trees, and is held in place by a retaining wall, and the rear wall of the existing building.

2.3 PROPOSED PROJECT

The Project Applicant proposes to demolish part of the existing building and construct an extension to the building, using the front of the existing building as the rear of the proposed building (Figure 3 Proposed Site Plan) and use the site as a Cadillac dealership. The site would contain 241 parking spaces for both visitors to the dealership as well as cars for sale. The interior of the building would house a sales department, parts department, and a full-service mechanical department with service bays. A detached car wash structure is proposed at the back of the improved area of the property.

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The Project is projected to have up to 50 employees working in two shifts.

2.3.1 Demolition and Site Preparation

The rear portions (approximately two-thirds, or 22,348 square feet) of the existing building would be demolished, leaving the front of the building (17,216 square feet) in place (Figure 4 Demolition Plan). The rest of the site would be graded, and the existing asphalt surface removed. The three existing driveways providing access to the Project site would be reconfigured and one of them will be eliminated in order to make room for a bioswale retention basin. Additionally, the sidewalk along the front of the site will be reconstructed for accessibility compliance. Existing ornamental vegetation along the frontage, sides and rear of the property would be retained in place. No trees are anticipated to be removed as part of the Project.

2.3.2 Paving

Parts of previously paved areas would be repaved in a high-grade asphalt, using the existing parking lot material which will be reused on-site. The old paving material will be recycled on-site and the asphalt and rock material would be used for fill material to minimize importing new material. Additionally, pervious paving will be included to allow water permeation into ground water basins (Figure 3). The Project is required to meet Town standards of a 1% grade across the site or provide satisfactory alternatives to allow drainage. Approximately 68,895 sq. ft. of impervious paving, and 21,120 sq. ft. of pervious paving will be constructed.

2.3.3 Main Building

The Project would construct a single 34,385 sq. ft. structure comprised of sales, service, and presentation areas. The sales floor would occupy the front of the building along Serramonte Boulevard, and would have a footprint of approximately 15,557 sq. ft. This portion of the building would be entirely new construction. The mid-section of the building would be a covered service driveway which would also be new construction and has a footprint of approximately 1,612 sq. ft. The rear portion of the building would form the service area of the dealership including a car wash area and would be comprised of the front portion of the existing retail building with a footprint of 17,216 sq. ft. Plans showing the layout of the proposed construction are shown in Figure 5 Building Design.

The sales floor area would serve as the main area where customers would conduct vehicle sales transactions, wait for vehicle service, and where the vehicle showroom would be located. The service building, located toward the rear of the property, is connected to the sales area by a covered service driveway. The service building would house a parts department, and a full-service mechanical department with service bays. Servicing activities would include automotive reconditioning services, routine maintenance, repairs, and minor body work. All auto maintenance would occur inside the fully enclosed service building. Additionally, common materials used for vehicle maintenance such as oil, used oil, and anti-freeze would be located within the service building.

A vehicle staging area would be located behind the service building. This area would include temporary storage of retail service vehicles and vehicles awaiting disposition, and a non-public carwash. The non-public carwash would be used by employees to clean vehicles prior to being placed in the vehicle display area or presented to customers.

The new construction portion of the building would be constructed at a maximum height of 25 feet; the existing building is 24 feet in height, as shown on Figure 6 Building Elevations. The carwash is constructed out of elements of the existing building and would be a maximum height of 16 feet, as shown on Figure 6.

2.3.1 Site Access, Parking, and Circulation

The site would be accessed by two driveways on Serramonte Boulevard, replacing the previous three to allow space for an additional bioretention area (Figure 3). The driveway approaches would be reconstructed to meet accessibility standards (max 2% cross-slope along the path of travel). There would be a two-way lane in a U-shaped loop around the building, connecting to both driveways, as well as a second circulation route towards the north-eastern edge of the site allowing several options for vehicle delivery and fire-truck access (Figure 7 Site Circulation and Turn Radii).

2.3.2 Parking and Deliveries

The north eastern edge of the site, adjacent to the Dollar Tree store, would contain both new and used car inventory for purchase. The south-west side of the site, adjacent to Serramonte Ford, would be reserved for customer parking for both the car showroom, and service facilities. The south-east (rear) of the site, adjacent to Collins Avenue, would be for employee parking as well as parking and staging for cars being serviced. Figure 8 Vehicle Parking, shows anticipated parking areas on the Project site. The customer, employee, and service parking area would consist of a 40 vehicle parking spaces. An additional two spaces are Americans with Disabilities Act (ADA) compliant, and an additional two spaces include electric vehicle charging ports. Three of these 44 spaces are for clean air vehicles and 196 spaces for inventory are included in the proposed Project, for a total of 241 spaces. Deliveries of vehicles, parts and supplies would be made on-site, and would require the presence of vehicle carriers and employees to receive the delivery. The vehicle carriers would enter the site through the main access at Serramonte Boulevard and load / unload vehicles in designated carrier unloading areas.

2.3.3 Utilities

The Project would continue to be served by existing utility services, including water, stormwater, sanitary sewer, and gas and electric. The Project's proposed utility infrastructure and connections are shown on Figure 9 Utility Plan.

Water Supply

California Water Service Company provides water service to the Town of Colma. The Project would continue to be served by the California Water Service Company.

Sanitary Sewer Service

Sanitary sewer service would continue to be provided by the South San Francisco Sanitary District (with infrastructure maintained by the Town of Colma) and treated at the South San Francisco Sanitary Treatment Plant.

Utilities and Services

Electricity and natural gas would continue to be provided to the Project site by Pacific Gas and Electric (PG&E).

Stormwater Management

The Project is subject to compliance with the requirements of the San Mateo County Storm Water Pollution Prevention Program (SWPPP), and a Project specific SWPPP would be prepared to ensure that contaminants do not enter the water system. To meet C.3 requirements, stormwater run-off from the site would be directed to a series of bioretention swales that allow for the cleansing and infiltration of stormwater before draining to the Town's storm drain system. The water treatment planter areas will be located at each corner of the site, and along the frontage. These are shown in Figure 10 Landscaping. Pervious surfaces from landscaping, pervious paving, and water treatment areas on the Project parcel would be increased from 27,125 sq. ft. to 54,9950 sq. ft. The Project is subject to Low Impact Development (LID) standards.

2.3.4 Landscaping

Landscaping would be included along the edges and Serramonte Blvd. street frontage of the property. There will be new low water vegetation planted along the Project frontage, as well as in the bioretention areas. Low shrubs would be planted along both edges of the site. Decorative box palm trees would be placed adjacent to the new building. A planting plan is shown on Figure 10.

. The slope at the rear of the property would remain in place, and a new retaining wall would be constructed to ensure slope stability. A supplemental geotechnical report evaluating slope stability along the north side of the property will be prepared for the Project and is required prior to issuance of a building permit.

2.3.5 Project Hazards

A Phase I Environmental Study for the Project parcel was completed on February 13, 2019. It found that Former Leaking Underground Storage Tank (LUST) cases were identified on the southwestern adjoining, nearby eastern, and nearby southern properties, which are considered upgradient or cross-gradient of the Project site. However, no evidence was found that these cases had impacted soil or groundwater, and all of these former LUST cases have been granted full regulatory closure by the San Mateo County Local Oversight Program and the San Francisco Bay Regional Water Quality Control Board (RWQCB). Additionally, the far northern portion of the subject property was used for agricultural purposes for a short period in the early 1960s. Although not documented at the subject property, agricultural chemicals may have been applied to the property which can result in concentrations of residual agricultural chemicals being present in the near surface soil. The study noted that residual agricultural chemicals typically are not present at concentrations that would influence offsite disposal of soil or pose a health risk to commercial site users when the agricultural use is limited to row crops. It also noted that the area formerly utilized for agricultural purposes has since been cleared and graded for development in the late 1960s which is likely to have covered or dispersed any potentially impacted surficial soils. The study had a de minimis conclusion to its findings. However, due to Town concerns regarding water infiltration in bioretention areas limited soil testing for the Project to confirm or deny the presence of contamination onsite will be required. If contamination is found, the area would be cleaned-up according to relevant state soil and groundwater protection standards before any bioretention swales could be constructed.

2.3.6 Architectural Design and Signage

The new portion of the proposed dealership building would consist of a Type II-B building with concrete foundations and slab, structural steel columns, frames, beams, metal roof joists with metal decking and insulation membrane roof. The exterior walls would consist of steel framing with insulation and ACM metal panels, painted in a Cadillac color scheme. Glazing would be clear anodized aluminum curtain walls with insulation clear glazing. The area of the existing building which would be reused would remain similar in design, although the existing overhang would be removed.

The Project would include Cadillac brand signage. Traditional dealership pylon signs would be installed at the front of the facility on Serramonte Blvd. There would also be facility signage on the building, as well as at various entrances into the facility. Site improvements also include high-efficiency lighting. A lighting plan will be provided prior to Project construction and is required for Project approval.

2.3.7 Construction Schedule

Project construction would generally proceed according to the following sequence. The timeline given is approximate and may vary due to selected contractor’s means and methods and weather delays. Some phases may overlap, but the overall construction timeframe is estimated at 8 months. The Project is planned to be in full operation in 2021.

- Demolition and Grading –Two months
- Underground Utilities – One month
- Building and Site Construction – Five months

The Town has no ordinance limiting construction hours for projects that are more than 500 feet from residential properties. Construction hours for these projects are assigned on a project-by project basis. It is assumed that that Town will assign this project construction hours, as a condition of approval (COA), which are in line with the Town’s Noise Ordinance. Based on this assumption, construction hours are anticipated to be from 8:00 A.M. to 5:00 P.M. Monday through Friday, Nighttime and weekend work is not anticipated at this time.

2.3.8 Construction Access

Access to the site during the construction phase would be via existing entrances located on Serramonte Boulevard. Staging areas are all anticipated to be fully within the site. Construction parking is anticipated to be on site.

2.3.9 Construction Equipment and Information

The major pieces of equipment involved with Project demolition include:

- 3 Excavators
- 1 Loader

Two sizes of dump trucks would be used for Project demolition and grading materials. There would be approximately 30 truck trips of 50 cubic yard dump trucks, and 80 truck trips of 20 cubic yard dump trucks.

Equipment for the construction phase of operation would include:

- 3 Forklifts
- 1 Grader
- 2 Tractors/Loaders
- 1 Backhoe
- 6 Scissor lifts
- 1 Compactor/Paving machine

2.3.10 Project Operation

The Project is anticipated to employee approximately 55 people, split across two shifts. The Project's operational hours are expected to be as follows:

Service & Parts:

- Monday through Friday: 7:00 am to 6:00 pm,
- Saturday: 8:00 am to 5:00 pm.
- Sunday: Closed

Sales Operations:

- Monday through Saturday: 9:00 am to 8:00 pm.
- Sunday: 10:00 am to 7:00 pm.

The number of vehicles anticipated to be serviced per day is approximately 25 vehicles.

2.4 PROJECT ACTIVITIES

The proposed Project would consist of:

- Partial demolition (22,348 sq. ft.) of the existing two story 38,135 sq. ft. Babies 'R' Us retail warehouse.
- Grading an estimated 3,070 cubic yards (CY) of the existing asphalt parking lot and existing building foundations.
- Reconstruction of two driveway approaches on Serramonte Boulevard.
- Reconstruction of the sidewalk along the Project frontage on Serramonte Boulevard.
- Construction of a retaining wall towards the south-east of the site.
- Paving the site with a high-grade asphalt.
- Construction of a 34,385 sq. ft. single story building.
- Installation of bioretention water treatment areas.
- Tie-ins with the Town's existing storm drain system.
- Landscaping, installation of signage and lighting.

2.5 STANDARD SPECIFICATIONS

The Town maintains a list of Standard Specifications that are applied to all projects within the Town (January 1999). Because these specifications are applied to all projects, they are considered part of the Project and not mitigation. Table 2-1 lists the Standard Specifications that would be applied to the Project that help avoid or reduce potential Project impacts.

Table 2-1: Standard Specifications Applicable to the Project

Resource Area/Topic	Standard
Materials Disposal	Standard Specification 4.03 - The Contractor shall make his own arrangements for disposing of materials outside the public right-of-way, construction area or limits of work and for complying with all regulations relating to disposal of hazardous materials. The Contractor's attention is directed to Section 16 of these Specifications for requirements relating to recycling disposable materials. Full compensation for all costs involved in the disposal or recycling of materials shall be considered as included in the price paid for the contract item of work involving such materials.
Applicable Laws	Standard Specification 12.01 The Contractor shall keep himself fully informed of and comply with all State and Federal Laws and Town ordinances and regulations that, in any manner, affect those engaged or employed in the work, materials used in the work, the conduct of the work and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The Contractor shall at all times observe and comply with, and shall cause all his agents, employees and subcontractors to observe and comply with all such existing and future laws, ordinances regulations, orders, and decrees of bodies or tribunals having any jurisdiction over the work. If any discrepancy or inconsistency is discovered in any of the Contract Documents in relation to any such law, ordinance, regulation order of decree, the Contractor shall report the same to the Town Engineer.
Cleanup and Dust Control	Standard Specification 12.03 - Throughout all phases of construction, including suspension of work, and until final acceptance of the work, the Contractor shall keep the work site clean and free from dirt, mud, waste matter, rubbish and debris. The Contractor shall abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. Any mud or other debris that results from the Contractor's abatement of dust shall be cleaned up by the Contractor. When required by the Town Engineer, the Contractor shall furnish and operate a self -loading motor sweeper with spray nozzles as often as needed, but no less often than once each working day, to keep paved areas acceptably clean whenever construction, including restoration, is incomplete. No materials or equipment shall be stored on the site more than 5 working days prior to installation or use, unless otherwise approved in writing by the Town Engineer. All materials and equipment not installed or used in the work shall be removed from the site within 5 working days after they are no longer needed for the work, unless otherwise approved by the Town Engineer in writing.

Resource Area/Topic	Standard
	Excess excavated material from the Contractor's operations shall be removed from the site immediately. Sufficient material may remain for use as backfill or required fill. Forms and form lumber shall be removed from the site as soon as practicable after stripping. Care shall be taken by the Contractor to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned by the Contractor.
Preservation of Facilities and Property	Standard Specification 12.06 - Due care shall be exercised to avoid injury to and to protect if necessary existing improvements, facilities and other property, including trees, shrubs, lawns, ground covers, walks, pavements, structures, irrigations, utilities and underground facilities, at the site or adjacent thereto that are not designated for removal in the course of construction. For tree standards, refer to the Town's Tree Preservation Guidelines. Any such facility or property that is injured or damaged by the Contractor's operations shall be restored, repaired or replaced at the Contractor's expense. Restoration, repair or replacement shall be to a condition as good as when the Contractor started work, shall be at least equal in quality and shall match in character, dimension and finish said facility or property. The cost of such restoration, repair or replacement shall be borne by the Contractor.
Public Safety	Standard Specification 12.08 - Whenever the Contractor's operations affect normal conditions for traffic or for the public, the Contractor shall furnish, erect and maintain, at his expense, all fences, barricades, lights, signs and other devices necessary to prevent accidents or damage or injury to the public. Construction area signs shall be furnished, installed, maintained and removed, when no longer required, in accordance with the provisions of Section 12-3.01 through 12-3.12 of the State Specifications and any requirements of the special provisions, except all compensation therefore shall be included in the prices paid for the various contract items of work, and no additional compensation will be paid therefore. The Contractor shall also furnish, at his own expense, flaggers and guards necessary to give adequate warning to traffic and to the public of construction conditions. Flaggers and guards assigned to direct traffic or to warn the public of construction conditions shall perform their duties, and shall be provided with necessary equipment, in accordance with the current edition of the Caltrans publication "Instructions to Flaggers." The equipment shall be furnished and kept clean and in good repair by the Contractor at his expense. Signs, lights, flags and other warning and safety devices shall conform to the requirements set forth in the current Caltrans "Manual of Traffic Controls for Construction and Maintenance Work Zones." No material or equipment shall be stored where it will interfere with the free and safe passage of public traffic, and at the end of each

Resource Area/Topic	Standard
	day's work and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from that portion of the roadway open for use by public traffic. Where any items or facilities required under the provisions of this Section are not provided or are out of service, and an emergency exists that necessitates protective measures, the Town Engineer may provide or arrange to have provided such facilities during the emergency and the cost thereof will be deducted from money due or to become due to the Contractor or on private projects, will be billed to the Contractor. Before taking such emergency action, the Town Engineer will endeavor to notify the Contractor of the conditions, and to allow the Contractor to correct them with his own crew, provided he acts promptly and expeditiously.
Traffic	Standard Specification 12.10 - The Contractor shall plan and conduct his activities to minimize the disruption of normal traffic and parking. Normal movement of traffic through the project area shall be maintained at all times to the greatest extent possible. Minimum 10 feet (3 meters) wide lanes shall be maintained for traffic in each direction. Delineators used to channel traffic shall be a minimum of 36 inches (91 cm) high. The Contractor shall be responsible for placing "No Parking" barricades and signs at intervals no greater than 100 feet (30 meters) at least 48 hours prior to any work requiring such traffic control. At least one-way traffic shall be maintained on all streets within the limits of work during actual work hours. During other times, all street lanes shall be free of obstructions and hazards and shall be made available for use by traffic. The Contractor shall provide for safe and convenient passage of pedestrian traffic throughout the work area at all times. When metal plates are used, they shall have a non-skid surface when subject to vehicular or pedestrian traffic.
Haul Routes	Standard Specification 12.12 – The Town Engineer may require the Contractor to use only roads designated by him as haul routes for passage of heavy vehicles carrying materials or supplies to or from the job. Additional special haul routes and conditions or limitations on their use may be set forth in the special provisions or imposed by the Town Engineer.
Tree Roots	Standard Specification 13.05 - No tree root shall be unnecessarily cut in trenching operations. Excavation around roots shall be performed by hand. Where a root conflicts with the required location of the underground facility being installed, the root shall be trimmed neat at the edge of the excavation or trench, and shall be painted with an approved tree seal, as directed by the Town Engineer.
Water Pollution - General	Standard Specification 14.01 - Care shall be exercised to preserve all vegetation beyond the limits of construction. The Contractor shall exercise eve1y reasonable precaution to protect streams,

Resource Area/Topic	Standard
	lakes, reservoirs, bays, detention ponds, drainage facilities and the waters therein from pollution by fuels, oils, bitumens, calcium chloride, mud, silt and other harmful materials. Water pollution and erosion control work is intended to provide prevention, control, and abatement of water pollution and siltation to drainage systems, streams, waterways and other bodies of water, and shall consist of constructing those facilities that may be shown on the plans, specified herein or in the special provisions, required as a condition of a permit or directed by the Town Engineer.
Pollution and Erosion Control Plan Requirement	Standard Specification 14.04 - The Contractor may request the Town Engineer to waive the requirement for submission of a written Storm Water Pollution Prevention Program (SWPPP) when the nature of the Contractor's operation or work is such that erosion is not likely to occur or when it is clear that no work will be performed between October 1 and April 15 and assured in a manner acceptable to the Town Engineer that all required permanent erosion control measures will be in place and established before October 1. Approval or denial of a request for waiver shall be at the sole discretion of the Town Engineer. Waiver of this requirement will not relieve the Contractor from responsibility for compliance with the other provisions of this section. Waiver will not preclude requiring submittal of a written SWPPP at a later time if the Town Engineer deems it necessary because of delays in the progress of the work or the effects of the Contractor's operations.
Minimum Best Management Practices	The practices that follow shall be employed, to the extent applicable, to all construction activities. Where a job specific SWPPP is prepared for a job and approved by the Town Engineer, provisions of the SWPPP that conflict with the Minimum Best Management Practices that follow shall govern over the practices below. Where the Town Engineer has waived preparation of a SWPPP pursuant to section 14.04, these minimum best management practices shall become the de-facto SWPPP and shall be enforced as such. • Avoid grading and work that disturbs large areas of earth in the wet season. • Provide stabilized (rocked and/or paved) areas at points of entrance or exit from construction sites to protect streets from mud and dust being tracked onto the pavement. • Locate drainage inlets that receive runoff from the project and protect them with berms or filters. • Install berms and settling basins to protect ditches and creeks. • Protect streets with berms or other silt barriers and settling basins. • Control the amount of runoff crossing the construction site by diverting it around the site.

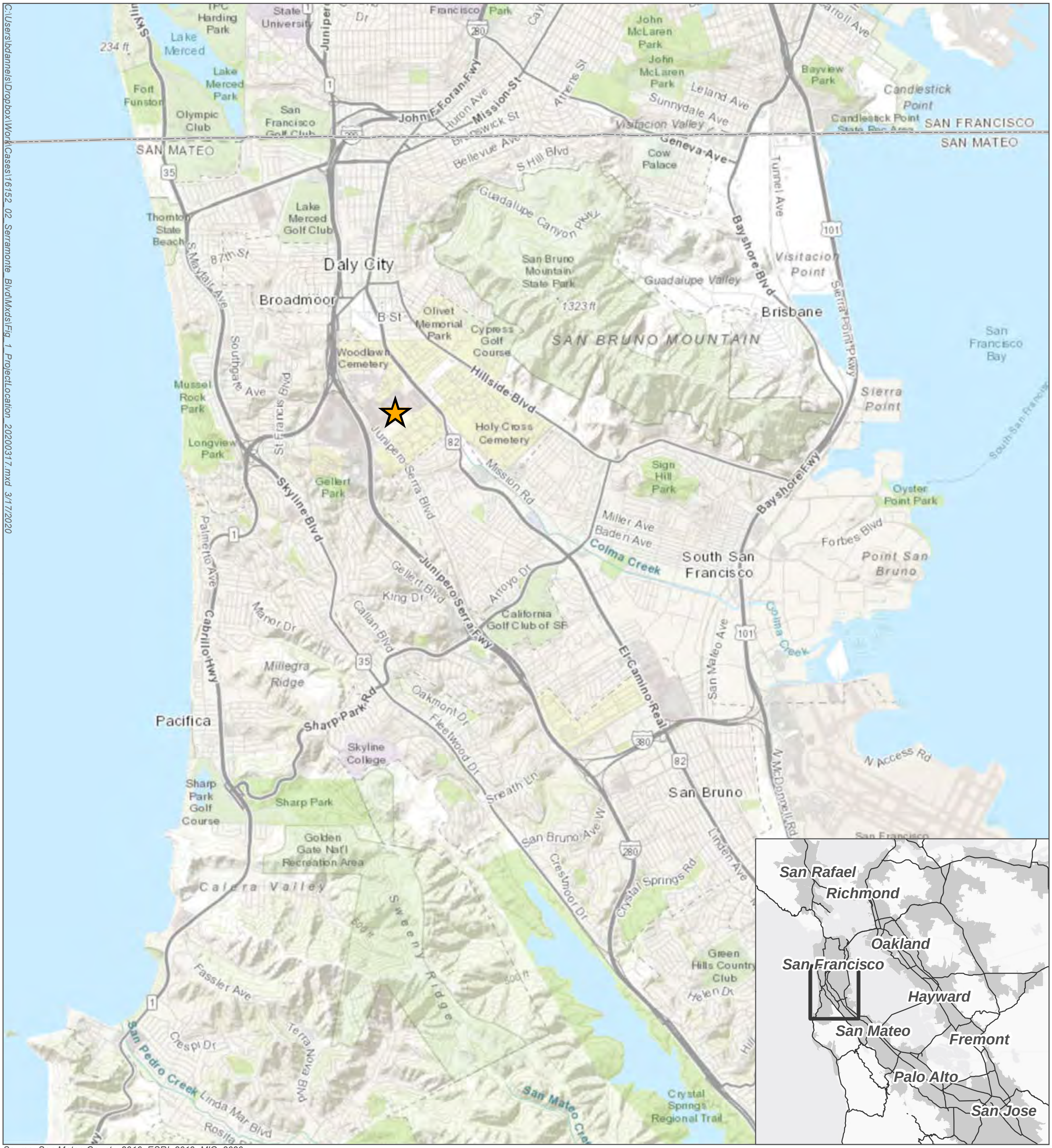
Resource Area/Topic	Standard
	• Provide channels that incorporate erosion and velocity reducing measures for water that must pass through the site. • Clearly label all hazardous materials, such as pesticides, paints, thinners, solvents, fuels, waste oil, and waste antifreeze, and store them only in designated places where spills can be contained in the immediate area. • Designate an area or areas for auto parking, vehicle refueling, vehicle and equipment maintenance. Isolate these areas to prevent runoff from them from draining into any street, storm drain facility, ditch or creek. • Inspect all equipment on the site regularly for leaks or drips and remove leaking equipment from the site or repair promptly. • Perform major vehicle and equipment cleaning, servicing and repairs away from the job site. • Do not use diesel oil to lubricate or clean equipment or parts. • Use drip pans or drop clothes under equipment when it is necessary to change vehicle or equipment fluids on site. Collect spent fluids on containers and dispose or recycle them off site. • Clean up leaks, drips and spills immediately as they occur. Excavate and properly dispose of contaminated soil. Report large spills immediately to the Town Engineer. • Locate stockpiles of granular material at least 6 meters (20 feet) from any drainage inlet, watercourse or curb return. • Keep stockpiles of earth and granular materials out of the rain by covering them. • Minimize waste storage and handling by not over ordering and by removing waste and excess from the site immediately. • Never bury construction debris or leave it on a street or near a drainage ditch or creek. • Provide appropriately sized trash containers or dumpsters. Keep them covered, empty them regularly before overfilling, and check frequently for leaks and spillage. • Remove no more ground cover vegetation than necessary and don't remove before necessary. • Finish graded surfaces as quickly as possible and plant erosion control vegetation immediately after finishing. Install temporary or permanent irrigation as needed to establish new vegetation. • Don't order or mix more concrete than can be used in the time it is plastic. • Isolate on-site concrete mixing areas from runoff and protect the ground within the mixing area from contamination with tarps or heavy plastic drop clothes.

Resource Area/Topic	Standard
	• Wash out concrete redi-mix bucks, tools and equipment on site only into contained washout areas where the water will flow into containment ponds or onto dirt. Never dispose of washout into a street, drainage inlet, ditch or creek. • Sweep, shovel and/or vacuum slurry and grit resulting from washing concrete for an exposed aggregate surface or from sawing concrete or asphalt. Protect streets, drainage inlets and ditches from slurry and grit with berms, silt barriers and filters. • Dispose of large chunks of concrete by incorporating in fills where shown on the plans or by removal to an off-site landfill. • Remove all asphalt concrete that is not being recycled in the work from the site. Do not bury. • Protect broken but not yet removed asphalt concrete chunks from contact with runoff or rainfall. • Do not pave or apply seal coats when it is raining or when rain is forecast within the week. • Cover and seal drainage inlets and manholes when applying prime or tack coat, asphalt concrete paving or pavement seals. • Do not apply herbicides or fe1tilizers at rates that exceed label directions. • Dry sweep paved surfaces. Never wash down streets. • Maintain portable toilet facilities in sanitary and good working order conditions. • Provide training for employees and subcontractors as to the purpose, importance and maintenance of erosion control measures. • Instruct all personnel on site to report to the Town Engineer immediately any soil that has an unusual color or smell, any unexpected underground tank and any abandoned well or buried barrels, debris or trash.

2.6 REQUIRED APPROVALS

TMW & Associates, Inc.is the Project proponent and the Town of Colma is the Lead Agency for the proposed Project. The proposed Project would be subject to the following approvals or permits:

- Building Permit
- Grading Permit
- Conditional Use Permit
- Design Review
- Street Improvement Plans
- Town Reach Codes (Building Codes that are more stringent than required by the State).



Source: San Mateo County, 2016; ESRI, 2019, MIG, 2020.

★ Project Location

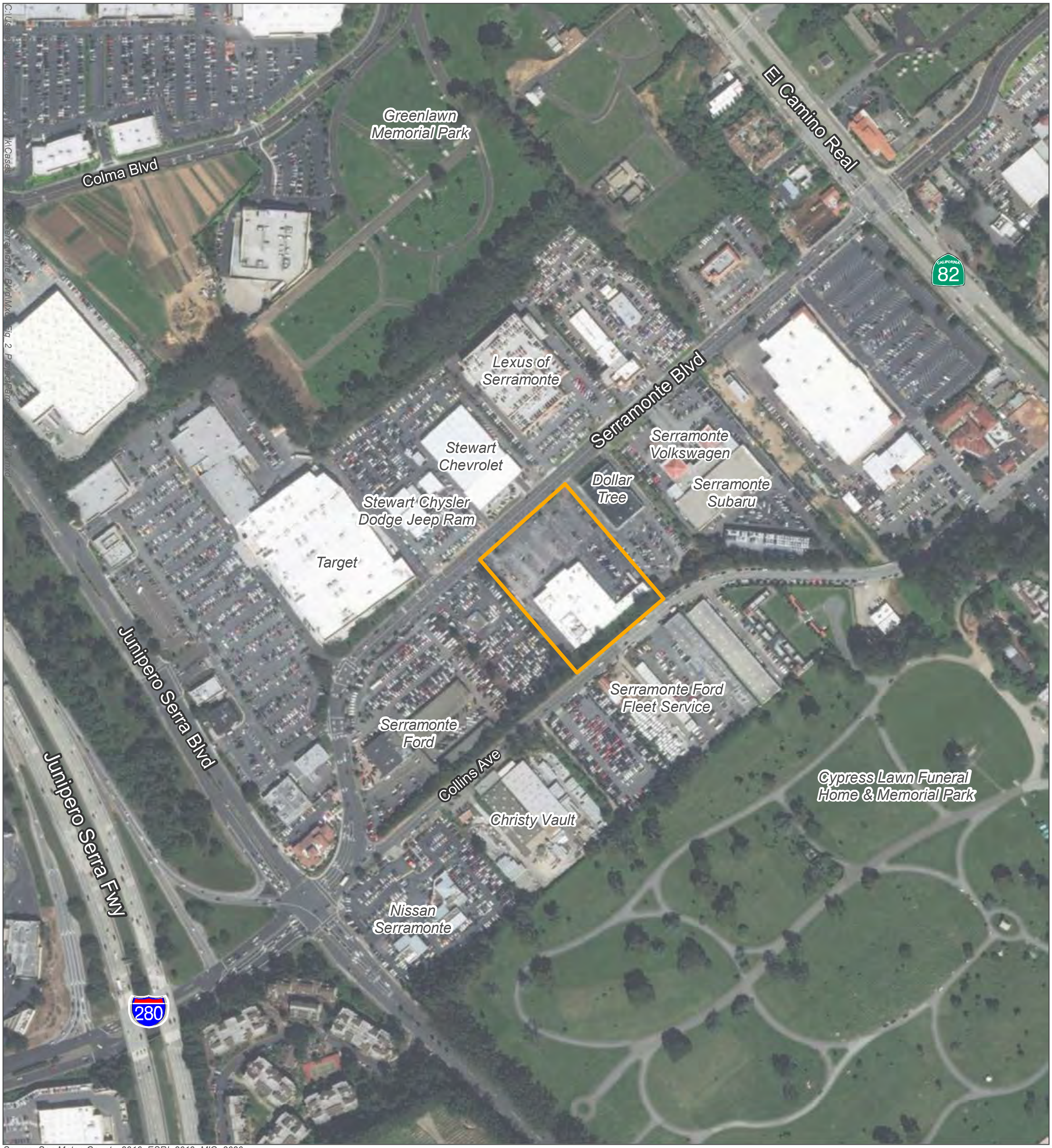
Miles
0 0.25 0.5 1

N

Figure 1 Project Location

775 Serramonte Blvd. Colma Car Dealership Project

MIG



Source: San Mateo County, 2016; ESRI, 2019, MIG, 2020.

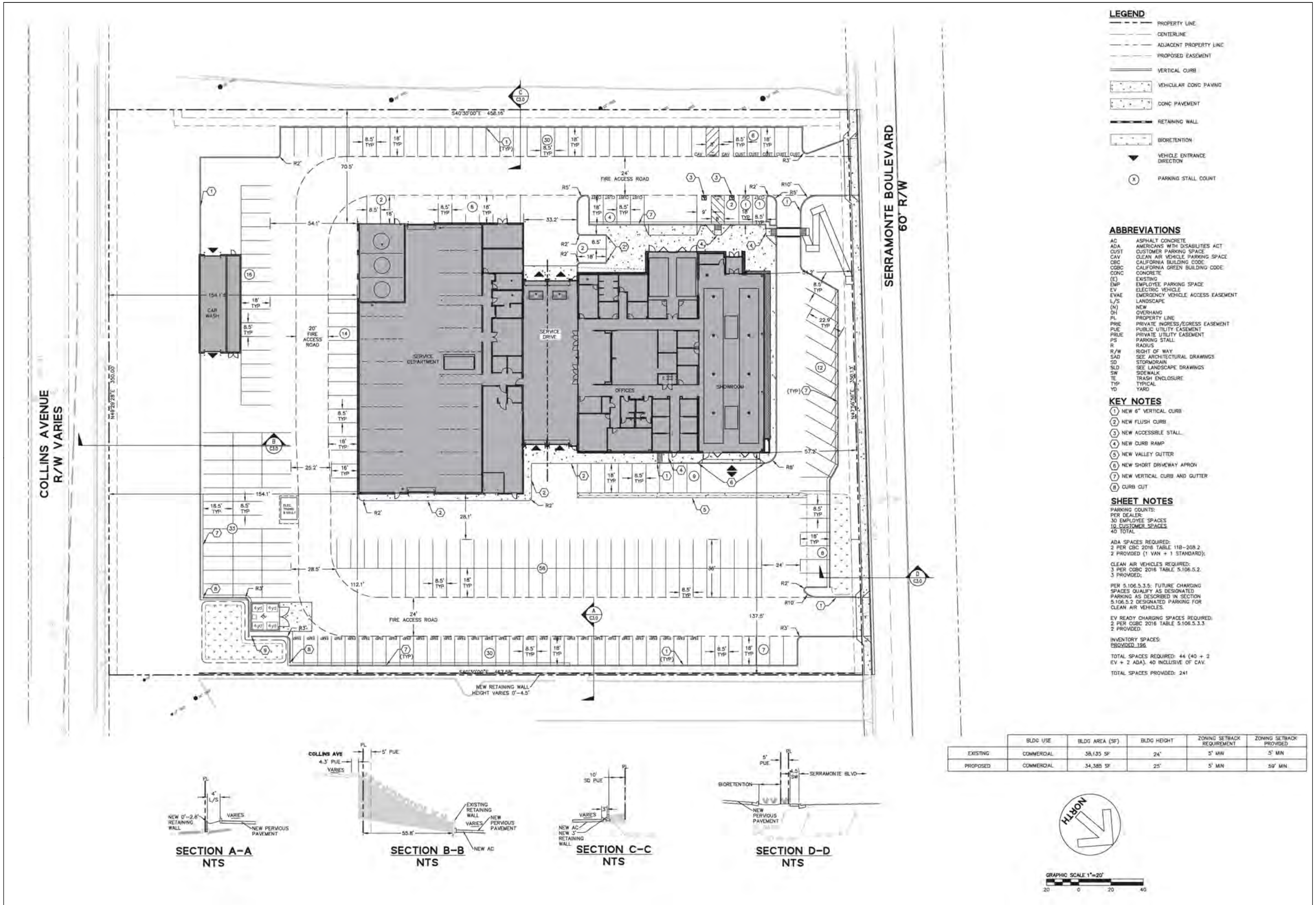
Project Parcel

Feet
0 125 250 500

MIG

Figure 2 Project Vicinity

775 Serramonte Blvd. Colma Car Dealership Project

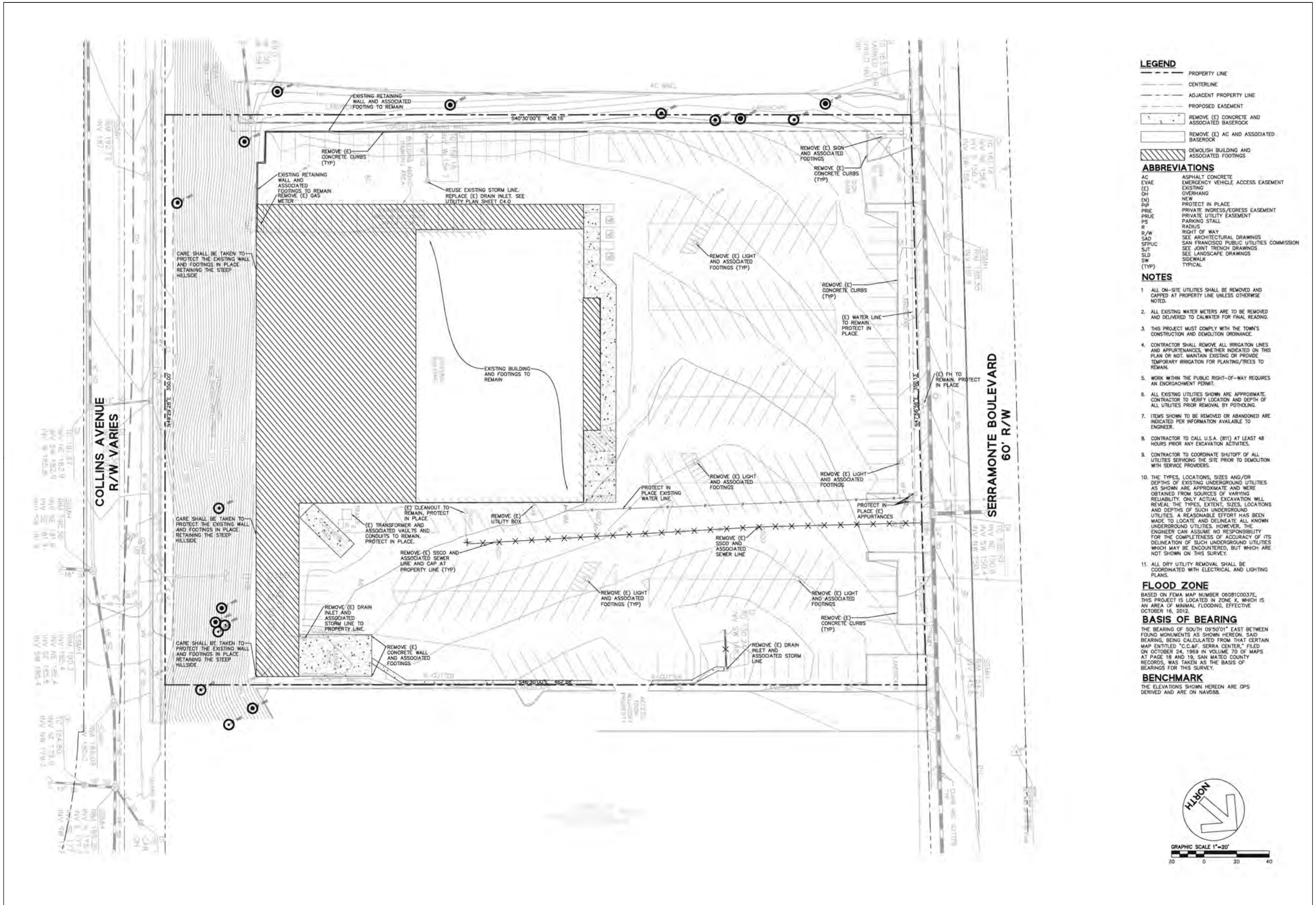


	BLDG USE	BLDG AREA (SF)	BLDG HEIGHT	ZONING SETBACK REQUIREMENT	ZONING SETBACK PROVIDED
EXISTING	COMMERCIAL	38,135 SF	24'	5' MIN	5' MIN
PROPOSED	COMMERCIAL	34,385 SF	25'	5' MIN	59' MIN

Source: BKF 2020; MIG 2020

Figure 3 Proposed Site Plan

755 Serramonte Blvd. Colma Car Dealership



Source: BKF 2020; MIG 2020

Figure 4 Demolition Plan

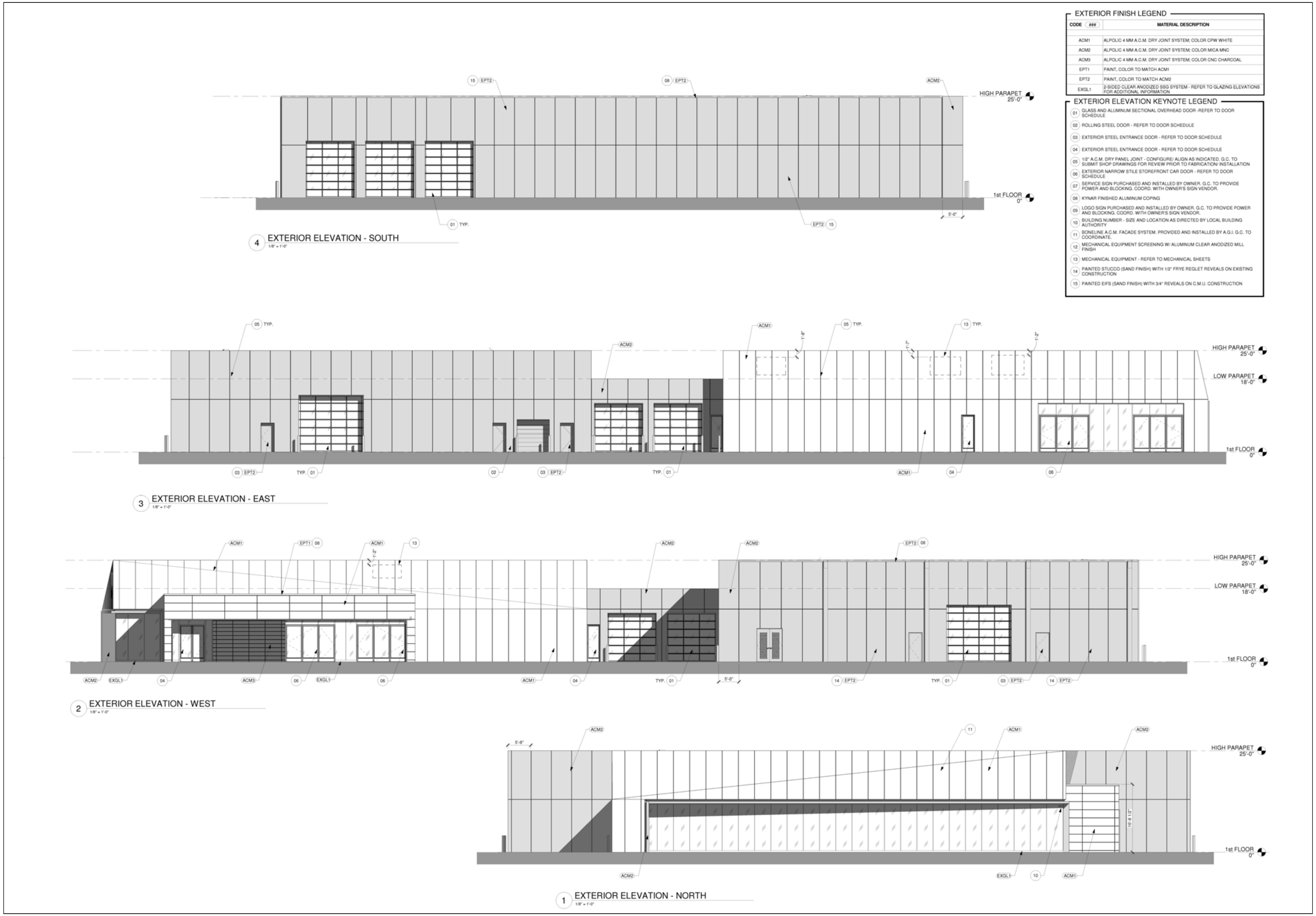
755 Serramonte Blvd. Colma Car Dealership

Source: Spring Engineering 2020; MIG 2020

MIG

Figure 5 Building Design

755 Serramonte Blvd. Colma Car Dealership

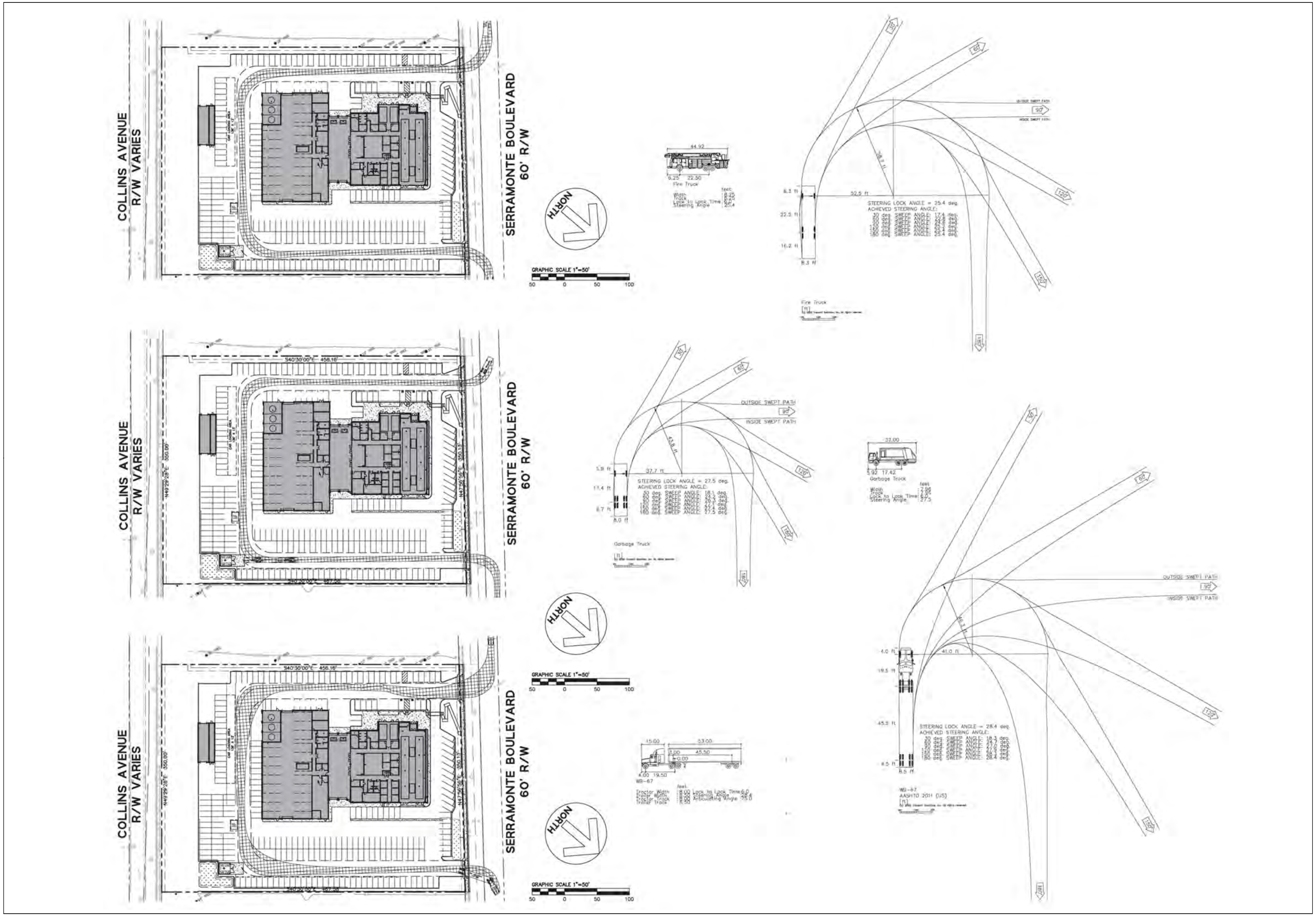


Source: Spring Engineering 2020; MIG 2020

MIG

Figure 6 Building Elevations

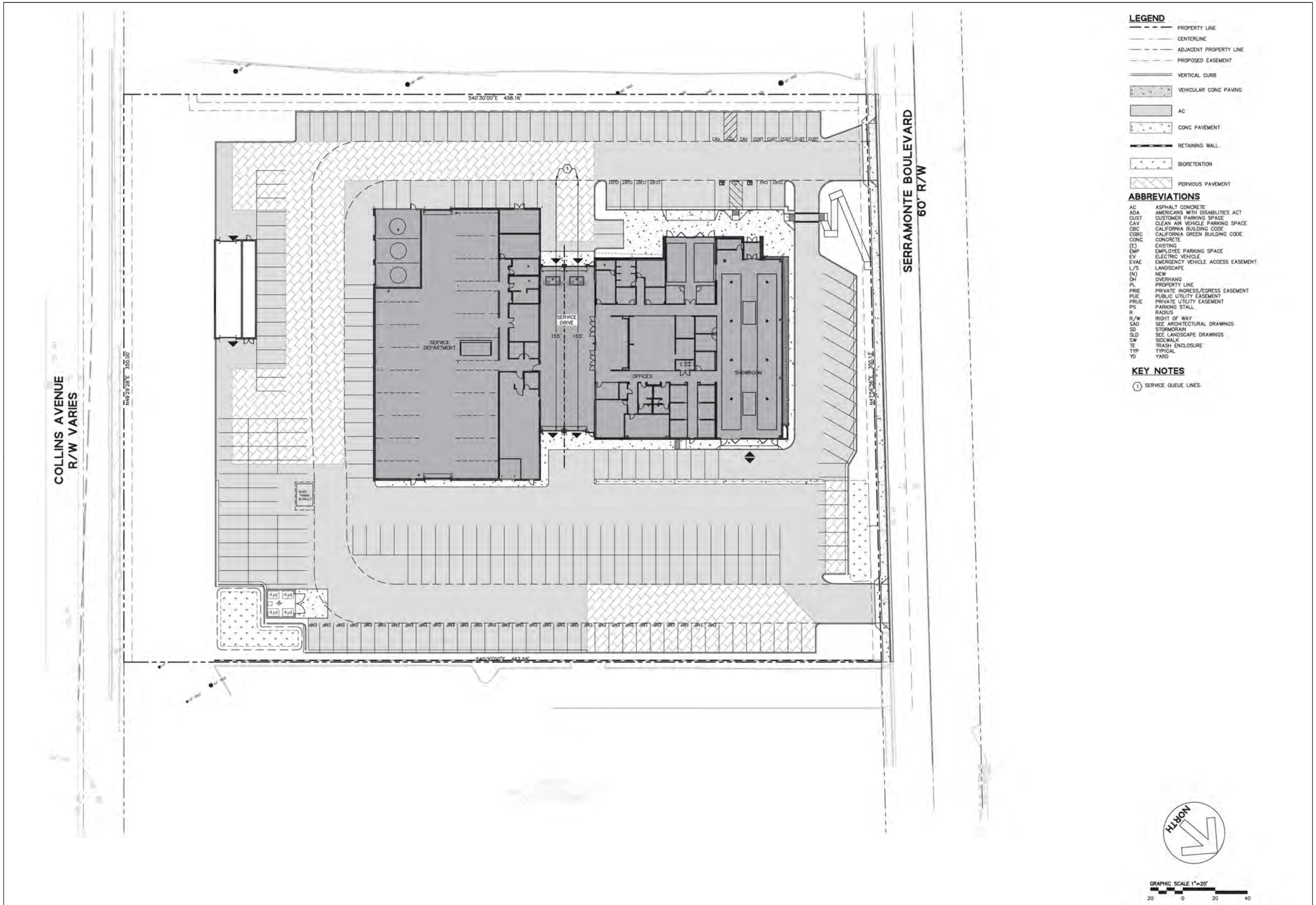
755 Serramonte Blvd. Colma Car Dealership



Source: BKF 2020; MIG 2020

Figure 7 Site Circulation and Turn Radii

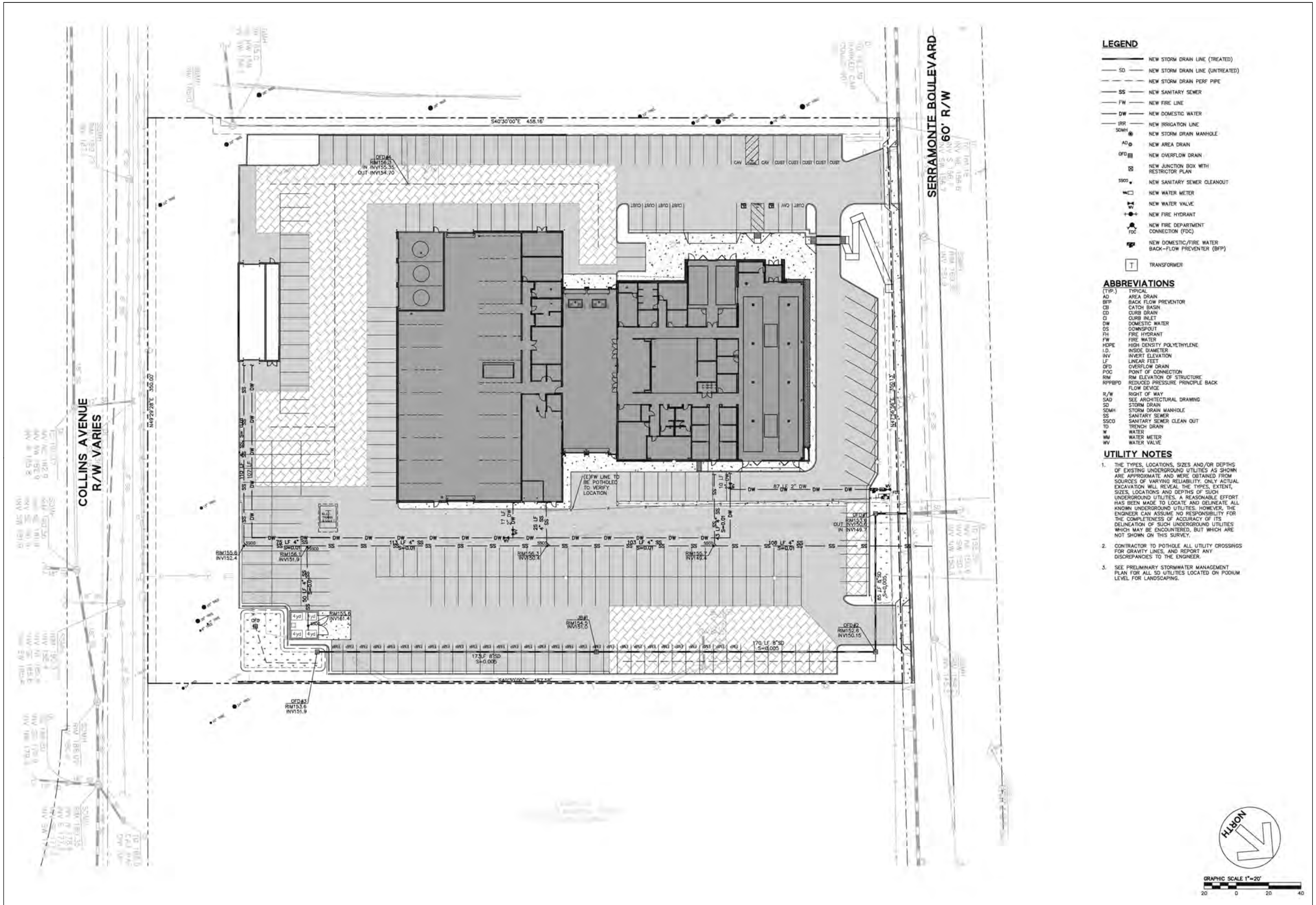
755 Serramonte Blvd. Colma Car Dealership



Source: BKF 2020; MIG 2020

Figure 8 Vehicle Parking

755 Serramonte Blvd. Colma Car Dealership

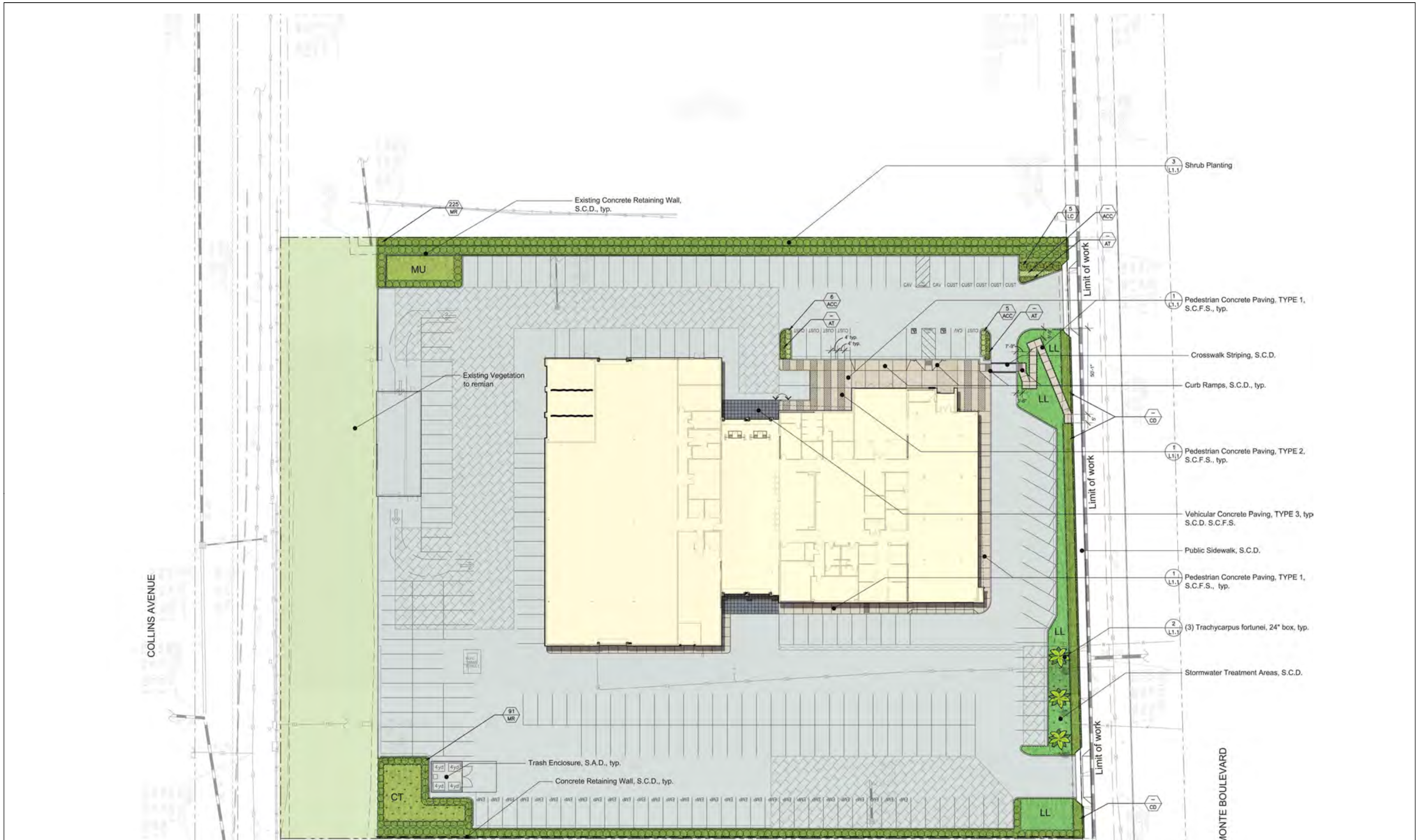


Source: BKF 2020; MIG 2020

Figure 9 Utility Plan

755 Serramonte Blvd. Colma Car Dealership

MIG



PLANT PALETTE

TREES					
KEY	BOTANICAL NAME	COMMON NAME	SPACING	Size	WUCOLS
TRA FOR	Trachycarpus fortunei	Windmill Palm		24" Box	L
SHRUBS & GROUNDCOVERS & GRASSES					
KEY	BOTANICAL NAME	COMMON NAME	SPACING	Size	WUCOLS
ACC	Acacia cognata	Cousin Itt Little River Wattle	48" o.c.	5 gal	L
AT	Agapanthus 'Tinkerbell'	Variegated Dwarf Blue Lily-of-the Nile	18" o.c.	1 gal	M
CD	Carex divulsa	Berkeley sedge	18" o.c.	1 gal	L
CT	Chondropetalum Tectorum	Cape Rush	36" o.c.	5 gal	L
LC	Loropetalum chinense 'Rubrum'	Chinese fringe-flower	60" o.c.	15 gal	L
LL	Lomandra longifolia 'Platinum beauty'	Variegated Dwarf Mat Rush	30" o.c.	5 gal	L
MR	Muhlenbergia rigens	Deer Grass	48" o.c.	5 gal	L
MU	Muhlenbergia capillaris 'Regal Mist'	Pink Muhly Grass	36" o.c.	5 gal	L

Source: The Guzzardo Partnership 2020; MIG 2020

Figure 10 Landscaping

755 Serramonte Blvd. Colma Car Dealership

Chapter 3. Environmental Checklist and Responses

1. **Project Title:** 775 Serramonte Blvd. Colma Car Dealership Initial Study / Mitigated Negative Declaration
2. **Lead Agency Name and Address:** Town of Colma 1198 El Camino Real, Colma, CA 94014
3. **Contact Person and Phone Number:** Michael Laughlin, City Planner; (650) 757-8896
4. **Project Location:** 775 Serramonte Blvd. Colma, CA 94014
5. **Project Sponsor's Name and Address:** Mr. T. Wayne Bogart, President TMW & Associates, Inc. 725 Sanguinetti Lane, Stockton, CA 95205-3416
6. **General Plan Designation:** Commercial
7. **Zoning:** Commercial
8. **Description of the Project:** The proposed Project would construct a new Cadillac dealership on the site of a former Babies 'R' Us retail store within the Town of Colma. The Project will demolish part of the existing Babies R Us building and construct an extension, using the front of the existing building as the rear of the proposed building. The site would contain 241 parking spaces for both visitors to the dealership as well as cars for sale. The interior of the building would house a sales department, parts department, and a full-service mechanical department with service bays and car wash facilities.
9. **Surrounding Land Uses and Setting:** Adjacent land uses consist of commercial development. The Project site is bordered to the north by Serramonte Boulevard, to the east by Dollar Tree store, to the south by Collins Avenue, and to the west by Serramonte Ford.
10. **Other public agencies whose approval is required:** The Project would not require permits from any other public agencies.
11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?** The Town of Colma has not received any requests from a Native American tribe traditionally and culturally affiliated with the Project area. Thus, no consultation has been conducted.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, as indicated by the checklist on the following pages.

☒	Aesthetics	☐	Greenhouse Gas Emissions	☐	Public Services
☐	Agricultural and Forestry Resources	☐	Hazards and Hazardous Materials	☐	Recreation
☒	Air Quality	☐	Hydrology/Water Quality	☒	Transportation
☒	Biological Resources	☐	Land Use/Planning	☒	Tribal Cultural Resources
☒	Cultural Resources	☐	Mineral Resources	☐	Utilities/Service Systems
☐	Energy	☐	Noise	☐	Wildfire
☒	Geology/Soils	☐	Population/Housing	☒	Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed Project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Signature Michael P. Laughlin

Date: 06/09/2020

Printed Name: Michael Laughlin

Title: City Planner

Agency: Town of Colma

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

4. “Negative Declaration: Less Than Significant with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in 5. below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.

   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. Mitigation Measures. For effects that are “Less Than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a. the significance criteria or threshold, if any, used to evaluate each question; and
   b. the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
*Would the project:**				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐
*Except as provided in Public Resources Code Section 21099				

3.1.1 Environmental Setting

The Project is located at 775 Serramonte Blvd., in the central part of the Town of Colma. Serramonte Blvd. is lined with stores and businesses and serves as a commercial corridor in Colma. The site is a 3.72-acre parcel which contains a single, vacant retail building, a former Babies ‘R’ Us. The existing building is a 38,135 sq. ft. two-story retail structure that has been closed for more than a year. A loading dock is located along the northeastern exterior of the retail building. The building was constructed around 1971. Previous structures have existed on the site but were demolished prior to the construction of the existing retail building. The building currently backs onto a vegetated slope on the south-east of the site, which rises to Collins Drive. The vegetated slope contains a number of trees, and is held in place by a retaining wall, and the rear wall of the existing building.

The proposed Project’s vicinity is predominantly comprised of car dealerships. The three parcels directly opposite the proposed Project, on the other side of Serramonte Boulevard are car dealerships (Chrysler Dodge / Jeep Ram, Chevrolet, and Lexus). The parcel to the west of the proposed Project site is a Ford dealership. The parcel to the east is a Dollar Tree store, which is between the proposed Project site and a Subaru/Volkswagen dealership.

3.1.2 Regulatory Setting

Town of Colma Land Use and Urban Design Strategy

The Town of Colma Land Use and Urban Design Strategy was prepared in 2014 and is intended to inform and be integrated into the General Plan Update. The material presented in this document offers a comprehensive land use structure as well as an overall streetscape framework. The document identifies “opportunity sites” in Colma. It also provides illustrations of buildout scenarios and shows how new development would fit in the existing setting.

Serramonte Boulevard and Collins Avenue Master Plan

The Master Plan outlines a vision for the Town’s key commercial area and provides guidance for strategic improvements to circulation, streetscape, infrastructure, and aesthetics to improve the overall design and function of the business community. One of the key objectives of the Master Plan is to incorporate land use and urban design elements that sustain and enhance the function and unique identity of Serramonte Boulevard.

Town of Colma Zoning Ordinance

The Town of Colma Zoning Ordinance consists of text and a map delineating districts for basic land uses as residential and commercial, and establishing special regulations for design and other specific concerns. The Town of Colma Zoning Ordinance also describes procedures for processing discretionary approvals.

Town of Colma General Plan 1999, General Plan 2040, Existing Conditions Report 2020

The Town adopted a General Plan in 1999. Elements of the plan have since been updated and adopted, and others are in the process of being updated, but have not yet been finalized or adopted. The following relevant policies are from the Land Use Element of the General Plan, dating from 1999, which has not been updated:

Policy 5.02.311. In any proposed development the Town shall balance and use judgement in reviewing the visual effects and the potential impacts of the proposed development, facilitating the tranquil atmosphere required for the Town’s memorial parks.

Policy 5.02.312. The Town should take action to improve civic beauty including tree planting, road median landscaping, and enforcement of conditions related to private development projects.

Policy 5.02.318. The Town should condition the approval of permits for all site and building improvement projects where such projects involve the public street frontage to require the installation of street trees along the public street frontage of the affected property. Spacing of trees should be in accordance with an adopted tree planting plan or, if no plan exists, trees should be installed at a minimum spacing of one tree each 25 feet parallel to the public roadway. Exceptions should be made if this approach would clash with an established landscape scheme of merit.

Policy 5.02.24 It is intended that new buildings in design review districts should be reviewed to ensure that exterior building design, materials and colors are appropriate for the setting where the new buildings are located.

3.1.3 Discussion

Would the project:

a) **Have a substantial adverse effect on a scenic vista?**

b) **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

c) **In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

No Impact. (Responses a-c) For purposes of determining significance under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. The Town of Colma's Existing Conditions Report identifies the following as scenic corridors: I-280, from the San Bruno City limit north through Colma; El Camino Real; and Hillside Boulevard. The proposed Project is located at 755 Serramonte Blvd, which is zoned as a commercial district. The Project site is surrounded predominately by car dealerships, including Chrysler Dodge / Jeep Ram, Chevrolet, Lexus, Ford, and Subaru, and a Dollar Tree. The proposed Project will not result in substantial adverse effect to a scenic vista, or cause damage to scenic resources. The Project will not conflict with applicable zoning and other regulations governing scenic quality.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant with Mitigation Incorporated.

The Project site has been historically developed and currently includes sources of glare and has been a source of nighttime light. Although the Project would create additional sources of light and glare, it is not expected to be adversely different or more intense than the conditions surrounding the Project area which are predominantly auto dealerships.

Sources of nighttime light include parking lighting, lighting illuminated from the new sales/service building, illuminated signage, and outdoor security lighting, resulting in an increase in the total amount of light emanating from the Project site.

Glare would be caused by glass windows on the front of the proposed new portion of the building, as well as from parked cars in the inventory and employee and visitor parking.

Exterior lights would be mounted on the outside of the building providing illumination throughout the Project site, in addition to a sign at the entrance to the Project site.

The illuminated (and non-illuminated) signage would be required to comply with Municipal Code Subchapter 4.07, which establishes sign regulations such as requiring lighted signs to be fitted with a device to adjust lighting intensity, and permits for monument and building faces signs to ensure compliance with the Town regulations regarding signs. Overall, compliance with Municipal Code Section 4.07 and implementation of Mitigation Measure AES-1 would ensure that impacts regarding light be less-than significant.

Impact AES-1: The Project has the potential to create a new source of substantial light or glare which would adversely affect nighttime views in the area.

Mitigation Measure AES-1: The Project applicant shall submit a lighting plan to the Town of Colma Planning Department prior to obtaining a building permit. The lighting plan shall demonstrate that proposed lighting has been designed to minimize spillover lighting to all surrounding properties immediately adjacent to the Project site. If spillover beyond what is approved is observed during operation, the Project applicant shall be required to correct the lighting by one or more of the following measures: adjusting light fixtures to reduce lighting levels; adding diffusers or hoods; or reducing wattage of bulbs.

Effectiveness: These measures would minimize and/or avoid impacts to light and glare to less than significant levels.

Implementation: Applicant and its contractor.

Timing: Prior to issuance of building permit.

Monitoring: The Town will approve the lighting plan before the building permit is approved.

3.1.4 References

Caltrans, 2019. Scenic Highways, San Mateo County. Accessed on April 14, 2020 at http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

Town of Colma, 2020. General Plan 2040 Existing Conditions Report. Draft January 2020. Accessed April 14, 2020 at https://www.colma.ca.gov/documents/existing-conditions-report/.

Town of Colma, 2014. Land Use and Urban Design Strategy. October 2014. Accessed April 14, 2020 at https://www.colma.ca.gov/documents/land-use-urban-design-strategy/.

Town of Colma, 1999. General Plan. June 1999. Accessed April 14, 2020 at https://www.colma.ca.gov/current-general-plan/.

3.2 AGRICULTURAL AND FOREST RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:*				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
*In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				

3.2.1 Environmental Setting

The Project is located in the Town of Colma on a site that is developed with a vacant Babies-R-Us and associated parking lot. The California Department of Conservation Farmland Mapping and Monitoring Program identifies the property as Urban and Built-up Land. The Project site has a General Plan designation of Commercial (C) (Colma 1999).

3.2.2 Discussion

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

c) **Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?**

d) **Result in the loss of forest land or conversion of forest land to non-forest use?**

e) **Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

No Impact (Responses a – e). There are no forest lands or agricultural lands on or near the proposed Project site, which is surrounded by commercial development. The Project would not convert or cause the conversion of any farmland or forest land to a non-agricultural/non-forest use. The proposed Project would not impact Prime Farmland, Unique Farmland, Farmland of Statewide Importance, forest land, or land under a Williamson Act contract. Thus, the Project would not result in impacts to any agricultural or forestry resources.

3.2.3 References

California Department of Conservation. 2018. San Mateo County Important Farmland 2016. Department of Land Resource Protection. Accessed March 16, 2020 at ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/smt16.pdf.

Town of Colma, 1999. General Plan. June 1999. Accessed March 5, 2020 at https://www.colma.ca.gov/current-general-plan/.

3.3 AIR QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 non-attainment 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?	☐	☐	☒	☐
*Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.				

3.3.1 Environmental Setting

Air quality is a function of pollutant emissions and topographic and meteorological influences. Physical atmospheric conditions such as air temperature, wind speed and topography influence air quality.

Criteria Air Pollutants

Federal, state, and local governments control air quality through the implementation of laws, ordinances, regulations, and standards. The federal and state governments have established ambient air quality standards for “criteria” pollutants considered harmful to the environment and public health. National Ambient Air Quality Standards (NAAQS) have been established for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), fine particulate matter (particles 2.5 microns in diameter and smaller, or $PM_{2.5}$), inhalable coarse particulate matter (particles 10 microns in diameter and smaller, or PM_{10}), and sulfur dioxide (SO_2). California Ambient Air Quality Standards (CAAQS) are more stringent than the national standards for the pollutants listed above and include the following additional pollutants: hydrogen sulfide (H_2S), sulfates (SO_X), and vinyl chloride. In addition to these criteria pollutants, the federal and state governments have classified certain pollutants as hazardous air pollutants (HAPs) or toxic air contaminants (TACs), such as asbestos and diesel particulate matter (DPM).

San Francisco Bay Area Air Basin

The proposed Project is located in the San Francisco Bay Area Air Basin (SFBAAB), an area of non-attainment for both the 1-hour and 8-hour state ozone standards, and the national 24-hour $PM_{2.5}$ standard. The SFBAAB is comprised of nine counties: all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, Napa, and the southern portions of Solano and Sonoma. In San Mateo County, $PM_{2.5}$ exceeds the national standard only on about one day each year (BAAQMD 2017a).

The San Francisco Bay Area is generally characterized by a Mediterranean climate with warm, dry summers and cool, damp winters. During the summer daytime high temperatures near the coast are primarily in the mid-60s, whereas areas farther inland are typically in the high-80s to low-90s. Nighttime low temperatures on average are in the mid-40s along the coast and low to mid-30s inland.

The Mediterranean climate is seen along most of the West Coast of North America and is primarily due to a (typically dominating) high-pressure system, located off the west coast of North America, over the Pacific Ocean. During the summer and fall months the high-pressure ridge is at its strongest and therefore provides a more stable atmosphere. Warm temperatures and a stable atmosphere associated with the high-pressure ridge provide favorable conditions for the formation of photochemical pollutants (e.g. O_3) and secondary particulates (e.g. nitrogen oxides (NO_x) and SO_2).

Varying topography and limited atmospheric mixing throughout the SFBAAB restrict air movement resulting in reduced dispersion and higher concentrations of air pollutants. The SFBAAB is most susceptible to air pollution during the summer when cool marine air flowing through the Golden Gate can become trapped under a layer of warmer air (a phenomenon known as an inversion) and is prevented from escaping the valleys and bays created by the Coast Ranges.

Sensitive Receptors

A sensitive receptor is generally defined as where children, seniors, and sick persons are located and there is reasonable expectation of continuous human exposure to air pollutants. These typically include residences, hospitals, and schools. There are no sensitive receptors within 1,000 feet of the Project site.

Existing Criteria Air Pollutant Emissions at the Project Site

The Project currently consists of a vacant Babies 'R' Us building. There is a nominal amount of criteria air pollutants emitted from landscaping equipment (e.g., leaf blowers and weed cutting equipment) used to maintain the site.[1]

3.3.2 Regulatory Setting

CARB In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and nitrous oxides (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. This regulation applies to all off-road diesel vehicles over 25 horsepower (hp) used in California and most two-engine vehicles (except on-road two-engine sweepers), which are subject to the *Regulation for In-Use Off-Road Diesel Fueled Fleets (Off-Road regulation).* Additionally, vehicles that are rented or leased (rental or leased fleets) are included in this regulation.

[1] Assuming the project site generates little to no emissions is considered a conservative approach, since up until recently, the project site consistent of an operational Babies 'R' Us retail store that generated more emissions than current conditions (e.g., mobile source emissions from vehicles traveling to and from the site).

The Off-Road regulation:

- Imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all off-road diesel vehicles over 25-horsepower be reported to CARB (using the Diesel Off-Road Online Report System DOORs) and labeled;
- Restricts the adding of older vehicles into fleets; and,
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies, VDECS (i.e., exhaust retrofits).

CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation

CARB's In-Use Heavy-Duty Diesel-Fueled regulation (also known as the Truck and Bus Regulation) is intended to reduce emission of NO_x, PM, and other criteria pollutants generated from existing on-road diesel vehicles operating in California. The regulation applies to nearly all diesel fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds that are privately or federally owned, and for privately and publicly owned school buses. Heavier trucks and buses with a GVWR greater than 26,000 pounds must comply with a schedule by engine model year or owners can report to show compliance with more flexible options. Fleets complying with the heavier trucks and buses schedule must install the best available PM filter on 1996 model year and newer engines and replace the vehicle 8 years later. Trucks with 1995 model year and older engines had to be replaced starting 2015. Replacements with a 2010 model year or newer engines meet the final requirements, but owners can also replace the equipment with used trucks that have a future compliance date (as specified in regulation). By 2023, all trucks and buses must have at least 2010 model year engines with few exceptions.

Bay Area Air Quality Management District

The BAAQMD is the agency primarily responsible for maintaining air quality and regulating emissions of criteria and toxic air pollutants within the SFBAAB. The BAAQMD carries out this responsibility by preparing, adopting, and implementing plans, regulations, and rules that are designed to achieve attainment of state and national air quality standards. The BAAQMD currently has 14 regulations containing more than 100 rules that control and limit emissions from sources of pollutants. Table 3-1 summarizes the major BAAQMD rule and regulation that may apply to the proposed Project.

Table 3-1: Potentially Applicable BAAQMD Rules and Regulations

Regulation	Rule	Description
6 – Particulate Matter	1 – General Requirements	Limits visible particulate matter emissions.
14 – Mobile Source Missions Reduction Measures	1 – Commuter Benefits Program	Requires employers with 50 or more full-time employees in the Bay Area to provide commuter benefits to their employees.
Source: BAAQMD 2020		

On April 19, 2017, the BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (*Clean Air Plan*), which updates the District's *2010 Clean Air Plan*, and continues to provide the framework for assuring that the NAAQS and CAAQS would be attained and maintained in the Bay Area in compliance with state and federal requirements (BAAQMD 2017b). The BAAQMD's 2017 *Clean Air Plan* is a multi-pollutant plan focused on protecting public health and the climate. Specifically, the primary goals of the *2017 Clean Air Plan* are to:

- Attain all state and national quality standards;
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Reduce Bay Area GHG Emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

The *Clean Air Plan* includes 85 distinct control measures to help the region reduce air pollutants and has a long-term strategic vision which forecasts what a clean air Bay Area will look like in the year 2050. The control measures aggressively target the largest source of GHG, ozone pollutants, and particulate matter emissions – transportation. The 2017 Clean Air Plan includes more incentives for electric vehicle 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 (BAAQMD 2017b).

3.3.3 Discussion

Would the proposed project:

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

No Impact. The proposed Project would not conflict with nor obstruct implementation of the BAAQMD *Clean Air Plan*. The *Clean Air Plan* includes increases in regional construction, area, mobile, and stationary source activities, and operations in its emission inventories and plans for achieving attainment of air quality standards. Chapter 5 of the *Clean Air Plan* contains the BAAQMD's strategy for achieving the plan's climate and air quality goals. This control strategy is the backbone of the *Clean Air Plan*.

The proposed Project consists of the construction and operation of a new car dealership. The proposed Project would not exceed the level of population or housing foreseen in city or regional planning efforts; therefore, it would not have the potential to substantially affect housing, employment, and population projections within the region, which are the basis of the *Clean Air Plan* projections. The control measures in the *Clean Air Plan* do not directly apply to the proposed Project and, therefore, the proposed Project would not conflict with the *Clean Air Plan*. Furthermore, as described under b), below, the increase in regional emissions generated by the proposed Project would be less than the BAAQMD's emissions thresholds. No impact would occur.

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

Less Than Significant with Mitigation Incorporated. The proposed Project would generate both short-term construction emissions and long-term operational emissions. The Project's potential emissions were estimated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. As described in more detail below, the proposed Project would not generate short-term or long-term emissions that exceed BAAQMD-recommended criteria air pollutant thresholds.

Construction Emissions

The proposed Project involves the partial demolition of the existing Babies 'R' Us building, and construction of a new car dealership facility. As described in Section 2.3.7, construction activities are anticipated to last approximately eight months and include demolition and grading, utility trenching, and building and site development. Construction emissions would be generated on-site during the use of heavy-duty, off-road construction equipment (e.g., excavators, graders, forklifts, etc.) and off-site during worker, vendor, and hauling trips.

The Project's potential construction emissions were estimated using CalEEMod based on the construction schedule and equipment provided by the Town/Applicant, and are presented in Table 3-2 (see Appendix A: Air Quality/GHG Calculations).

Table 3-2. Estimated Project Construction Criteria Air Pollutant Emissions

Year / Scenario	Pollutant Emissions (Tons Per Year)(A)						
	ROG	NOx	CO	PM10		PM2.5	
				Dust(B)	Exhaust	Dust(B)	Exhaust
UNMITIGATED							
2020	0.33	1.32	1.25	0.05	0.06	0.01	0.05
MITIGATED							
2020	0.33	1.32	1.25	0.04	0.06	0.01	0.05
Year / Scenario	**Pollutant Emissions (Average Pounds per Day)(C)**						
	ROG	**NOx**	**CO**	**PM10**		**PM2.5**	
				Dust(B)	**Exhaust**	**Dust(B)**	**Exhaust**
UNMITIGATED							
2020	3.74	14.97	14.25	0.55	0.66	0.13	0.61
MITIGATED							
2020	3.74	14.97	14.25	0.47	0.66	0.12	0.61
BAAQMD CEQA Threshold	**54**	**54**	**--**	**BMPs**	**82**	**BMPs**	**82**
Potentially Significant Impact?	**No**	**No**	**No**	**Yes**	**No**	**Yes**	**No**

BAAQMD 2017c and MIG 2020. See Appendix A.

(A) As a conservative approach, all construction emissions were assumed to occur in 2020. In actuality, construction emissions may occur in 2021, too. Construction equipment in anticipated to become cleaner over time as older, dirtier, construction equipment is phased out and replaced with newer, cleaner burning pieces of equipment.

(B) For all projects, the BAAQMD recommends implementing eight basic construction best management practices (BMPs) to control fugitive dust from construction activities.

(C) Average daily emissions assume 176 total active construction days (22 construction days per month for eight months).

As shown in Table 3-2, construction emissions associated with the proposed Project would be below all BAAQMD significance thresholds for criteria air pollutant emissions; however, as indicated in the BAAQMD's *CEQA Guidelines*, fugitive dust emissions are considered potentially significant, regardless of the quantity of PM_{10} or $PM_{2.5}$ emitted unless the BAAQMD's eight, recommended fugitive dust BMPs are implemented during construction activities (BAAQMD 2017c, pg. 8-4). Accordingly, Mitigation Measure AIR-1, is presented below, to reduce fugitive dust emissions from the proposed Project's construction activities.

Impact AIR-1: Project construction could result in significant dust emissions.

Mitigation Measure AIR-1: To reduce fugitive dust that would be generated during Project construction activities, the Town shall require the Applicant and/or its designated contractors, contractor's representatives, or other appropriate personnel to implement the following BAAQMD basic dust control measures.

- Water all exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) two times per day during construction and adequately wet demolition surfaces to limit visible dust emissions.
- Cover all haul trucks transporting soil, sand, or other loose materials off the Project site.
- Use wet power vacuum street sweepers at least once per day to remove all visible mud or dirt track-out onto adjacent public roads (dry power sweeping is prohibited) during construction of the proposed Project.
- Vehicle speeds on unpaved roads/areas shall not exceed 15 miles per hour.
- Complete all areas to be paved as soon as possible and lay building pads as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time of diesel-powered construction equipment to five minutes and post signs reminding workers of this idling restriction at access points and equipment staging areas during construction of the proposed Project
- Maintain and properly tune all construction equipment in accordance with manufacturer's specifications and have a CARB-certified visible emissions evaluator check equipment prior to use at the site.
- Post a publicly visible sign with the name and telephone number of the construction contractor and Town staff person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The publicly visible sign shall also include the contact phone number for the Bay Area Air Quality Management District to ensure compliance with applicable regulations.

Effectiveness: These measures would minimize and/or avoid local impacts from fugitive dust to less than significant levels.

Implementation: The Applicant shall include these measures on all appropriate plans (e.g., building, grading, and improvement plans) documents.

Timing: During construction activities.

Monitoring: The Town shall review all plans for inclusion of dust control measures.

After the implementation of Mitigation Measure AIR-1, the proposed Project's construction criteria air pollutant emissions would be less than significant.

Operational Emissions

Upon completion of construction activities, the proposed Project would operate as a new car dealership. Operation of this land use would generate emissions of regulated air pollutants from:

- **"Area" Sources.** The proposed land use would generate emissions from small area sources, including landscaping equipment, and the use of consumer products (e.g., paints, cleaners, and fertilizers) that result in the evaporation of chemicals into the atmosphere during product use.
- **Energy Use and Consumption.** The proposed land use would generate emissions from the combustion of natural gas in water and space heating equipment.
- **Mobile Sources.** The proposed land use would generate emissions from vehicle traveling to and from the Project site.

The proposed Project's operational emissions were estimated using CalEEMod. The operational emissions generated in CalEEMod are based on the Project's first full year of operation (presumed to be 2021) using default data assumptions provided by CalEEMod, as modified to reflect the following Project-specific information:

- The default weekday and weekend trip generation rates for the car dealership were replaced with the trip generation rates contained in the Traffic Study prepared for the Project by W-Trans (W-Trans 2020). According to the Traffic Memorandum, the proposed Project would generate 877 trips on a daily basis.

The proposed Project's estimated operational emissions are presented in Table 3-3.

Table 3-3. Estimated Project Operational Criteria Air Pollutant Emissions

Source	Pollutant Emissions (Tons per Year)				
	ROG	NOx	CO	PM10	PM2.5
Area Sources	0.2	<0.0(B)	<0.0(B)	<0.0(B)	<0.0(B)
Energy Demand	<0.0(B)	<0.0(B)	<0.0(B)	<0.0(B)	<0.0(B)
Mobile Sources	0.2	0.4	1.4	0.3	0.1
TOTAL(A)	0.3	0.5	1.5	0.3	0.1
BAAQMD CEQA Threshold	**10**	**10**	**--**	**15**	**10**
Potentially Significant Impact?	**No**	**No**	**No**	**No**	**No**
Source	**Pollutant Emissions (Average Pounds per Day)**				
	ROG	**NOx**	**CO**	**PM10**	**PM2.5**
Area Sources	0.9	<0.0(B)	<0.0(B)	<0.0(B)	<0.0(B)
Energy Demand	<0.0(B)	0.2	0.2	<0.0(A)	<0.0(A)
Mobile Sources	0.9	2.3	7.8	1.8	0.5
TOTAL	**1.8**	**2.5**	**8.0**	**1.8**	**0.5**
BAAQMD CEQA Threshold	**54**	**54**	**--**	**82**	**54**
Potentially Significant Impact?	**No**	**No**	**No**	**No**	**No**

BAAQMD 2017c and MIG 2020. See Appendix A.

(A) Totals may not equal due to rounding.
(B) <0.0 does not mean emissions are zero; rather, it means emissions are greater than zero, but less than 0.05.

As shown in Table 3-3, operational criteria air pollutant emissions associated with the proposed Project would be below the BAAQMD regional thresholds. Therefore, operation of the proposed Project would not generate operational-related emissions that exceed BAAQMD thresholds, and impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. During Project construction, the heavy-duty, diesel-powered, off-road construction equipment, as well as diesel-powered vendor and haul tucks, would emit DPM as part of their exhaust emissions; however, these emissions would not result in pollutant concentrations that could generate substantial adverse health risks to adjacent sensitive receptors for several reasons.

First, as shown in Table 3-2 the proposed Project's emissions would be below all BAAQMD construction emissions thresholds. Second, Project construction emission activities would only occur intermittently, between the hours of 8:00 A.M. and 5:00 P.M. Monday through Friday, consistent with the Town's Noise Ordinance. The intermittent nature of Project construction activities would provide time for emitted pollutants to disperse on an hourly and daily basis according to the prevailing wind in the area. Finally, as described in Section 3.3.1, there are no sensitive receptors within 1,000 feet of the Project site. As such, the Project does not have the potential to expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant.

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

Less Than Significant Impact. Construction of the Project would generate typical odors associated with construction activities, such as vehicle exhaust odors. The odors generated by the Project would be intermittent and localized in nature and would disperse quickly. There are no other anticipated emissions. Therefore, the Project would not create emissions or odors that adversely affect a substantial number of people. This impact would be less than significant.

3.3.4 References

Bay Area Air Quality Management District (BAAQMD). 2017a. "Air Quality Standards and Attainment Status". BAAQMD, Research & Data, Air Quality Standards & Attainment Status. January 5, 2017. Accessed on April 30, 2020 at http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status.

______2017b. 2017 Clean Air Plan: Spare the Air, Cool the Climate. BAAQMD, Planning, Rules, and Research Division. April 19, 2017.

______2017c. *California Environmental Quality Act Air Quality Guidelines*. San Francisco, CA. June 2010, updated May 2017.

______2020. Current Rules. BAAQMD. Accessed on April 30, 2020 at http://www.baaqmd.gov/rules-and-compliance/current-rules.

W-Trans. 2020. *Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership*. April 28, 2020.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) 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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

The Project site is a 3.72-acre parcel of land which contains a single, vacant retail building, surrounded by asphalt-paved parking areas to the southwest, northwest, and northeast. Landscape trees such as eucalyptus (*Eucalyptus* sp.) and pine (*Pinus* sp.) line the southwestern and western borders of the site, and landscape shrubs line the northwestern and eastern borders. The site is surrounded by roads, parking lots and buildings. The closest landscaped green space to the site is the Cypress Lawn Funeral Home & Memorial Park, approximately 450 feet to the southeast; and the Greenlawn Memorial Park, approximately 615 feet to the northwest. The closest natural open space is San Bruno Mountain, approximately one mile to the east of the site. Colma Creek is about 0.3 mile east of the site along El Camino Real, although it is undergrounded at this location (Oakland Museum of California, 2005). The Pacific Ocean is about 1.8 mile to the west of the site, and the San Francisco Bay is about 3.7 miles to the east.

Common urban wildlife is expected to occur in and near the Project site.

3.4.2 Regulatory Setting

U.S. Migratory Bird Treaty Act

The U.S. Migratory Bird Treaty Act (MBTA; 16 USC §§ 703 et seq., Title 50 Code of Federal Regulations [CFR] Part 10) states it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill; attempt to take, capture or kill; possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest or egg thereof…" In short, under MBTA it is illegal to disturb a nest that is in active use, since this could result in killing a bird, destroying a nest, or destroying an egg. The USFWS enforces MBTA. The MBTA does not protect some birds that are non-native or human-introduced or that belong to families that are not covered by any of the conventions implemented by MBTA. In 2017, the USFWS issued a memorandum stating that the MBTA does not prohibit incidental take; therefore, the MBTA is currently limited to purposeful actions, such as directly and knowingly removing a nest to construct a project, hunting, and poaching.

State Regulations

California Environmental Quality Act

The CEQA (Public Resources Code Sections 21000 et. seq.) requires public agencies to review activities which may affect the quality of the environment so that consideration is given to preventing damage to the environment. When a lead agency issues a permit for development that could affect the environment, it must disclose the potential environmental effects of the Project. This is done with an "Initial Study and Negative Declaration" (or Mitigated Negative Declaration) or with an "Environmental Impact Report". Certain classes of projects are exempt from detailed analysis under CEQA.

CEQA Guidelines Section 15380 defines endangered, threatened, and rare species for purposes of CEQA and clarifies that CEQA review extends to other species that are not formally listed under the state or federal Endangered Species Acts but that meet specified criteria. The state maintains a list of sensitive, or "special-status", biological resources, including those listed by the state or federal government or the California Native Plant Society (CNPS) as endangered, threatened, rare or of special concern due to declining populations. During CEQA analysis for a proposed project, the California Natural Diversity Data Base (CNDDB) is usually consulted. CNDDB relies on information provided by the California Department of Fish and Wildlife (CDFW), USFWS, and CNPS, among others. Under CEQA, the lists kept by these and any other widely recognized organizations are considered when determining the impact of a project.

Nesting Birds

Nesting birds, including raptors, are protected under California Fish and Game Code Section 3503, which reads, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." In addition, under California Fish and Game Code Section 3503.5, "it is unlawful to take, possess, or destroy any birds in the orders 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". Passerines and non-passerine land birds are further protected under California Fish and Game Code 3513. As such, CDFW typically recommends surveys for nesting birds that could potentially be directly (e.g., actual removal of trees/vegetation) or indirectly (e.g., noise disturbance) impacted by Project-related activities. Disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by CDFW.

Non-Game Mammals

Sections 4150-4155 of the California Fish and Game Code protects non-game mammals, including bats. Section 4150 states "A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A non-game mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission". The non-game mammals that may be taken or possessed are primarily those that cause crop or property damage. Bats are classified as a non-game mammal and are protected under California Fish and Game Code.

Local Regulations

Town of Colma General Plan

The Town of Colma General Plan 1999 was adopted in compliance with the state law requirement that each city and county prepare and adopt a comprehensive and long-range general plan for its physical development (California Government Code Section 65300). The goals and policies set forth by the General Plan Open Space Element (2000) that may be relevant to the proposed Project are listed below.

<u>5.04.330 Vegetation and Project Landscaping</u>

Policy 5.04.331: Significant tree masses and other vegetative cover, as indicated on the Open Space Map (Exhibit OS-1). should be recognized as natural resources to be managed and preserved. Tree removal, if necessary, should follow the guidelines of the Tree Ordinance. Any vegetation removed as part of a development process should be subject to a landscaping replacement. As a general rule, a one for-one replacement should be required.

Policy 5.04.332: The Town should encourage use of the representative plant list and landscape criteria set forth in Tables OS-2 and OS-3.

Policy 5.04.333: Street trees should be planted along Colma's street system. Trees should be selected from a plant list approved by the City Council in order to create a unifying theme. Trees should be planted as a requirement of private development, with spacing 20-30 feet apart.

Policy 5.05.334: The Town should encourage property owners to eliminate invasive plants wherever they occur.

Town of Colma Tree Ordinance

According to Subchapter 5.06, Tree Removal and Pruning, of the Colma Municipal Code, it is "*unlawful for any person to remove or alter any tree on private property in the City without a permit*" (Section 5.06.030).

According to Section 5.06.020, Definitions:

- "Person" means "*any individual, firm, partnership, corporation or other legal entity*."
- "Tree" means "*any live woody plant having a single perennial stem of 12 inches or more in diameter or multi-stemmed perennial plant having an aggregate diameter of 40 inches or more measured 4 feet above the natural grade. "Tree" shall also include any woody plant that has been placed by the City, or required by permit of the City, that has not yet obtained the stated size.*"

- "Alteration" means *"any action which would significantly damage a tree, whether (1) by cutting of its trunk or branches, or (2) by filling or surfacing or changing the drainage of the soil around the tree, or (3) by other damaging acts; this definition excludes routine pruning and shaping, removal of dead wood, or other maintenance of a tree to improve its health, facilitate its growth, or maintain its configuration to protect an existing view.*"

3.4.3 Discussion

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. The Project's potential impacts on special-status species, nesting birds, and roosting bats are discussed below.

Special-status Species- No Impact

For the purposes of this CEQA document, special-status species include those plant and animals listed, proposed for listing or candidates for listing as threatened or endangered by the USFWS or NOAA Fisheries under the FESA; those listed or proposed for listing as rare, threatened or endangered by the CDFW under the CESA; animals designated as CFP or CSSC by the CDFW; and plants listed as Rank 1A, 1B, 2, 3 and 4 of the CNPS Inventory.

According to a review of the California Natural Diversity Database (CNDDB, 2020) and the CNPS Inventory of Rare and Endangered Plants (CNPS, 2020), a number of special-status species occur in the Project vicinity, including, but not limited to:

- The Mission blue butterfly (*Plebejus icarioides missionensis*), callipe silverspot butterfly (Speyeria callippe callippe), and San Bruno elfin butterfly (*Callophrys mossii bayensis*) at San Bruno Mountain;
- San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) in suitable habitats throughout San Mateo County (freshwater marshes and ponds with dense cover);
- An American peregrine falcon nest (*Falco peregrinus anatum*) at an airport hangar;
- California red-legged frog (*Rana draytonii*) in suitable habitats throughout San Mateo County (permanent, deep water for breeding and suitable upland habitat with small mammal burrows for estivation);
- Saltmarsh and bay land species along the San Francisco Bay shore, including California ridgeway's rail (*Rallus obsoletus obsoletus*), Alameda song sparrow (*Melospiza melodia pusillula*), and others; and
- A variety of CNPS-listed plants in open space areas with suitable habitat (serpentine, marsh or wetland, and other specialized habitats).

There is no suitable habitat for any special-status species on or near the Project site, except for bats as discussed below. The site and surrounding area are developed with buildings, parking lots, and roads; vegetation in the Project area is limited to landscape trees and shrubs and lawns at the nearby cemeteries. There is no USFWS-designated critical habitat on or near the Project site (USFWS, 2020).

Nesting Birds- Less Than Significant with Mitigation Incorporated

All migratory birds and their nests are protected under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

Construction disturbance during the avian breeding season (February 1 through August 31, for the species expected in this urban location) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests.

Although the Project does not include removal of trees or other vegetation, bird nests could be present in the vacant building to be demolished, or in the trees and shrubs bordering the site. Noise and increased construction activity could also impact foraging behavior, potentially resulting in the abandonment of nest sites. Disturbance of nesting birds is significant under the MBTA and California Fish and Game code.

Implementation of Mitigation Measures BIO-1A and BIO-1B would avoid impacts on active nests of birds protected by the MBTA or California Fish and Game Code and reduce impacts to a less than significant level.

Impact BIO-1: The proposed Project could impact nesting birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game code. Birds could nest in the vacant building or in trees or shrubs bordering the site.

Mitigation Measure BIO-1A: Pre-Construction/Pre-Disturbance Survey for Nesting Birds. To the extent feasible, construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside of the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game code would be avoided. The nesting season for this Project extends from February 1 through August 31.

If it is not possible to schedule construction activities between September 1 and January 31, then a preconstruction survey for nesting birds will be conducted by a qualified biologist to ensure that nesting will not be disrupted during Project implementation. A qualified biologist is a biologist with experience in nesting bird surveys, and who is familiar with bird species present in the Project area. This survey will be conducted no more than five days prior to the initiation of any site disturbance activities and equipment mobilization. If Project activities are delayed by more than five days, an additional nesting bird survey will be performed. During the survey, the biologist will inspect the vacant building and all trees and shrubs in and immediately adjacent to the impact area, for nests. Active nesting is present if a bird is building a nest, sitting in a nest, a nest has eggs or chicks in it, or adults are observed carrying food to the nest. The results of the survey will be documented.

If active nests are observed within the Project site or immediately adjacent to the impact area, **Mitigation Measure BIO-1B** shall apply.

Mitigation Measure BIO-1B: Active Nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the biologist will determine the extent of a construction-free buffer zone to be established around the nest, to ensure that active nesting protected by the MBTA and California Fish and Game Code will not be disturbed during construction. Within the buffer zone, no site disturbance and mobilization of heavy equipment, including but not limited to equipment staging, fence installation, demolition, and grading will be permitted until the chicks have fledged. Monitoring will be required to ensure compliance with MBTA and relevant California Fish and Game Code requirements. Monitoring dates and findings will be documented.

Effectiveness:	This measure would minimize and/or avoid impacts to nesting birds to less than significant levels
Implementation:	The Applicant and its contractor.
Timing:	Pre-construction phase (no more than five days prior to site disturbance) and construction phase (if nest monitoring is required).

Monitoring: Town acceptance of a report provided by the qualified biologist. The qualified biologist's written report will include all survey and monitoring results, and implementation of any avoidance and minimization measures

Impacts to Bat Colonies – Less than Significant with Mitigation Incorporated

The vacant building on the site could be used as day and/or maternity roosts by bats, and the trees bordering the site may also support roosting bats. Removal or disturbance of roost habitat may constitute significant impacts to non-game mammals under California Fish and Game code, particularly if an occupied maternity or colony roost is disturbed or removed. The Project must comply with the provisions of the California Fish and Game Code to protect non-game mammals, including bats.

When structures containing bats are removed or modified, individual bats could be physically injured or killed, or subjected to physiological stress resulting from being disturbed during torpor. Additionally, noise associated with construction equipment and generators may disturb roosting bats, potentially causing them to avoid foraging or roosting (or to abandon roosts) in areas close to construction activity. Bats flushed during the day could suffer increased predation, resulting in the loss of individuals. Further, the direct loss of individuals in a maternity roost could eliminate an entire colony due to the loss of the pregnant females. Disturbance of bat colonies would be considered significant under CEQA guidelines.

The Implementation of Mitigation Measures BIO-2A through BIO-2B will avoid and minimize impacts on day roosts and maternity colonies to a less than significant level.

Impact BIO-2: The proposed Project has the potential to impact bats roosting in the vacant building which are protected by California Fish and Game code. Although unlikely, this could include special-status bats listed under the federal or California Endangered Species Acts, or listed as a California species of special concern.

Mitigation Measure BIO-2A: Pre-Construction Survey for Roosting Bats. A survey of the vacant building and any trees with cavities, cervices or peeling bark within 50 feet of the Project site will be conducted by a qualified biologist no less than 30 days before the start of construction-related activities (including but not limited to mobilization and staging, clearing, grubbing, tree removal, vegetation removal, fence installation, demolition, and grading). A qualified biologist is a biologist with experience in day and night surveys for roosting bats, bat ecology, and bat species present in the Project area. If construction activities are delayed by more than 30 days, an additional bat survey will be performed.

The survey may be conducted at any time of year but should be conducted in such a way to allow sufficient time to determine if special-status bats or maternity colonies are present on the site, provide replacement habitat (if required), and exclude bats during the appropriate time of year (e.g. outside the maternity season from March 1 to August 31). The results of the survey will be documented.

If no signs of bats are detected during the habitat suitability survey, no further surveys are warranted. If signs of bat occupancy (e.g., guano pellets or urine staining) are detected, **Mitigation Measure BIO-2B** shall apply.

Mitigation Measure BIO-2B: If an occupied maternity or colony roost is detected or evidence of bat occupancy is found, the California Department of Fish and Wildlife will be consulted to determine the appropriate mitigation measures, which may include exclusion prior to removal if the roost cannot be avoided, a buffer zone, seasonal restrictions on construction work, construction noise reduction measures, and construction of an alternate roost structure.

Effectiveness: These measures would minimize and/or avoid impacts to roosting bats to less than significant levels.

Implementation: The Applicant and its contractor.

Timing: Pre-construction phase, no less than 30 days before the start of construction-related activities.

Monitoring: Monitoring reports, and exclusion recommendations. The qualified biologist shall prepare a written record of all survey and monitoring results, including the implementation of any avoidance and minimization measures for the Town's review. If bats are detected and an exclusion plan is warranted, the qualified biologist shall prepare the bat exclusion plan, including the exclusion methods and the type of replacement roost habitat to be used. If a replacement roost habitat will be required, it shall be monitored according to California Department of Fish and Wildlife recommendations. The qualified biologist shall prepare a written record of the monitoring results.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?

No Impact. There is no riparian habitat or other sensitive natural community in or near the Project site. Colma Creek is about 0.3 mile east of the site along El Camino Real, although it is undergrounded at this location (Oakland Museum of California, 2005). The Project site and surrounding area are developed with buildings, parking lots and roads and do not contain any natural open spaces or native vegetation communities.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. There are no wetlands or other aquatic features on or near the Project site. According to the USFWS National Wetlands Inventory, there are no federally protected wetlands or other waters of the U.S. on or near the Project site (NWI, 2020). State protected wetlands are also not present.

d) 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?

No Impact. The Project site is in a developed area with limited wildlife habitat and existing barriers to wildlife movement such as roads and buildings. The proposed Project is an infill development in an urban area, replacing an existing vacant building and parking lot with a new building, parking lot, and landscaped areas. The Project would not include any new barriers to wildlife movement. Thus, any common, urban adapted species that currently move through the Project site would continue to be able to do so following Project construction.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact. The proposed Project would not conflict with the Colma Tree Ordinance (Colma Municipal Code Subchapter 5.06: Tree Cutting and Removal) because the Project would not remove or alter any tree (see Section 3.4.2 Regulatory Setting- Local Regulations for the definition of "alter" and "tree" under the ordinance). There are no existing trees within the Project footprint. The roots of existing trees bordering the site will be protected consistent with Standard Specification 13.05- Tree Roots (see Chapter 2: Project Description, Section 2.5: Standard Specifications).

The Project would not conflict with Town regulations or policies protecting sensitive biological resources because there are no special-status species, aquatic features or other sensitive habitats on or near the Project site. The Town will review the landscape plan prepared for the Project to ensure consistency with landscaping policies from the Town's General Plan (See Section 3.4.2 Regulatory Setting- Local Regulations above).

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the Project would not conflict with any such plans.

3.4.4 References

California Natural Diversity Database (CNDDB). 2020. Rarefind 5.0. California Department of Fish and Wildlife. Accessed March 2020 at https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

California Native Plant Society (CNPS). 2020. Inventory of Rare and Endangered Plants (7.0 and 9.0 online editions). Accessed March 2020 at http://www.cnps.org/inventory.

Google Earth Pro. 2020. Aerial view of Project site and distances to nearby locations.

Oakland Museum of California. 2005. Colma Creek Watershed Map. Guide to San Francisco Bay Area Creeks. Accessed March 2020 at http://explore.museumca.org/creeks/1590-OMColmaBig.html.

[NWI] National Wetlands Inventory. 2020. Wetlands Mapper. U.S. Fish and Wildlife Service Accessed March 2020 at http://www.fws.gov/wetlands/Wetlands-Mapper.html.

Town of Colma. 2000 (April). Colma General Plan Open Space Element.

Town of Colma. 2017 (April). Colma Municipal Code Subchapter 5.06: Tree Cutting and Removal.

USFWS. 2020. Environmental Conservation Online System (ECOS): USFWS Threatened & Endangered Species Active Critical Habitat Report Online Mapper. Accessed March 2020 at https://ecos.fws.gov/ecp/report/table/critical-habitat.html.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

Prehistoric

The Ohlone Native Americans inhabited the Project area prior to invasion by the Spanish in 1769 and were named Costanoans by the Spanish. Costanoan-speaking tribal groups occupied the area from the Pacific Coast to the Diablo Range and from San Francisco to Point Sur. The Ohlones were hunters and gatherers, living in “tribelets” – small independent groups of usually related families occupying a specific territory and speaking the same language or dialect. At the time of initial contact with European explorers, the Project area was in the area occupied by two Costanoan-speaking Ohlone groups: the Puichon, a tribal group located between lower San Francisquito Creek and lower Stevens Creek, (an area encompassing today’s cities of Menlo Park, Palo Alto and Mountain View), and the Lamchin, located to the north of San Francisquito Creek (Milliken 1995).

The Ohlone, who lived throughout the Bay Area, subdivided themselves into smaller village complexes or tribal groups. These groups were independent political entities, each occupying specific territories defined by physiographic features. Each group controlled access to the natural resources of the territories. Although each tribal group had one or more permanent villages, their territory contained numerous smaller campsites used as needed during a seasonal round of resource exploitation. Extended families lived in domed structures thatched with tule, grass, wild alfalfa, ferns or carrizo (Levy 1978). Semi-subterranean sweathouses were built into pits excavated in stream banks and covered with a structure against the bank. The tule raft, propelled by double-bladed paddles similar to those used in the Santa Barbara Island region, were used to navigate across San Francisco Bay (Kroeber 1970).

Historic

The first Europeans to reach the San Francisco area were Spanish explorers in 1769 as part of the Portolá expedition. In 1774, the de Anza expedition had set out to convert the Native American tribes to Christianity, resulting in the establishment of (among others) Mission San Francisco de Asis (Mission Dolores) (founded in 1776), Mission Santa Clara de Asis (founded in 1777) and Mission San José (founded in 1779). The El Camino Real became a heavily traveled route between the 21 California Missions. This route led to the establishment of inns and roadhouses to serve travelers along the way. In this historic period, the Ohlone people were subjugated and absorbed into the mission system for compulsory baptism and conversion to Christianity that resulted in the loss of their freedom of movement, their culture, and customs.

In 1849 the gold rush brought hundreds of thousands to San Francisco and with them they also brought disease leading to a high death rate. Twenty-six cemeteries had been established and most were almost filled by the 1880s. In the late 1880s, cemetery owners started looking for new property to bury their dead as San Francisco's cemeteries were full.

The southern end of Colma was chosen because of transportation. Colma (unincorporated) included all the land between the San Francisco border and the South San Francisco border, the Pacific Ocean and San Bruno Mountain, until 1911, when the north end of the county became Daly City.

Holy Cross, the first cemetery in Colma, was established in 1887 by the Roman Catholic Archdiocese. In the late 1890s, California passed the State Penal Code 298 prohibiting burials anywhere except in an established cemetery. In 1900, the City and County of San Francisco passed an ordinance that were to be no more burials allowed, as the land was too valuable to be wasted on the cemeteries. In 1914, eviction notices were sent out to all cemeteries to remove their bodies and monuments. Colma inherited hundreds of thousands of bodies, many of which went into mass graves as there were no relatives to pay the $10 for removal.

On August 5, 1924, Lawndale became an incorporated city. In 1941, the name Lawndale was changed back to Colma, as the US Post Office stated that there was already an established Lawndale in Southern California.

Modern

Colma is a regional destination for cemetery/funeral services, automobiles and large format retail sales. The Town is approximately 1.98 square miles and had an estimated population of 1,512 in 2019 (Town of Coma, 2020b).

Project Site at the Present Time

The proposed Project site consists of a 3.72-acre parcel containing a single, retail building that was formerly a Babies 'R' Us store. The building is surrounded by asphalt-paved parking areas to the southwest, northwest, and northeast. The building currently backs onto a vegetated slope on the southeast of the site, which rises to Collins Drive. The building was constructed around 1971, however, previous structures have existed on the site, but were demolished prior to the construction of the existing structure.

Records Search Results

A record search conducted by the Northwest Information Center (NWIC) on March 24, 2020 indicated there are no known cultural resources within the Project site. Three historic resources were located within a 0.25-mile study area; however, these will not be impacted by the proposed Project. Two cultural resource reports were located within the Project area: *Cultural Resource Assessment of Alternative Routes for PG&E's Jefferson-Martin Transmission Line, San Mateo County, California*, published by William Self Associates, Inc. in 2003 (S-27930); and *Cultural Resources Evaluation of the Colma Wastewater Collection System, Town of Colma, San Mateo County, California*, by David Chavez in 1977 (3043). Six additional cultural resource reports were on file within the study area.

A Sacred Lands Inventory records search was conducted by the Native American Heritage Commission (NAHC) on February 26, 2020. The results were negative for Tribal Cultural Resources. Five Tribes were identified by the NAHC as having potential to know of cultural resources in the Project area. All tribes were contacted on March 25, 2020. Confidential responses were received from the Amah Mutsun Tribal Band of Mission San Juan Bautista and the Ohlone Indian Tribe and have been taken into account for the discussion provided in Section 3.5.3.

Resources in the Project Vicinity

The three historic resources within the study area are: Cypress Lawn Memorial Park, The Catacombs, and Laurel Hill Memorial. None of the resources share visibility to, or from, the proposed Project site due to intervening terrain and existing buildings.

3.5.2 Regulatory Setting

California Environmental Quality Act

Pursuant to CEQA, a historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with state guidelines are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. Per CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California Public Resources Code (PRC) Section 5024.1. CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historical resource or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

1. The archaeological resource contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.

2. The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. The archaeological resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

Health and Safety Code, Sections 7050 and 7052

Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside a dedicated cemetery, all ground disturbances must cease, and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Penal Code Section 622.5

Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

Government Code Section 6254(r)

Government Code explicitly authorizes public agencies to withhold information from the public relating to Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.

Government Code Section 6250 et. seq.

Records housed in the Information Centers of the California Historical Resources Information System (CHRIS) are exempt from the California Public Records Act.

Town of Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated, and others are being updated, but have not yet been finalized. The following relevant policies are from the Historic Resources Element of the General Plan, dating from 1999, which has not been finalized or adopted:

Policy 5.08.212. Important historic resources should be protected through designation by the Town of Colma.

Town of Colma General Plan Draft Historic Resources Element

The Town is circulating a draft Historic Resources element, released in 2015, for the General Plan update and is currently seeking public commentary. The following policies are from the draft Historic Resources Element of the General Plan. These policies have not been finalized or adopted but are included here for reference.

Policy HR-1. Ensure that future plans, ordinances, and City programs are complimentary to the historic preservation goals and policies contained within this plan.

Policy HR-2. Acknowledge historic preservation principles as an equal component in the planning and development process.

Policy HR-3. Prevent destruction of properties that add historical or cultural value to Colma's unique history.

Policy HR-4. Work with the Colma Historical Association as a partner in local preservation.

Policy HR-5. Foster awareness, appreciation and celebration of Colma's unique historical and cultural heritage and educate and encourage preservation of these resources.

Policy HR-6. The town shall lead by example and encourage sensitive preservation of all town owned resources by using best practices.

3.5.3 Discussion

Would the project:

g) **Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?**

No Impact. The Project does not directly impact a historic resource as no known resources are within the Project impact area.

h) **Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?**

Less than Significant Impact with Mitigation. There are no previously recorded archaeological resources within the Project impact area or within a 0.25-mile radius of the site boundary. The likelihood of encountering cultural resources during Project construction would generally be considered low because of this. While considered to be low potential, there is the possibility that buried archaeological resources may exist within the Project impact area.

A significant impact would occur if ground-disturbing activities (e.g., grading, excavation, drilling, grubbing, trenching etc.) associated with Project construction disturb, damage, or destroy previously unknown buried prehistoric features and deposits that could be considered significant resources. Therefore, the proposed Project has the potential to adversely impact previously undiscovered archeological resources. Implementation of Mitigation Measure CUL-1 would reduce potential impacts to undiscovered archeological resources to a less than significant level.

Impact CUL-1: Ground moving activity below the existing topsoil may unearth previously unidentified buried cultural resources during Project construction.

Mitigation Measure CUL-1:

In the event archaeological resources are unearthed during ground-disturbing activities, all ground-disturbing activities within 100 feet of the find shall be halted so that the find can be evaluated. Ground moving activities shall not be allowed to continue until a qualified archaeologist has examined the newly discovered artifact(s) and has evaluated the area of the find.

All archaeological resources unearthed by Project construction activities shall be evaluated by a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. In anticipation of additional discoveries during construction, Archaeological Sensitivity Training shall then be carried out by a qualified archaeologist for all personnel who will engage in ground moving activities on the site.

All Native American artifacts (tribal finds) shall be considered as a significant Tribal Cultural Resource, pursuant to PRC 21074 until the lead agency has enough evidence to make a determination of significance.

The Town shall coordinate with the archaeologist to develop an appropriate treatment plan for the resources. The plan may include implementation of archaeological data recovery excavations to address treatment of the resource along with subsequent laboratory processing and analysis. If appropriate, the archaeologist may introduce archaeological monitoring on all or part of the site. An archaeological report will be written detailing all archaeological finds and submitted to the Town and the Northwest Information Center.

Effectiveness: This measure would minimize and/or avoid impacts on undetected archaeological resources to less than significant levels.

Implementation: The Applicant and/or its contractor(s) shall implement this measure in the event archaeological resources are unearthed.

Timing: During all earth disturbing phases of Project construction.

Monitoring: An archaeological report, if appropriate, will be written detailing all archaeological finds and submitted to the Town and the Northwest Information Center.

i) Disturb any human remains, including those interred outside of dedicated cemeteries?

While there are several dedicated cemeteries within the Town, the potential for encountering human remains is considered low, as the Project site has been previously developed. However, the potential to uncover previously unknown burials exists. Although not anticipated, burials may be discovered during site grading activities, which would result in a significant impact to human remains. Implementation of Mitigation Measure CUL-2 would reduce impacts to human remains to a less than significant level.

Impact CUL-2: Ground moving activity below the existing topsoil may disturb human remains during Project construction.

Mitigation Measure CUL-2: If human remains are unearthed during ground-disturbing activities, Section 7050.5(b) of the California Health and Safety code will be implemented. Section 7050.5(b) states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until

> the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the NAHC within 24 hours. The Commission has various powers and duties, including the appointment of a Most Likely Descendant (MLD) to the Project. The MLD, or in lieu of the MLD, the NAHC, has the responsibility to provide guidance as to the ultimate disposition of any Native American remains.

Effectiveness: This measure would reduce impacts on previously unknown human remains to less than significant levels.

Implementation: The Applicant and/or its contractor(s) shall implement this measure in the event human remains are discovered.

Timing: During all earth disturbing phases of Project construction.

Monitoring: The County Coroner will detail the findings in a coroner's report.

Implementation of Mitigation Measure CUL-2 would reduce potential impacts as a result of inadvertent discovery of human remains.

3.5.4 References

Kroeber, A.L. 1976. Handbook of the Indians of California, New York. Dover Publications, Inc.

Levy, Richard. 1987. Costanoan in R.F. Heizer (ed.) Handbook of North American Indians. Vol. 8: California: 485-495. Washington D.C. Smithsonian Institute.

NAHC. 2020. Unpublished letter containing search results from Sacred Lands File search. Kept on file at NAHC and with MIG. Inc.

NWIC. 2020. Report number 19-483. Unpublished confidential report containing search results from site specific survey. Kept on file at NWIC and with MIG. Inc.

Town of Colma. 2015. Town of Colma General Plan Historical Resources Element. Draft. Accessed April 17, 2020 at https://www.colma.ca.gov/documents/draft-historic-resources-element/

Town of Colma. 2020a. Colma History. Accessed April 17, 2020 at https://www.colma.ca.gov/colma-history/

Town of Colma. 2020b. General Plan 2040 Existing Conditions Report. Draft January 2020. Accessed April 14, 2020 at https://www.colma.ca.gov/documents/existing-conditions-report/.

3.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

3.6.1 Environmental Setting

Energy consumption is closely tied to the issues of air quality and greenhouse gas (GHG) emissions, as the burning of fossil fuels and natural gas for energy has a negative impact on both, and petroleum and natural gas currently supply most of the energy consumed in California.

In general, California's per capita energy consumption is relatively low, in part due to mild weather that reduces energy demand for heating and cooling, and in part due to the government's proactive energy-efficiency programs and standards. According to the California Energy Commission's (CEC) 2015 Integrated Energy Policy Report, Californians consumed about 280,500 gigawatt hours (GWh) of electricity in 2014 and 13,240 million British thermal units (BTU) of natural gas in 2013. The CEC estimates that by 2025, California's electricity consumption will reach between 297,618 GWh and 322,266 GWh, an annual average growth rate of 0.54 to 1.27 percent (CEC 2015), and natural gas consumption is expected to reach between 12,673 million and 13,731 million BTU by 2024, an average annual growth rate of -0.4 to 0.33 percent (CEC 2015).

In 2018, total electricity use in San Mateo County was 4,255 million kilowatt hours (kWh), including 2,744 million kWh of consumption for non-residential land uses (CEC 2020a). Natural gas consumption was 210 million therms in 2017, including 95 million therms from non-residential uses (CEC 2020b).

Energy conservation refers to efforts made to reduce energy consumption to preserve resources for the future and reduce pollution. It may involve diversifying energy sources to include renewable energy, such as solar power, wind power, wave power, geothermal power, and tidal power, as well as the adoption of technologies that improve energy efficiency and adoption of green building practices. Energy conservation can be achieved through increases in efficiency in conjunction with decreased energy consumption and/or reduced consumption from conventional energy sources.

3.6.2 Regulatory Setting

Since increased energy efficiency is so closely tied to the State's efforts to reduce GHG emissions and address global climate change, the regulations, policies, and action plans aimed at reducing GHG emissions also promote increased energy efficiency and the transition to renewable energy sources. The U.S. EPA and the State address climate change through numerous pieces of legislation, regulations, planning, policymaking, education, and implementation programs aimed at reducing energy consumption and the production of GHG.

CARB Low Carbon Fuel Standard Regulation

CARB initially approved the Low Carbon Fuel Standard (LCFS) regulation in 2009, identifying it as one of the nine discrete early action measures in its original 2008 Scoping Plan to reduce California's GHG emissions. Originally, the LCFS regulation required at least a 10% percent reduction in the carbon intensity of California's transportation fuels by 2020 (compared to a 2010 baseline). On September 27, 2018, CARB approved changes to the LCFS regulation that require a 20% reduction in carbon intensity by 2030. These regulatory changes exceed the assumption in CARB's 2017 Climate Change Scoping Plan, which targeted an 18% reduction in transportation fuel carbon intensity by 2030 as one of the primary measures for achieving the state's GHG 2030 target.

Renewable Portfolio Standard Program

In 2002, California established its Renewables Portfolio Standard (RPS) Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent of retail sales by 2017. The *2003 Integrated Energy Policy Report* recommended accelerating that goal to 20 percent by 2010, and the *2004 Energy Report Update* further recommended increasing the target to 33 percent by 2020. The state's *Energy Action Plan* also supported this goal. In 2006 under Senate Bill 107, California's 20 percent by 2010 RPS goal was codified. The legislation required retail sellers of electricity to increase renewable energy purchases by at least one percent each year with a target of 20 percent renewables by 2010. Publicly owned utilities set their own RPS goals, recognizing the intent of the legislature to attain the 20 percent by 2010 target.

On November 17, 2008, Governor Schwarzenegger signed Executive Order S-14-08 requiring "[a]ll retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020." The following year, Executive Order S-21-09 directed the California Air Resources Board, under its AB 32 authority, to enact regulations to achieve the goal of 33 percent renewables by 2020.

In October 2015, Governor Brown signed Senate Bill 350 to codify ambitious climate and clean energy goals. One key provision of SB 350 is for retail sellers and publicly owned utilities to procure "half of the state's electricity from renewable sources by 2030."

The State's RPS program was further strengthened by the passage of SB 100 in 2018. SB 100 revised the State's RPS Program to require retail sellers of electricity to serve 50% and 60% of the total kilowatt-hours sold to retail end-use customers be served by renewable energy sources by 2026 and 2030, respectively, and requires 100% of all electricity supplied come from renewable sources by 2045.

Town of Colma Climate Action Plan

On May 8, 2013, the Town of Colma's City Council adopted the *Town of Colma Climate Action Plan* (CAP; Colma 2013). The CAP serves as a guiding document to identify methods that the Town and community can implement to significantly reduce GHG emissions. To this end, the CAP identifies measures to reduce electricity, natural gas, and petroleum consumption, which are all forms of energy.

3.6.3 Discussion

Would the project:

j) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. Construction activities associated with the proposed Project would require the use of heavy-duty, off-road equipment and construction-related vehicle trips that would combust fuel, primarily diesel and gasoline. Heavy-duty construction equipment would be required to comply with CARB's airborne toxic control measures, which restrict heavy-duty diesel vehicle idling to five minutes. Since petroleum use during construction would be temporary and needed to conduct development activities, it would not be wasteful or inefficient.

Once operational, the proposed Project would function as a car dealership, selling new vehicles that have been subject to the latest fuel efficiency standards enacted at the state and federal levels. The operation of these newer, more fuel-efficient vehicles would help reduce the inefficient use of energy. In addition, due to energy efficiency standards being improved over time, the new dealership would be far more efficient than Babies 'R' Us store was when it was in operation. The improvements to energy efficiency are in large part related to updates to the California Green Building Standards Code (2019). As estimated in CalEEMod, the proposed Project is estimated to consume approximately 262,847 kWh of electricity and 851,029 kBTU on an annual basis. Although more electricity and natural gas would likely be consumed on an annual basis compared to the existing land use (e.g., the vacant Babies 'R' Us), the car dealership would use the energy in a more efficient manner. As such, the proposed Project's energy consumption would not be wasteful, inefficient, or unnecessary. This impact would be less than significant.

k) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. The proposed Project would not conflict with nor obstruct a state or local plan adopted for the purposes of increasing the amount of renewable energy or energy efficiency. As discussed under response a), the proposed car dealership would be constructed to the latest CALGreen Code, which would make it more energy efficient than the existing structure at the Project site. Furthermore, the proposed Project would not conflict with the Town's Climate Action Plan, since many of the actions in the CAP consist of items the City will pursue (see Section 6.8, Greenhouse Gas Emissions) and do not apply to the Project. No impact would occur.

3.6.4 References

California Energy Commission (CEC) 2015. 2015 Integrated Energy Policy Report. Sacramento, CA. 2015.

_____. 2020a. "Electricity Consumption by County." *Electricity Consumption by County.* CEC, Energy Consumption Database. n.d. Accessed April 30, 2020 at http://ecdms.energy.ca.gov/elecbycounty.aspx.

_____. 2020b. "Gas Consumption by County." *Gas Consumption by County.* CEC, Energy Consumption Database. n.d. Accessed April 30, 2020 at http://ecdms.energy.ca.gov/gasbycounty.aspx.

Colma, Town of 2013. *Climate Action Plan*. Adopted by the City Council on May 8, 2013.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? *Note: Refer to Division of Mines and Geology Special Publication 42.*	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

3.7.1 Environmental Setting

The following information is based on the Seismic Hazard Zone Report for the South San Francisco 7.5-Minute Quadrangle (California Geological Survey 2006) and a Geotechnical Report prepared by ENGEO (2019).

From a geotechnical engineering standpoint, the report found that the Project site is suitable for the proposed development, provided the geotechnical recommendations in the report are properly incorporated into the design plans and specifications. The primarily geotechnical concerns identified in the report that could affect the development on the site is liquefaction.

Geology and Soils

The Project site is located in a flat-lying area of the peninsula near San Francisco, California, approximately 1.5 miles west of the uplifted San Bruno Mountain area. The site is in the Colma Formation, which are described as friable, well-sorted, yellowish orange to gray, fine- to medium-grained sand containing a few beds of sandy silt, clay, and gravel. The northern side of the site closest to Serramonte Boulevard is mapped as being in slope debris and ravine fill, described as stony silty to sandy clay, locally silty to clayey or gravel, yellowish orange to medium gray, unstratified or poorly stratified and where it overlies Colma Formation, it is commonly a silty to clayey sand, or gravel. The site area appears to be free of any landslide deposits. The Project site does appear to fall within an area of high liquefaction susceptibility (ENGEO 2019).

Faulting and Seismicity

The San Francisco Bay Area contains numerous active faults and is considered seismically active. Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future.

The Project site is located in an area of moderate seismicity. No known active faults cross the site and the property is not located within an Alquist-Priolo Earthquake Fault Zone; however, large ($<M_W7$) earthquakes have historically occurred in the Bay Area and many earthquakes of low magnitude occur every year. The two nearest earthquake faults zoned as active by the State of California Geological Survey are the San Andreas Fault, located approximately one mile to the southwest, and the San Gregorio fault, located approximately 5.7 miles southwest (ENGEO 2019).

Other active faults capable of producing significant ground shaking at the site include the Hayward fault, 17 miles northeast; the Calaveras fault, 26.6 miles northeast; and the Mount Diablo Thrust fault, 27 miles northeast. Any one of these faults could generate an earthquake capable of causing strong ground shaking at the subject site (ENGEO 2019).

Liquefaction Susceptibility

Liquefaction occurs when loose, saturated sandy soils lose strength and flow like a liquid during earthquake shaking. Ground settlement often accompanies liquefaction. Soils most susceptible to liquefaction are saturated, loose, silty sands, and uniformly graded sands.

A liquefaction analysis performed at the site indicate various sand layers below groundwater are potentially liquefiable. Consequences of liquefaction include surface disruption, settlement, and downdrag on deep foundations. The report concluded that the risk of surface disruption is low to moderate and estimated approximately up to 3¼ inches of total settlement from liquefaction (ENGO 2019).

Expansive Soils

The geotechnical document prepared for the Project did not indicate the presence of expansive soils (ENGO 2019).

Lateral Spreading

Lateral spreading involves lateral ground movements caused by seismic shaking. These lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a continuous layer of liquefied sand or weak soils.

The potential for lateral spreading is low to negligible on the site (ENGO 2019).

Existing Fill Soil

Borings performed as part of the Geotechnical Report did not encounter non-engineered fill, which can undergo excessive settlement, especially under new fill or building loads. However, the presence of undocumented creek or ravine fill is possible. It is recommended that non engineered fill be removed prior to construction activities.

Groundwater

Groundwater depths recorded from borings were recorded with short periods of time following exploration. Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made. (ENGEO 2019).

3.7.2 Regulatory Setting

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act regulates development in California near known active faults due to hazards associated with surface fault ruptures. There are no Alquist-Priolo earthquake fault zones on the Project site (California Department of Conservation 2020, ENGEO 2019).

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The act directs the U.S. Department of Conservation to identify and map areas prone to the earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation.

California Building Code

The 2019 California Building Codes (CBC) covers grading and other geotechnical issues, building specifications, and non-building structures.

Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated and adopted, and others are in the process of being updated, but have not yet been finalized or adopted. The following relevant policies are from the Safety Element of the General Plan, dating from 1999, which has not been updated:

Policy 5.07.441. The Town should continue to investigate the potential for seismic and geological hazards as part of the development review process and maintain this information for the public record. Safety Element maps should be updated as appropriate.

Policy 5.07.412. The Town should require geotechnical, soils and foundation reports for proposed projects which warrant them according to the Safety Element and its geological and Hazard Maps, the County's Seismic and Safety Element; and the Town 's Building Official and Building Codes.

Policy 5.07.413. Colma should prohibit development in seismic or geologically hazardous zones, including any land alteration, grading for roads and structural development.

Policy 5.07.414. All critical care facilities and services should be designed to remain functional following the maximum credible earthquake. Placement of critical facilities and high-occupancy structures in areas prone to violent ground shaking or ground failures should be avoided.

Policy 5.07.415. The Town should request that owners of all buildings identified as unsafe have their buildings inspected by a licensed engineer or architect and take the necessary steps to make them safe.

Policy 5.07.416 Colma should work with San Mateo County, California Water Service Company and the San Francisco Water District to ensure that all water tanks and main water pipelines are capable of withstanding high seismic stress.

3.7.3 Discussion

Consistent with the California Supreme Court decision in *California Building Industry Association v. Bay Area Air Quality Management District* (62 Cal. 4th 369; 2015), the impact discussion presented below focuses on the Project's effect on geology and soils rather than the effect of geologic hazards and site conditions upon the proposed Project. The Project is evaluated to determine whether it would create or exacerbate soil or geologic conditions identified in each of the above significance threshold criteria.

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other significant evidence of a known fault?

Less Than Significant Impact. Available mapping indicates there are no known active faults that traverse the Project site and the site is not within an Alquist-Priolo zone (California Geological Survey 2000, ENGEO 2019).

ii) Strong seismic ground shaking?

Less Than Significant Impact. The Project site is located in the San Francisco Bay Area, which is considered one of the most seismically active regions in the United States. Significant earthquakes have occurred in this area and strong to violent ground-shaking in the Project area can be expected as a result of a major earthquake on one of the faults in the region. All Project facilities shall be designed and constructed in accordance with the 2019 California Building Code, where applicable, and incorporate the recommendations of a site-specific geotechnical report prepared for the Project.

The Project would not create potential for or exacerbate existing conditions related to seismic ground shaking. Therefore, the impact is considered less than significant.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction occurs when loose, saturated sandy soils lose strength and flow like a liquid during earthquake shaking. Ground settlement often accompanies liquefaction. Soils most susceptible to liquefaction are saturated, loose, silty sands, and uniformly graded sands.

Although the Project specific geotechnical report indicated there was the potential for soil liquefaction, the Project would adhere to all recommendations contained in the site-specific geotechnical analysis in addition to relevant California Building Code and ACI design code, therefore, the impact is considered less than significant.

iv) Landslides?

No Impact. The Project does not create significant new cut slopes that would be susceptible to landslide. The proposed Project would not create or exacerbate landslide conditions on or adjacent to the site.

b) Result in significant soil erosion or the loss of topsoil?

Less Than Significant Impact. In order to reduce temporary erosion during Project construction erosion control measures and fencing will be installed in the Project area. The Project requires preparation of a Storm Water Pollution Prevention Plan (SWPPP) to prevent stormwater pollution during construction. After construction, the Project site would be restored to pre-Project conditions or better and would not leave surface soils susceptible to erosion or loss. Implementation of the site specific SWPPP during construction and restoration of the site post construction would prevent significant soil erosion or loss of topsoil. The impact is considered less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact. Subsidence is the sinking of the Earth's surface in response to geologic or man-induced causes. Lateral spreading involves the lateral movement of a liquefied soil layer (and overlying layers) toward a free face and caused by seismic shaking. These lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a continuous layer of liquefied sand or weak soils.

The Project would not create or exacerbate landslide conditions on or adjacent to the site.

Although there is potential for liquefaction induced lateral spreading, the Project would adhere to all recommendations contained in the site-specific geotechnical analysis in addition to relevant California Building Code and American Concrete Institute (ACI) design code. By following these recommendations and design codes, therefore, there is a low potential for liquefaction and lateral spreading.

Subsidence could be caused by non-engineered fill. There is an area of non-engineered fill in the northern portion of the site. The site-specific geotechnical documentation recommended that a geologist be present at the site to ensure the removal of all non-engineered fill prior to the building of the new building.

By following the recommendations of the site-specific geotechnical report, and using California Building Code and ACI design guidelines, the Project would not exacerbate existing site conditions related to unstable geologic conditions. Therefore, the Project would have a less than significant impact on landslide potential, lateral spreading, subsidence, liquefaction, or collapse.

d) Be located on expansive soil, as noted in the 2010 California Building Code, creating substantial direct or indirect risks to life or property?

Less Than Significant Impact. The Geotechnical Report indicates that surficial sites soils generally have a low plasticity index (PI). A low PI is indicative on non-expansive soils. The recommendations in the site-specific geotechnical document state that compacted fill or imported soil should have a PI of less than 12. By following these geotechnical recommendations, the implementation of the proposed Project would have a less than significant impact from expansive soils.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. No septic tanks or other alternative wastewater facilities included as part of the proposed Project. As stated above, the Project shall be designed to withstand seismic loading scenarios described in ACI 350.3-06 “Seismic Design of Liquid-containing Concrete Structures and Commentary” and the governing design code, such as the California Building Code and include the recommendations of a site-specific investigation.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact with Mitigation. The proposed Project could result in excavation and earth moving activities beyond prior depths of disturbance. Alluvial soils, such as deltas and along historic watersheds are not generally expected to contain fossils; however, the underlying Colma Formation is known to produce fossilized remains. Due to possible excavation into previously undisturbed soils, the proposed Project has the potential to encounter previously undisturbed paleontological resources. Mitigation Measure GEO-1 would ensure that if discovered, paleontological resources would be protected. Implementation of Mitigation Measure GEO-1 would reduce potentially significant impacts to a less than significant level.

Impact GEO-1: Project construction could unearth paleontological resources, including fossils.

Mitigation Measure GEO-1:

If paleontological resources are discovered during construction, ground-disturbing activities shall halt immediately until a qualified paleontologist can assess the significance of the discovery. Depending on determinations made by the paleontologist, work may either be allowed to continue once the discovery has been recorded, or if recommended by the paleontologist, recovery of the resource may be required, in which ground-disturbing activity within the area of the find would be temporarily halted until the resource has been recovered. If treatment and salvage is required, recommendations shall be consistent with Society of Vertebrate Paleontology guidelines and current professional standards.

The Town will ensure that information on the nature, location, and depth of all finds is readily available to the scientific community through university curation or other appropriate means.

Effectiveness: This measure would reduce impacts to paleontological resources to less than significant.

Implementation: The Applicant and/or its contractor(s) shall implement this measure in the event any paleontological resources are discovered.

Timing: During all earth disturbing phases of Project construction.

Monitoring: If paleontological resources are uncovered, a report shall be prepared by the qualified paleontologist describing the find and its deposition.

3.7.4 References

California Department of Conservation. 2020. EQ Zapp: California Earthquake Hazards Zone Application. Accessed April 17, 2020 at https://www.conservation.ca.gov/cgs/geohazards/eq-zapp

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3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

3.8.1 Environmental Setting

Gases that trap heat in the atmosphere and affect regulation of the Earth's temperature are known as greenhouse gases (GHGs). Many chemical compounds found in the earth's atmosphere exhibit the GHG property. GHGs allow sunlight to enter the atmosphere freely. When sunlight strikes the earth's surface, it is either absorbed or reflected back toward space. Earth that has absorbed sunlight warms up and emits infrared radiation toward space. GHGs absorb this infrared radiation and "trap" the energy in the earth's atmosphere. Entrapment of too much infrared radiation produces an effect commonly referred to as "Global Warming", although the term "Global Climate Change" is preferred because effects are not just limited to higher global temperatures.

GHGs that contribute to climate regulation are a different type of pollutant than criteria or hazardous air pollutants because climate regulation is global in scale, both in terms of causes and effects. Some GHGs are emitted to the atmosphere naturally by biological and geological processes such as evaporation (water vapor), aerobic respiration (carbon dioxide), and off-gassing from low oxygen environments such as swamps or exposed permafrost (methane); however, GHG emissions from human activities such as fuel combustion (e.g., carbon dioxide) and refrigerants use (e.g., hydrofluorocarbons) significantly contribute to overall GHG concentrations in the atmosphere, climate regulation, and global climate change.

Human production of GHG has increased steadily since pre-industrial times (approximately pre-1880) and atmospheric carbon dioxide concentrations have increased from a pre-industrial value of 280 parts per million (ppm) in the early 1800's to 415 ppm in March 2020 (NOAA, 2020). The effects of increased GHG concentrations in the atmosphere include climate change (increasing temperature and shifts in precipitation patterns and amounts), reduced ice and snow cover, sea level rise, and acidification of oceans. These effects in turn will impact food and water supplies, infrastructure, ecosystems, and overall public health and welfare.

The 1997 United Nations' Kyoto Protocol international treaty set targets for reductions in emissions of four specific GHGs – carbon dioxide, methane, nitrous oxide, and sulfur hexafluoride – and two groups of gases – hydrofluorocarbons and perfluorocarbons. These GHGs are the primary GHGs emitted into the atmosphere by human activities. The six common GHGs are described below.

<u>Carbon Dioxide (CO_2)</u>. CO_2 is released to the atmosphere when fossil fuels (oil, gasoline, diesel, natural gas, and coal), solid waste, and wood or wood products are burned.

<u>Methane (CH_4)</u>. CH_4 is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the decomposition of organic waste in municipal solid waste landfills and the raising of livestock.

Nitrous oxide (N_2O). N_2O is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels.

Sulfur hexafluoride (SF_6). SF_6 is commonly used as an electrical insulator in high voltage electrical transmission and distribution equipment such as circuit breakers, substations, and transmission switchgear. Releases of SF_6 occur during maintenance and servicing as well as from leaks of electrical equipment.

Hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). HFCs and PFCs are generated in a variety of industrial processes.

GHG emissions from human activities contribute to overall GHG concentrations in the atmosphere and the corresponding effects of global climate change (e.g., rising temperatures, increased severe weather events such as drought and flooding). GHGs can remain in the atmosphere long after they are emitted. The potential for a GHG to absorb and trap heat in the atmosphere is considered its global warming potential (GWP). The reference gas for measuring GWP is CO_2, which has a GWP of one. By comparison, CH_4 has a GWP of 25, which means that one molecule of CH_4 has 25 times the effect on global warming as one molecule of CO_2. Multiplying the estimated emissions for non-CO_2 GHGs by their GWP determines their carbon dioxide equivalent (CO_2e), which enables a project's combined global warming potential to be expressed in terms of mass CO_2 emissions.

Existing GHG Emission Sources at the Project Site

As described in Air Quality 3.3, the Project site consists of a vacated Babies 'R' Us store, which generates a nominal amount of GHG emissions from maintenance activities.

3.8.2 Regulatory Setting

California Global Warming Solutions Act (AB32) and Related Legislation

CARB is the lead agency for implementing Assembly Bill (AB) 32, the California Global Warming Solutions Act adopted by the Legislature in 2006. AB 32 requires the CARB to prepare a Scoping Plan containing the main strategies that will be used to achieve reductions in GHG emissions in California.

In 2007, CARB approved a statewide 1990 emissions level and corresponding 2020 GHG emissions limit of 427 million metric tons of carbon dioxide equivalents ($MTCO_2e$) (CARB, 2007). In 2008, CARB adopted its *Climate Change Scoping Plan*, which projects, absent regulation or under a "business as usual" (BAU) scenario, 2020 statewide GHG emissions levels of 596 million $MTCO_2e$ and identifies the numerous measures (i.e., mandatory rules and regulations and voluntary measures) that will achieve at least 174 million $MTCO_2e$ of reductions and reduce statewide GHG emissions to 1990 levels by 2020 (CARB, 2009). In 2011, CARB released a supplement to the 2008 *Scoping Plan Functional Equivalent Document* (FED) that included an updated 2020 BAU statewide GHG emissions level projection of 507 million $MTCO_2e$ (CARB, 2011), and in 2014 CARB adopted its First Update to the Climate Change Scoping Plan (CARB, 2014).

Executive Order B-30-15, 2030 Carbon Target and Adaptation, issued by Governor Brown in April 2015, sets a target of reducing GHG emissions by 40 percent below 1990 levels in 2030. By directing state agencies to take measures consistent with their existing authority to reduce GHG emissions, this order establishes coherence between the 2020 and 2050 GHG reduction goals set by AB 32 and seeks to align California with the scientifically established GHG emissions levels needed to limit global warming below two degrees Celsius.

To reinforce the goals established through Executive Order B-30-15, Governor Brown went on to sign SB-32 and AB-197 on September 8, 2016. SB-32 made the GHG reduction target to reduce

GHG emissions by 40 percent below 1990 levels by 2030 a requirement as opposed to a goal. AB-197 gives the Legislature additional authority over CARB to ensure the most successful strategies for lowering emissions are implemented, and requires CARB to, "protect the state's most impacted and disadvantaged communities …[and] consider the social costs of the emissions of greenhouse gases."

On December 14, 2017 CARB adopted the second update to the Scoping Plan, the *2017 Climate Change Scoping Plan Update* (*2017 Scoping Plan Update*; CARB 2017). The primary objective of the *2017 Scoping Plan Update* is to identify the measures needed to achieve the mid-term GHG reduction target for 2030 (i.e., reduce emissions by 40 percent below 1990 levels by 2030), as established under Executive Order B-30-15 and SB 32. The *2017 Scoping Plan Update* identifies an increasing need for coordination among state, regional, and local governments to achieve the GHG emissions reductions that can be gained from local land use planning and decisions. It notes emission reduction targets set by more than one hundred local jurisdictions in the state could result in emissions reductions of up to 45 $MMTCO_2E$ and 83 $MMTCO_2E$ by 2020 and 2050, respectively. To achieve these goals, the *2017 Scoping Plan Update* includes a recommended plan-level efficiency threshold of six metric tons or less per capita by 2030 and no more than two metric tons by 2050.

The major elements of the *2017 Scoping Plan Update* framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing zero emission vehicle (ZEV) buses and trucks;
- LCFS, with an increased stringency (18 percent by 2030);
- Implementation of SB 350, which expands the RPS to 50 percent and doubles energy efficiency savings by 2030;
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks;
- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing CH_4 and hydrocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030;
- Continued implementation of SB 375;
- Post-2020 Cap-and-Trade Program that includes declining caps;
- 20 percent reduction in GHG emissions from refineries by 2030; and
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Plan Bay Area 2040

The Sustainable Communities and Climate Protection Act of 2008 (SB 375) was adopted to connect the GHG emissions reductions targets established in the Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce vehicle miles travelled (VMT) and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 regions in California managed by a metropolitan planning organization (MPO). On July 18, 2013, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) adopted Plan Bay Area 2013. The Plan includes two main elements; the Sustainable Communities Strategy (SCS) and the Regional Transportation Plan (RTP).

An update to the plan, Plan Bay Area 2040, was jointly approved by the ABAG Executive Board and by MTC on July 26, 2017. As an update to the region's long-range RTP and SCS, Plan Bay Area 2040 projects household and employment growth in the Bay Area over the next 24 years, provides a roadmap for accommodating expected growth, and connects it all to a transportation investment strategy focused on moving the Bay Area toward key regional goals for the environment (e.g., state GHG reduction goals), economy, and social equity (ABAG/MTC 2017).

BAAQMD 2017 Clean Air Plan

As discussed in Section 3.3, Air Quality, the BAAQMD's *2017 Clean Air Plan* is a multi-pollutant plan focused on protecting public health and the climate (BAAQMD 2017a). The *2017 Clean Air Plan* lays the groundwork for a long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, consistent with GHG reduction targets adopted by the state of California. As opposed to focusing solely on the nearer 2030 GHG reduction target, the *2017 Clean Air Plan* makes a concerted effort to imagine and plan for a successful and sustainable Bay Area in the year 2050. In 2050, the Bay Area is envisioned as a region where:

- Energy efficient buildings are heated, cooled, and powered by renewable energy;
- The transportation network has been redeveloped with an emphasis on non-vehicular modes of transportation and mass-transit;
- The electricity grid is powered by 100 percent renewable energy; and
- Bay Area residents have adopted lower-carbon intensive lifestyles (e.g., purchasing low-carbon goods in addition to recycling and putting organic waste to productive use).

The *2017 Clean Air Plan* includes a comprehensive, multipollutant control strategy that is broken up into 85 distinct measures and categorized based on the same economic sector framework used by CARB for the AB 32 Scoping Plan Update.[2] The accumulation of all 85 control measures being implemented support the three overarching goals of the plan. These goals are:

- Attain all state and national air quality standards;
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Reduce Bay Area GHG Emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

The Town of Colma Climate Action Plan

On May 8, 2013, the Town of Colma's City Council adopted the *Town of Colma Climate Action Plan* (CAP; Colma 2013). The CAP serves as a guiding document to identify methods that the Town and community can implement to reduce GHG emissions and work toward meeting the statewide goals outlined in Assembly Bill 32 and Executive Order S-03-05. Since Colma has a unique mix of business and fewer residents, many of the policies contained in the CAP focus on comprehensive energy efficiency, free energy audits, water conservation programs and new green building standards for Colma businesses.

3.8.3 Discussion

Global climate change is the result of GHG emissions worldwide; individual projects do not generate enough GHG emissions to influence global climate change. Thus, the analysis of GHG emissions is by nature a cumulative analysis focused on whether an individual project's contribution to global climate change is cumulatively considerable.

[2] The sectors included in the AB 32 Scoping Plan Update are: stationary (industrial) sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants.

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

Less Than Significant Impact. The proposed Project would generate GHG emissions from both short-term construction and long-term operational activities. Construction activities would generate GHG emissions primarily from equipment fuel combustion as well as worker, vendor, and haul trips to and from the Project site during demolition, grading, trenching, building construction, paving, and architectural coating activities. Construction activities would cease to emit GHGs upon completion, unlike operational emissions that continue year after year until the commercial building constructed as part of Project closes or ceases operation. Once operational, the proposed Project would generate GHG emissions from the area, energy, and mobile sources described in Section 3.3.3, as well as electricity consumption, water use and wastewater generation, and solid waste generation.

The BAAQMD maintains a 1,100 $MTCO_2e$ operational GHG threshold for non-stationary sources (BAAQMD 2017b). The 1,100 $MTCO_2e$ GHG threshold was established by the BAAQMD to align project's GHG emissions with state-wide goals for 2020. Since the proposed Project is estimated to become operational in 2021 (i.e., a year after 2020), the 1,100 $MTCO_2e$ threshold is not directly applicable to the proposed Project. Instead, an interpolated threshold of 660 $MTCO_2e$ will be used in this analysis, since it takes the BAAQMD's recommended 2020 threshold and adjusts it downward for the State's next codified GHG reduction goal for 2030 (i.e., 40% below 1990 levels by 2030; SB 32).[3]

The BAAQMD has not adopted a threshold of significance for construction-related GHG emissions. The BAAQMD's CEQA Air Quality Guidelines do, however, encourage lead agencies to quantify and disclose construction-related GHG emissions, determine the significance of these emissions, and incorporate BMPs to reduce construction-related GHG emissions. Accordingly, construction-related GHG emissions are amortized over the lifetime of the proposed Project (presumed to be a minimum of 30 years). This normalizes construction emissions so that they can be grouped with operational emissions and compared to appropriate thresholds, plans, etc.

GHG emissions from construction and operation of the proposed Project were estimated using CalEEMod, version 2016.3.2, based on default data assumptions contained in CalEEMod, with the Project-specific modifications described in Section 3.3.3, as well as the following adjustments to default model assumptions related to GHG emissions:

- **Energy Use and Consumption.** Peninsula Clean Energy (PCE) provides electricity service to municipalities in San Mateo, including Colma. CalEEMod does not contain GHG intensity values for this electric service provider. As such, the model's default GHG default assumptions regarding energy use were adjusted as follows:
  - The CO_2 GHG intensity factor utilized in the modeling is based on PCE's carbon intensity factor from 2018; 156.52 pounds/megawatt-hour (lbs/MWh) (PCE 2018).
  - Electricity generation emission factors for CH_4 (0.033 lbs/MWh) and N_20 (0.004 lbs/MWh) were obtained from the U.S. EPA's eGRID database for year 2016, the last year for which data was available at the time this Initial Study was prepared (U.S. EPA 2016).

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[3] The 660 MTCO2e/yr goal was developed by taking the 1,100 $MTCO_2e$/yr threshold, which was the threshold to reduce emissions back to 1990 level and reducing it by 40 percent (1,100 $MTCO_2e$/yr * (1 - 0.4) = 660 $MTCO_2e$/yr). This demonstrates the progress required under SB 32. This linear reduction approach oversimplifies the threshold development process. The Town is not adopting nor proposing to use 660 $MTCO_2e$ as a CEQA GHG threshold for general use; rather, it is only intended for use on this project.

- **Energy Efficiency.** CalEEMod default energy efficiency values for non-residential lighting was adjusted downwards by a factor of 0.7 to reflect increased lighting efficiency in the 2019 energy code (CEC 2018).

The Project's estimated construction and operational GHG emissions are presented below in Table 3-4.

Table 3-4. Project Greenhouse Gas Emissions

Source	GHG Emissions (MT/YR)			
	CO_2	CH_4	N_2O	TOTAL[(A)]
Area	<0.0[(B)]	<0.0[(B)]	0.0	<0.0[(B)]
Energy	64.1	<0.0[(B)]	<0.0[(B)]	64.6
Mobile	340.4	<0.0[(B)]	0.0	340.7
Solid Waste	26.7	1.6	0.0	66.0
Water/Wastewater	2.8	0.1	<0.0[(B)]	6.2
Amortized Construction	*7.3*	<0.0[(B)]	*0.0*	*7.3*
Total[(C)]	*441.3*	*1.7*	*<0.0[(B)]*	*484.8*
BAAQMD 2020 Threshold				*1,100*
Derived 2030 Emissions Goal				660
Exceeds Goal / Threshold				*No*

Source: BAAQMD 2017b, MIG 2020 (See Appendix A)
Note:
(A) $MTCO_2e$
(B) <0.0 does not mean emissions are zero; rather, it means emissions are greater than 0.00, but less than 0.05.
(C) Slight variations may occur due to rounding.

As shown in Table 3-4, development of the proposed Project would generate approximately 484.8 $MTCO_2e$ per year, which is below the BAAQMD 2020 GHG threshold and derived 2030 GHG emissions goal. Therefore, this impact would be less than significant.

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

No Impact. The proposed Project would not conflict with CARB's Scoping Plan, Plan Bay Area 2040, the BAAQMD 2017 Clean Air Plan, or the Town of Colma's CAP. The Project's consistency with these plans is described in more detail below.

2017 Scoping Plan

Nearly all of the specific measures identified in the 2017 Climate Change Scoping Plan would be implemented at the state level, with CARB and/or another state or regional agency having the primary responsibility for achieving required GHG reductions. The proposed Project, therefore, would not directly conflict with any of the specific measures identified in the 2017 Climate Change Scoping Plan.

Plan Bay Area 2040

The overarching goal of Plan Bay Area 2040 is to concentrate development in areas where there are existing services and infrastructure rather than allocate new growth in outlying areas where substantial transportation investments would be necessary to achieve the per capita passenger vehicle, vehicle miles traveled, and associated GHG emissions reductions. The proposed Project is within the El Camino Real Corridor PDA, and would involve constructing a new car dealership near other car dealerships in the area. As such, it is likely the Project would reduce VMT from customers looking for a new car that may be going to various dealerships. In addition, as described in Section 3.6.3, vehicles sold at the site would be subject to the latest fuel efficient standards at the State and federal level, which would help reduce per-capita CO_2 emissions from cars and light-duty trucks. Furthermore, as described below under Project consistency with the Town of Colma's CAP, the Project would be subject to the to BAAQMD's Bay Area Commuter Benefits Program under Regulation 14, Rule 1, which requires employers with 50 or more full-time employees in the Bay Area to provide pre-tax benefits, employer-provided subsidies, employer-provided transit, or similar alternative commuter benefits. Compliance with Regulation 14, Rule 1 would help reduce VMT from employees traveling to the site. Therefore, the Project would not conflict with Plan Bay Area 2040.

2017 Clean Air Plan

The Project would not conflict with or obstruct implementation of the BAAQMD's 2017 Clean Air Plan. The 2017 Clean Air Plan includes GHG emissions from construction and operational GHG emissions sources in its emissions inventories and plans for achieving Clean Air Plan goals. As discussed in Section 3.3.3, control measures in the 2017 Clean Air Plan do not apply to the proposed Project. In addition, as described under response a), above, the proposed Project would not exceed the BAAQMD's established 1,100 $MTCO_2e$ threshold or the project-specific goal 660 $MTCO_2e$, used to demonstrate progress toward the State's 2030 GHG emission reduction goal. Accordingly, the proposed Project would not conflict with the 2017 Clean Air Plan.

Town of Colma Climate Action Plan

An analysis of the proposed Project's consistency with applicable measures in the Town's CAP is provided in Table 3-5.

Table 3-5. Project Consistency with the Town of Colma's Climate Action Plan

Applicable Measures	Consistency Analysis
Planning and Land Use/Increased Opportunities for Alternative Transportation	
Promote mandatory Transportation Demand Management (TDM) strategies to new businesses with more than 50 employees. Continue promote public transit use, carpooling, vanpooling, walking and bicycling. Provide incentives for employees to use alternatives. Continue to work with regional programs to reduce vehicle miles travelled and promote commute alternatives for businesses. Make large employers aware of the provisions of SB 1339.	*Consistent.* The proposed Project would have more than 50 full-time employees in the Bay Area and is therefore subject to BAAQMD's Bay Area Commuter Benefits Program under Regulation 14, Rule 1. Under this regulation, employers with 50 or more full-time employees in the Bay Area must provide pre-tax benefits, employer-provided subsidies, employer-provided transit, or similar alternative commuter benefits. Compliance with this regional program would ensure consistency with this CAP measure.
Implement parking policies for new developments and renovation projects that require prioritized parking for low carbon fuel vehicles and bicycle parking and unbundle parking from property costs.	*Consistent.* The proposed Project would include three clean air vehicle parking spaces and two EV ready charging spaces.
Recycling and Waste Reduction	
Increase recycling and waste diversion to meet recycling diversion rate of 80%. Evaluate new cost-effective opportunities to expand commercial and residential recycling programs under the new Request for Proposal for Recycling and Solid Waste Collection Services. Require all	*Consistent.* The proposed Project would comply with mandates to increase recycling in compliance with Assembly Bill 341 and the City's waste diversion goals. The proposed Project would include an enclosed waste receptacle of adequate size to handle three types of waste generated by

Table 3-5. Project Consistency with the Town of Colma's Climate Action Plan

Applicable Measures	Consistency Analysis
businesses to recycle (exceed AB 341 requirements) and ensure compliance of commercial recycling requirements. Increase recycling by adding new program for food waste/organics to commercial and residential collection. Consider banning yard waste, cardboard and other materials in landfills.	the facility (green waste and food scraps, mixed recycling and trash).
Source: Colma, 2013	

As shown in Table 3-5, the proposed Project would be consistent with the Town's CAP and therefore not conflict with it.

3.8.4 References

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3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within 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, result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

3.9.1 Environmental Setting

The Project site was previously occupied by a Babies-R-Us store. No toxic or hazardous materials were used or stored on site.

3.9.2 Regulatory Setting

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (U.S. EPA) regulates the disposal of hazardous wastes under the Resource Conservation and Recovery Act (RCRA). The U.S. EPA maintains lists of federally regulated hazardous wastes which are generally characterized as ignitable, corrosive liquid, reactive, and toxic.

California Department of Toxic Substance Control

The California Department of Toxic Substance Control (DTSC) regulates the disposal of non-RCRA hazardous wastes in California (22 CCR §66261 et. al). California has adopted hazardous waste listings similar to the RCRA hazardous waste lists.

Waste classified as hazardous is managed for safe and protective handling for storage, transportation, treatment, and disposal.

Town of Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated and adopted, and others are in the process of being updated, but have not yet been finalized or adopted. The following relevant policies are from the Safety Element of the General Plan, dating from 1999, which has not been updated:

Policy 5.07.441. Colma should support County efforts to locate, regulate and maintain information regarding hazardous materials located or transported within the Town

Policy 5.07.442. Colma should collect and maintain a list of locations in Town where hazardous materials are used.

Policy 507.443. Measures aimed at significantly decreasing solid waste generation should be promoted. Recycled materials storage and collection areas should be required throughout the Town and in all new developments.

Policy 5.07.444. Public awareness of safe and effective hazardous waste use, storage and disposal should be promoted. The Town newsletter should be used to inform residents.

Policy 5.07.445. Colma should continue permitting of hazardous material sites in Town through the San Mateo Department of Environmental Health Inspection Program.

3.9.3 Discussion

Would the project:

a) **Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Less Than Significant Impact. Hazardous materials include substances that are flammable, corrosive, explosive, radioactive, infectious, thermally unstable, and poisonous.

The proposed Project would likely involve the use and handling of similar hazardous materials needed to support the car repair/maintenance service. The use, storage and/or disposal of fuels (i.e., gasoline, diesel, and oil), petroleum products, adhesives, paints, and solvents, could reasonably be expected to increase as a result of the Project given that it would increase the intensity and ability to service vehicles compared to existing operations at the site compared to existing conditions.

In addition, cleaning and landscape maintenance products during the course of building maintenance, operation, and landscaping upkeep would also be used. Given that the Project would provide vehicle service and maintenance, large quantities of materials (i.e., oil, gasoline, and other vehicle fluids) would be permanently used or stored at the Project site.

A Phase I Environmental Assessment completed for the Project identified the potential for lead based paints, asbestos, and polychlorinated biphenyls (PCBs) to be present in the existing building.

Demolition of existing structures on the Project site could expose construction workers, the public, or the environment to hazardous materials, such as lead-based paint, asbestos, and PCBs. However, removal of these materials would be by contractors licensed to remove and handle these materials in accordance with existing federal, State and local regulations,

Overall, compliance with existing regulations regarding the storage, use, handling, and removal of hazardous materials, as well as recommendations included in the Project specific Phase I

Environmental Assessment, would ensure that associated impacts from the demolition, construction, and operation of the proposed Project would be less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. As discussed above in question a, operation of the Project would involve the use, storage and/or disposal of fuels (i.e., gasoline, diesel, oil, etc.), petroleum products, adhesives, paints, and solvents. Project operation also could involve use of cleaning and landscape maintenance products during building maintenance, operation, and landscaping upkeep. However, as described above, the storage and use of these materials would be subject to existing federal, State, and local regulations. Therefore, compliance with those regulations would ensure that the Project result in a less-than-significant impact to the public or the environment with respect to hazardous materials.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or hazardous waste within one-quarter mile of an existing or proposed school?

No Impact. The proposed Project is located in a commercial district, at the site of a vacant Babies 'R' Us store. There are no schools within a 0.25 miles radius of the Project site.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact. The Hazardous Waste and Substances Site List, also known as the Cortese List, is a planning document used by the State of California and its various local agencies including the Department of Toxic Substances Control (DTSC), to comply with CEQA requirements in providing information about the location of hazardous materials release sites.

A Phase I Environmental Site Assessment (ESA) for the Project parcel was completed on February 13, 2019. It found that Former Leaking Underground Storage Tank (LUST) cases were identified on the southwestern adjoining, nearby eastern, and nearby southern properties, which are considered upgradient or cross-gradient of the Project site. However, no evidence was found that these cases had impacted soil or groundwater, and all of these former LUST cases have been granted full regulatory closure by the San Mateo County Local Oversight Program and the San Francisco Bay Regional Water Quality Control Board (RWQCB).

The Phase I ESA also indicated the far northern portion of the Project site was used for agricultural purposes for a short period in the early 1960s. Although not documented at the subject property, agricultural chemicals may have been applied to the property which can result in concentrations of residual agricultural chemicals being present in the near surface soil. The study noted that residual agricultural chemicals typically are not present at concentrations that would influence offsite disposal of soil or pose a health risk to commercial site users when the agricultural use is limited to row crops. It also noted that the area formerly utilized for agricultural purposes has since been cleared and graded for development in the late 1960s which is likely to have covered or dispersed any potentially impacted surficial soils. The study had a de minimis conclusion to its findings. However, due to Town concerns regarding water infiltration in bioretention areas, a Phase 2 ESA will be prepared for the Project to confirm or deny the presence of contamination onsite. If contamination is found, the area would be cleaned-up according to relevant state soil and groundwater protection standards before any bioretention swales could be constructed.

e) For a project located within 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 result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. There are no airports within Colma, and no airports within two miles of the Project site. As such there would be no impact.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. Project construction would not block access to vehicles, including emergency vehicles, during construction activity and would not significantly impair or physically interfere with an adopted emergency evacuation plan.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

No Impact. The Project site is in an urban area and not within or near a state responsible area (SRA) and is approximately one mile west from the nearest high fire hazard zone (VHFHZ) (CalEOS 2019), which is located in Unincorporated San Mateo County, near the San Bruno Mountains. The Project would involve the construction of a car dealership and would not affect wildfire hazards in the area, therefore, there is no impact.

3.9.4 References

California Department of Toxic Substances Control (DTSC). 2019. *EnviroStor*. Accessed April 17, 2020 at: https://www.envirostor.dtsc.ca.gov/public/.

California Environmental Protection Agency. 2019. Cortese List Data Resources. Accessed on April 17, 2020 at: https://calepa.ca.gov/SiteCleanup/CorteseList/ and https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/

California Governor's Office of Emergency Services (CalEOS). 2019. MyHazards Webmapping Tool. Accessed on March 19, 2020 at: http://myhazards.caloes.ca.gov/.

California State Water Resources Control Board. 2019. *GeoTracker*. Accessed April 17, 2020 at: https://geotracker.waterboards.ca.gov/ and https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CDOCAOList.xlsx .

Environmental Investigation Services, Inc. 2019. Phase I Environmental Site Assessment 775 Serramonte Avenue Colma, California. Prepared for David Rickard NorthPoint Development. On file at MIG.

Town of Colma, 1999. General Plan. June 1999. Accessed April 14, 2020 at https://www.colma.ca.gov/current-general-plan/.

3.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☐	☒
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	☒
iv) Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.10.1 Environmental Setting

Site Drainage and Topography

The site is predominantly paved (134,900 sq. ft. of impervious area). The paved area drains downhill to the rear of the site and toward the adjacent site containing the Dollar Tree store. Storm drain inlets facilitate runoff water to the Town's storm drain system. Pervious areas on the site (27,125 sq. ft.) which include the rear slope, vegetated frontage and sides, allow rainwater to percolate through soils and charge the local water basin.

The Project site is located approximately 0.3 miles west of Colma Creek, although it is undergrounded at this location (Oakland Museum of California, 2005). The Pacific Ocean is about 1.8 mile to the west of the site, and the San Francisco Bay is about 3.7 miles to the east.

Groundwater

The Town of Colma is located over the Colma Creek Basin, a sub-basin of the Merced Valley Groundwater Basin. The Basin is the largest groundwater basin in the San Francisco Bay Hydrologic Region. It is separated from the Lobos Basin to the north by a northwest trending bedrock ridge through the northeastern part of Golden Gate Park. The San Bruno Mountains bound the basin on the east. The San Andreas Fault and Pacific Ocean form its western boundary and its southern limit is defined by bedrock high that separates it from the San Mateo Plain Groundwater Basin. The basin opens to the Pacific Ocean on the northwest and San Francisco Bay on the southeast (California Water Service 2016).

Flooding

Historically, flooding frequently occurred on El Camino Real at F Street, on El Camino Real at Mission Road, and in other localized segments of Colma Creek. Past improvements to the Colma Creek drainage channel have reduced the creek flooding.

Accordingly, Colma has been determined by the Federal Emergency Management Agency (FEMA) to be only minimally flood-prone and therefore not included on FEMA's official designated 100 Year Flood Zone Maps.

A General Plan policy requires that on-site detention be provided to reduce peak flows.

3.10.2 Regulatory Setting

In addition to CEQA, other federal and state laws apply to the hydrology and water quality identified in this report. Each of these laws is identified and discussed below.

Federal Clean Water Act

The Clean Water Act (CWA) is the primary federal legislation governing water quality and forms the basis for several state and local laws throughout the nation. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important and applicable sections of the Act are:

- Section 303 of the federal Clean Water Act requires states to develop water quality standards to protect the beneficial uses of receiving waters. In accordance with California's Porter/Cologne Act, the Regional Water Quality Control Boards (RWQCBs) of the State Water Resources Control Board (SWRCB) are required to develop water quality objectives that ensure their region meets the requirements of Section 303 of the Clean Water Act.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), which is a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the U.S. In California, this permit program is administered by the RWQCBs, and is discussed in detail below.

National Pollutant Discharge Elimination System

The CWA has nationally regulated the discharge of pollutants to the waters of the U.S. from any point source since 1972. In 1987, amendments to the CWA added Section 402(p), which established a framework for regulating nonpoint source storm water discharges under the NPDES. The NPDES General Construction Permit requirements apply to clearing, grading, and disturbances to the ground such as excavation. Construction activities on one or more acres are subject to a series of permitting requirements contained in the NPDES General Construction Permit. This permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes Best Management Practices (BMPs) to be implemented during Project construction. The Project sponsor is also required to submit a Notice of Intent (NOI) with the State Water Resources Control Board Division of Water Quality. The NOI includes general information on the types of construction activities that would occur on the site. The Project would not disturb one or more acres, and thus is not subject to the Construction General Permit.

Porter-Cologne Water Quality Control Act

The State's Porter-Cologne Water Quality Control Act, as revised in December 2007 (California Water Code Sections 13000-14290), provides for protection of the quality of all waters in the State of California for use and enjoyment by the people of California. It further provides that all activities that may affect the quality of waters of the state shall be regulated to obtain the highest water quality that is reasonable, considering all demands being made and to be made on those waters. The Act also establishes provisions for a statewide program for the control of water quality, recognizing that waters of the state are increasingly influenced by interbasin water development projects and other statewide considerations, and that factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally within the State. The statewide program for water quality control is, therefore, administered most effectively on a local level with statewide oversight. Within this framework, the Act authorizes the State Water Resources Control Board and RWQCBs to oversee the coordination and control of water quality within California.

State Water Resources Control Board

Created by the California State Legislature in 1967, the State Water Resources Control Board holds authority over water resources allocation and water quality protection within the State. The five-member State Water Resources Control Board allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs. The mission of the State Water Resources Control Board is to, "preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations."

San Francisco Bay Regional Water Quality Control Board

The Town of Colma is under the jurisdiction of the San Francisco Bay RWQCB. As mentioned above and in Biological Resources Chapter 3.4 of this document, activities that disturb one or more acres of soil (including all construction disturbance) are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities. The Construction General Permit requires the development and implementation of a SWPPP. The SWPPP must list BMPs the discharger will use to protect storm water runoff and the placement of those BMPs. Furthermore, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP.

San Mateo Countywide Water Pollution Control Prevention Program

Colma participates in the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), a partnership of the City/County Association of Governments (C/CAG), each incorporated city and town in the county, and the County of San Mateo, which share a common National Pollutant Discharge Elimination System (NPDES) permit. The Federal Clean Water Act and the California Porter-Cologne Water Quality Control Act require that large urban areas discharging stormwater into the San Francisco Bay or the Pacific Ocean have an NPDES permit to prevent harmful pollutants from being dumped or washed by stormwater runoff, into the stormwater system, then discharged into local waterbodies.

The Municipal Regional Permit outlines the State's requirements for municipal agencies in San Mateo County to address the water quality and flow-related impacts of stormwater runoff. Some of these requirements are implemented directly by municipalities while others are addressed by the SMCWPPP on behalf of all the municipalities. This is a comprehensive permit that requires activities related to construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations. The permit also requires a public education program, implementing targeted pollutant reduction strategies, and a monitoring program to help characterize local water quality conditions and to begin evaluating the overall effectiveness of the permit's implementation.

The Municipal Regional Stormwater NPDES Permit (MRP) issued by the San Francisco Bay RWQCB (Order No. R2-2015.0049) for San Mateo County includes the Town of Colma under its coverage. Under Provision C.3 of the MRP, new development and redevelopment projects are required to implement appropriate source control, site design, and stormwater treatment measures. The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) is a partnership of each incorporated city and town within San Mateo County, San Mateo County, and the City/County Association of Governments, which all share the MRP. The SMCWPPP requires submittal of the C.3 and C.6 Development Review Checklist for new development and redevelopment projects to ensure that the appropriate construction best management practices (BMPs), source control measures, low impact development (LID) site design measures, and stormwater treatment measures will be implemented.

Colma Municipal Code

Colma Municipal Code Chapter 5.11 pertains to Water Efficient Landscape Regulations Relevant sections of the code include Section 5.11.190 Stormwater Management which, in part, states:

(a) Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. It is strongly encouraged that all landscape and grading design plans implement stormwater best management practices in order to minimize runoff and to increase on-site rainwater retention and infiltration.

(b) Project applicants shall refer to the Colma Municipal Code Chapter 3.10, or to the Regional Water Quality Control Board for information on any applicable stormwater technical requirements.

(c) All planted landscape areas are required to have friable soil to maximize water retention and infiltration.

(d) It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

(e) It is recommended that storm water projects incorporate any of the following elements to improve on-site storm water and dry weather runoff capture and use:

> (1) Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.
>
> (2) Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways.
>
> (3) Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff.

Additionally, Section 5.11.110, Grading Design Plan, addresses the need for a grading plan to address grading, erosion and sediment control. It requires that an applicant prepare a grading plan which indicates finished configurations and elevation of the landscape area, including: the height of graded slopes; drainage patterns; pad elevations; finish grade; and stormwater retention improvements, if applicable.

Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated and adopted, and others are in the process of being updated, but have not yet been finalized or adopted. The following relevant policies are from the Safety Element of the General Plan, dating from 1999, which has not been updated:

Policy 5.07.421. Drainage facilities should be maintained to accommodate the flow capacity of Colma Creek through Colma to accommodate the storm water runoff from a 100-year storm.

Policy 5.07.422. The Town should continue to require the habitable portions of new structures to have a first-floor elevation that is elevated to or above the projected 100- year water surface, and to be adequately protected from flooding, as defined in the Municipal Code (Section 5.05.335).

Policy 5.07.423. On-site storm water detention facilities should be constructed for new developments (over½ acre) which contribute runoff to Colma Creek to store the difference in runoff between the 10-year predevelopment storm (original natural state) and the 100-year post development storm, with stormwater released at the 10-year predevelopment rate. Property owners should be required to enter into agreements for maintenance.

3.10.3 Discussion

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. The Project would replace 10,000 square feet or more of impervious surface area and thus is subject to Provision C.3 of the Municipal Regional Permit, which requires projects to include source controls, site design measures, and treatment controls to minimize stormwater pollutant discharges

Project Construction

Prior to Project construction, the Town would be required to comply with the NPDES permit and submit Permit Registration Documents (PRDs) to the SWRCB prior to the start of construction. The PRDs include a Notice of Intent (NOI) and a site-specific construction Stormwater Pollution Prevention Plan (SWPPP), since the Project would disturb one or more acres. The SWPPP describes the incorporation of Best Management Practices (BMPs) to control sedimentation, erosion, and hazardous materials contamination of runoff during construction. The SWRCB also requires the construction SWPPP to include post-construction treatment measures aimed at minimizing stormwater runoff.

Compliance with the C.3 requirements and implementation of these SWPPP measures would minimize post-development impacts to water quality; therefore, the Project would have a less than significant impact on water quality.

Project Operation

Stormwater generated from the Project site and surrounding area is directed to the Town of Colma's storm drain system and eventually discharged into San Francisco Bay via Colma Creek. San Francisco Bay RWQCB's Basin Plan lists Colma Creek as having the following beneficial uses: Warm freshwater habitat, wildlife habitat, water contact recreation, and noncontact water recreation. In addition, Colma Creek is listed on the SWRCB's 303(d) list as impaired for trash. However, the Project would be required to comply with post-construction requirements of the MRP (Order No. R2-2015.0049), which is intended to improve the quality of water entering Colma Creek and ultimately discharging to San Francisco Bay. The Project developer proposes to construct four bio-retention basins along the frontage and at the rear of the Project site, which would remove pollutants from the stormwater prior to entering the Town's storm drain system. Conformation to NPDES permit requirements and required permit approvals by the Town of Colma would ensure that implementation of the Project would result in a less than significant impact to water quality.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact. Project construction would not use groundwater supplies and would not interfere substantially with groundwater recharge. The site would reduce the area of impervious surfaces, increasing groundwater recharge. The construction of bioswales on site would also increase storm water percolation.

The Project site and the Town of Colma are served by California Water Company (Cal Water), South San Francisco District (SSFD). The SSFD serves South San Francisco, the Town of Colma, a portion of Daly City, and an unincorporated area of San Mateo County known as Broadmoor. The SSWD purchases most of its water supply (>80 percent) from the San Francisco Public Utilities District (SFPUC), which uses surface water sources. Approximately 10 to 15 percent of SSFDs water demand is met by the pumping of groundwater from Cal Water owned wells

The Cal Water 2015 Urban Water Management Plan (UWMP) shows that purchased supplies of water, along with the local supplies of the South San Francisco and Bear Gulch Districts will be sufficient to serve the combined normal year demand through 2040. Therefore, Project operation would not have a significant impact on groundwater supplies or groundwater recharge (California Water Service, 2016).

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site;

Less than Significant Impact. The proposed Project is located in an urban watershed served by municipal storm drains and there are no natural water features within or immediately adjacent to the Project site. The proposed Project would therefore not alter or otherwise affect the course of a stream or a river.

As stated above, the Project is required to implement a SWPPP that would prevent significant erosion and siltation during construction. All disturbed areas would be stabilized and returned to pre-Project conditions, therefore substantial erosion or siltation are not anticipated on or off-site as a result of the construction or operation of the Project.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

iv) Impede or redirect flood flows?

No Impact. Construction on the site would replace existing impervious surfaces with new impervious surfaces, although it would increase the amount of pervious surfaces from 27,125 sq. ft. to 38,450 sq. ft. The Project would not result in substantial erosion or siltation on- or off-site, or substantially increase the rate or amount of surface runoff to induce flooding on or off site, nor would it create or contribute runoff that would exceed the capacity of existing stormwater drainage systems or result in polluted runoff.

The majority of the proposed Project would remain paved, and would continue to have similar drainage patterns, which would not impede or redirect flood flows. While the introduction of bioretention swales would slow the peak flow of water into the Town's storm drains it would not impede or redirect flows; therefore, the Project would not create an adverse impact by redirecting or impeding flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The Project site is not a Federal Emergency Management Agency (FEMA) flood hazard zone. The Project site is designated within Zone X, which is an area of minimal flood hazard and indicates it is within an area determined to be outside the 0.2 percent annual change floodplain (Panel 06081C0037E, FEMA 2012).

A tsunami is a large tidal wave generated by an earthquake, landslide, or volcanic eruption. Tsunami inundation maps have been developed for the San Francisco Bay area. The Project site is not within a tsunami inundation zone (California Department of Conservation 2009), and therefore, it would not be subject to flooding from a tsunami.

Seiches are waves that oscillate in enclosed water bodies, such as reservoirs, lakes, ponds, swimming pools, or semi-enclosed bodies of water, such as San Francisco Bay. Because the site is far from San Francisco Bay and there are no nearby reservoirs or lakes, it would not be subject to inundation from a seiche.

The Project is not located in a flood, tsunami, or seiche hazard zone, therefore there would be no risk of inundation or pollutant release as a result of these hazards.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The proposed Project is the redevelopment of an existing commercial property in an urban area of Colma. The Project would not obstruct implementation of a water quality control plan or groundwater management plan.

3.10.4 References

California Water Service, 2016. 2015 Urban Water Management Plan South San Francisco District. Accessed March 26, 2020 at: https://www.calwater.com/docs/uwmp2015/bay/South_San_Francisco/2015_Urban_Water_Management_Plan_Final_(SSF).pdf

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Placeworks. 2016. Carmax Project Environmental Review Public draft IS/MND. Town of Colma, Accessed March 26, 2020 at: https://storage.googleapis.com/proudcity/colmaca/uploads/2017/04/CarMax-ISMND-PublicReviewDraft.pdf

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) 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?	☐	☐	☐	☒

3.11.1 Environmental Setting

Both the General Plan designation and zoning for the Project site are Commercial (C). The Project site is also part of the Serramonte Boulevard and Collins Avenue Master Plan, which was published in January 2020.

Serramonte Boulevard is one of two main corridors in the Town of Colma's main economic center and is the location of one of the Bay Area's premier Auto Rows. The proposed Project site is located at 775 Serramonte Boulevard, which is the site of a vacant Babies-R-Us. The Project site is bordered to the north by Serramonte Boulevard, to the east by the Dollar Tree store, to the south by Collins Avenue, and to the west by Serramonte Ford.

3.11.2 Regulatory Setting

Town of Colma Land Use and Urban Design Strategy

The Town of Colma Land Use and Urban Design Strategy was prepared in 2014 and is intended to inform and be integrated into the General Plan Update. The material presented in this document offers a comprehensive land use structure as well as an overall streetscape framework. The document identifies "opportunity sites" in Colma. It also provides illustrations of buildout scenarios and shows how new development would fit in the existing setting.

The Project site has a General Plan Land Use Designation of Commercial

Serramonte Boulevard and Collins Avenue Master Plan

The Master Plan outlines a vision for the Town's key commercial area and provides guidance for strategic improvements to circulation, streetscape, infrastructure, and aesthetics to improve the overall design and function of the business community. One of the key objectives of the Master Plan is to incorporate land use and urban design elements that sustain and enhance the function and unique identity of Serramonte Boulevard.

Town of Colma Zoning Ordinance

The Town of Colma Zoning Ordinance consists of text and a map delineating districts for basic land uses as residential and commercial, and establishing special regulations for design and other specific concerns. The Town of Colma Zoning Ordinance also describes procedures for processing discretionary approvals.

The Project site is zoned Commercial.

3.11.3 Discussion

Would the project:

a) Physically divide an established community?

No Impact. The Project site is located on a parcel owned by a private developer and zoned Commercial. Surrounding land uses primarily consist of auto-oriented and general commercial. The proposed Project consists of demolishing the vacant Babies-R-Us building and constructing a car dealership building including a showroom, service department, and carwash. Therefore, the Project would not result in a division of an established community.

b) 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?

No Impact. The proposed Project site is located on a parcel owned by a private developer and has a zoning and General Plan Land Use designation of Commercial (Town of Colma 1999, Town of Colma 2014). The Town's Land Use and Urban Design Strategy identifies the expansion of the Auto Row along Serramonte Boulevard, which surrounds the Project parcel, as a priority for future development (Town of Colma 2014). The proposed Project would be subject to an Administrative Use Permit required by section 5.03.090 "C" Zone of the Town's Municipal Code (Town of Colma 2016). The Project does conflict not with the Town's General Plan. The Project does not conflict with any land use plan or policy.

Conformance with policies for other resource areas such as Biological Resources, Hydrology and Water Quality, Geological Resources, etc., are addressed in those respective sections of this document. The proposed Project consists of demolishing a portion of the vacant Babies-R-Us building and constructing a car dealership building including a showroom, service department, and carwash, which would not result in a change in land use. There would be no conflict with a land use plan, policy, or regulation.

3.11.4 References

Town of Colma, 2020. General Plan 2040 Existing Conditions Report. Draft January 2020. Accessed March 16, 2020 at https://www.colma.ca.gov/documents/existing-conditions-report/.

Town of Colma, 2020. Serramonte Boulevard and Collins Avenue Master Plan. January 2020. Accessed March 16, 2020 at https://www.colma.ca.gov/documents/serramonte-boulevard-collins-avenue-master-plan/.

Town of Colma, 2016. Municipal Code. February 2016. Accessed March 5, 2020 at https://www.colma.ca.gov/municipal-code/#/answer-5715.

Town of Colma, 2014. Land Use and Urban Design Strategy. October 2014. Accessed March 5, 2020 at https://www.colma.ca.gov/documents/land-use-urban-design-strategy/.

Town of Colma, 1999. General Plan. June 1999. Accessed March 5, 2020 at https://www.colma.ca.gov/current-general-plan/.

3.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local -general plan, specific plan or other land use plan?	☐	☐	☐	☒

3.12.1 Environmental Setting

The Project is in the Town of Colma on a site that is developed with a vacant Babies-R-Us and associated parking lot. The State Division of Mines and Geology has not classified or designated any areas in Colma as containing regionally significant mineral resources (Town of Colma 2020).

3.12.2 Discussion

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact (Responses a – b). The of the Town of Colma is classified as MRZ-1 by the California Geological Survey (CalGeo 1996). MRZ-1 is classified as an area where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence (California Department of Conservation 1999).

The Project site has no potential for use in resource recovery and therefore, would have no impact on the availability of mineral resources.

3.12.3 References

California Department of Conservation, 1999. Guidelines for Classification and Designation of Mineral Lands. Accessed on March 17, 2020 at https://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf.

California Geological Survey (CalGeo). 1996. Revised Mineral Classification Map, Plate 1. Accessed on March 17, 2020 at ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_96-03/.

Town of Colma 2020. General Plan 2040 Existing Conditions Report. Draft January 2020. Accessed March 16, 2020 at https://www.colma.ca.gov/documents/existing-conditions-report/.

3.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) 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 in other applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) 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?	☐	☐	☐	☒

3.13.1 Environmental Setting

Noise may be defined as loud, unpleasant, or unwanted sound. The frequency (pitch), amplitude (intensity or loudness), and duration of noise all contribute to the effect on a listener, or receptor, and whether the receptor perceives the noise as objectionable, disturbing, or annoying.

The Decibel Scale (dB)

The decibel scale (dB) is a unit of measurement that indicates the relative amplitude of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a tenfold increase in acoustic energy, while 20 dBs is 100 times more intense, 30 dBs is 1,000 more intense, and so on. In general, there is a relationship between the subjective noisiness, or loudness of a sound, and its amplitude, or intensity, with each 10 dB increase in sound level perceived as approximately a doubling of loudness.

Sound Characterization

There are several methods of characterizing sound. The most common method is the "A-weighted sound level," or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is typically most sensitive. Thus, most environmental measurements are reported in dBA, meaning decibels on the A-scale.

Human hearing matches the logarithmic A-weighted scale, so that a sound of 60 dBA is perceived as twice as loud as a sound of 50 dBA. In a quiet environment, an increase of 3 dB is usually perceptible, however, in a complex noise environment such as along a busy street, a noise increase of less than 3 dB is usually not perceptible, and an increase of 5 dB is usually perceptible. Normal human speech is in the range from 50 to 65 dBA. Generally, as environmental noise exceeds 50 dBA, it becomes intrusive and above 65 dBA noise becomes excessive. Nighttime activities, including sleep, are more sensitive to noise and are considered affected over a range of 40 to 55 dBA. Table 3-6 lists typical outdoor and indoor noise levels in terms of dBA.

Table 3-6: Typical Outdoor and Indoor Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	-110-	Rock Band
Jet flyover at 1,000 feet		
	-100-	
Gas lawn mower at 3 feet		
	-90-	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	-80-	Garbage disposal at 3 feet
Noise urban area, daytime		
Gas lawnmower, 100 feet	-70-	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	-60-	
		Large business office
Quiet urban daytime	-50	Dishwasher next room
Quite urban nighttime	-40-	Theater, large conference room (background)
Quiet suburban nighttime		
	-30-	Library
Quite rural nighttime		Bedroom at night
	-20-	
		Broadcast/recording studio
	-10-	
Lowest threshold of human hearing	-0-	Lowest threshold of human hearing

Source: Caltrans 2013a

Sound levels are typically not steady and can vary over a short time period. The equivalent noise level (Leq) is used to represent the average character of the sound over a period of time. The Leq represents the level of steady noise that would have the same acoustical energy as the sum of the time-varying noise measured over a given time period. Leq is useful for evaluating shorter time periods over the course of a day. The most common Leq averaging period is hourly, but Leq can describe any series of noise events over a given time period.

Variable noise levels are values that are exceeded for a portion of the measured time period. Thus, L01 is the level exceeded one percent of the time and L90 is the level exceeded 90 percent of the time. The L90 value usually corresponds to the background sound level at the measurement location.

Noise exposure over the course of an entire day is described by the day/night average sound level, or Ldn, and the community noise equivalent level, or CNEL. Both descriptors represent the 24-hour noise impact on a community. For Ldn, the 24-hour day is divided into a 15-hour daytime period (7 AM to 10 PM) and a nine-hour nighttime period (10 PM to 7 AM) and a 10 dB “penalty” is added to measure nighttime noise levels when calculating the 24-hour average noise level. For example, a 45 dBA nighttime sound level would contribute as much to the overall day-night average as a 55 dBA daytime sound level. The CNEL descriptor is similar to Ldn, except that it includes an additional 5 dBA penalty beyond the 10 dBA for sound events that occur during the evening time period (7 PM to 10 PM). The artificial penalties imposed during Ldn and CNEL calculations are intended to account for a receptor's increased sensitivity to sound levels during quieter nighttime periods.

Sound Propagation

The energy contained in a sound pressure wave dissipates and is absorbed by the surrounding environment as the sound wave spreads out and travels away from the noise generating source. Theoretically, the sound level of a point source attenuates, or decreases, by 6 dB with each doubling of distance from a point source. Sound levels are also affected by certain environmental factors, such as ground cover (asphalt vs. grass or trees), atmospheric absorption, and attenuation by barriers. Outdoor noise is also attenuated by the building envelope so that sound levels inside a residence are from 10 to 20 dB less than outside, depending mainly on whether windows are open for ventilation or not.

When more than one point source contributes to the sound pressure level at a receiver point, the overall sound level is determined by combining the contributions of each source. Decibels, however, are logarithmic units and cannot be directly added or subtracted together. Under the dB scale, a doubling of sound energy corresponds to a 3 dB increase in noise levels. For example, if one noise source produces a sound power level of 70 dB, two of the same sources would not produce 140 dB – rather, they would combine to produce 73 dB.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness.

Noise Effects

Noise effects on human beings are generally categorized as:

- Subjective effects of annoyance, nuisance, and/or dissatisfaction
- Interference with activities such as speech, sleep, learning, or relaxing
- Physiological effects such as startling and hearing loss

Most environmental noise levels produce subjective or interference effects; physiological effects are usually limited to high noise environments such as industrial manufacturing facilities or airports.

Predicting the subjective and interference effects of noise is difficult due to the wide variation in individual thresholds of annoyance and past experiences with noise; however, an accepted method to determine a person's subjective reaction to a new noise source is to compare it to the existing environment without the noise source, or the "ambient" noise environment. In general, the more a new noise source exceeds the ambient noise level, the more likely it is to be considered annoying and to disturb normal activities.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness that would almost certainly cause an adverse response from community noise receptors.

Existing Noise Environment

The primary sources of noise in Colma include vehicles, commercial uses, and activities associated with neighborhoods and schools. The primary source of noise at the Project site is from traffic on surrounding roadways – primarily from Serramonte Boulevard – and from adjacent car dealerships, which produce noise from activities in parking lots and car maintenance. Ambient exterior noise levels at the Project site are estimated to be approximately 70 dBA based on these noise sources.

Sensitive Receptors

Noise sensitive receptors are areas where unwanted sound or increases in sound may have an adverse effect on people or land uses. Residential areas, hospitals, schools, and parks are examples of noise receptors that could be sensitive to changes in existing environmental noise levels. There are no sensitive land uses within 500 feet of the Project site.

3.13.2 Regulatory Setting

Town of Colma General Plan

The Noise Element of the Town's General Plan exists to protect public health and welfare by eliminating existing noise problems and by preventing significant degradation of the future acoustic environment. The Noise Element also provides overall goals, policies, and over-arching strategies for controlling and/or reducing community-wide noise environments within the town. For example, Policy 5.06.311 directs the Town's Planning Department staff to "review proposed development with regard to potential noise generation impacts, to ensure that the tranquil atmosphere for the Town's memorial parks is maintained."

The General Plan Noise Element also provides land use compatibility and interior and exterior noise standards, which are based on the State of California's Noise Compatibility Guidelines. These land use standards are designed to ensure that proposed land uses are compatible with the predicted future noise environment. At different exterior noise levels, individual land uses are classified as "normally acceptable," "conditionally acceptable," "normally unacceptable," or "unacceptable." A "conditionally acceptable" designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a "normally acceptable" designation indicates that standard construction can occur with no special noise reduction requirements. Office buildings have a standard of 50 to 70 CNEL for "normally acceptable" and 70 to 75 dBA CNEL for "conditionally acceptable" (Colma 1999).

Colma Municipal Code

Noise emissions within the Town of Colma are regulated by Section 2.05.020 of the Town Municipal Code. The Code does not list quantitative noise thresholds for interior or exterior noise standards. Rather, the Noise Limitations focus on subjective traits for community noise, such as annoyance, disturbance, and offensiveness. Specifically, subsection (a) of Section 2.05.020 reads:

(a) It shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud and unnecessary noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The standards which may be considered in determining whether a violation of the provisions of this section exists may include, but not be limited to, the following:

(1) The level of the noise;
(2) Whether the nature of the noise is natural or unnatural;
(3) Whether the origin of the noise is natural or unnatural;
(4) The level and intensity of the background noise, if any;
(5) The proximity of the noise to residential sleeping facilities;
(6) The nature and zoning of the area within which the noise emanates;
(7) The density of the inhabitation of the area within which the noise emanates;
(8) The time of the day and night the noise occurs;
(9) The duration of the noise; and
(10) Whether the noise is recurrent, intermittent, or constant.

The above noise limitations are exempt for construction activities, provided said construction is conducted per the requirements of Section 5.04 of the Town Municipal Code. According to Subsection 5.04.220(d), "For projects more than 500 feet from a residential unit in the Town of Colma, construction hours shall be assigned on a project-by-project basis by the Building Official, or his or her designee, or as established within a project's Conditions of Approval, based on evaluation of potential noise-related impacts on surrounding uses."

3.13.3 Discussion

Would the project result in:

a) 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 in other applicable local, state, or federal standards?

Less than Significant Impact. Construction and operation of the proposed Project would not result in a temporary or permanent increase in ambient noise levels in the vicinity of the Project site that are in excess of standards established in the Town's General Plan or Noise Ordinance, nor would it conflict with other applicable local, state, or federal standards.

Short-term, Temporary Construction Noise Levels

As described in Section 2.3.7, construction of the proposed Project is anticipated to take approximately eight months. During this time, heavy-duty off-road equipment (e.g., bulldozers, concrete crusher, loaders, etc.) would be required to remove the existing asphalt and demolish part of the existing structure and develop the site with a new car dealership. These activities could temporarily increase noise levels at adjacent properties. Typical noise levels that could be generated by equipment at the site are presented below in Table 3-7.

Table 3-7: Typical Construction Equipment Noise Levels

Equipment	Noise Level at 50 feet (Lmax)(A)	Percent Usage Factor(B)	Predicted Equipment Noise Levels (Leq)(C)					
			50 Feet	100 Feet	150 Feet	200 Feet	250 Feet	300 Feet
Backhoe	80	40	76	70	66	64	62	60
Crane	85	16	77	71	67	65	63	61
Excavator	85	40	81	75	71	69	67	65
Pneumatic tools	85	50	82	76	72	70	68	66
Delivery Truck	85	40	81	75	71	69	67	65
Vibratory Roller	80	20	73	67	63	61	59	57

Sources: Caltrans, 2013a; FHWA, 2010

(A) L_{max} noise levels based on manufacturer's specifications.
(B) Usage factor refers to the amount (percent) of time the equipment produces noise over the time period
(C) Estimate does not account for any atmospheric or ground attenuation factors. Calculated noise levels based on Caltrans, 2009: L_{eq} (hourly) = L_{max} at 50 feet – 20log (D/50) + 10log (UF), where: L_{max} = reference L_{max} from manufacturer or other source; D = distance of interest; UF = usage fraction or fraction of time period of interest equipment is in use.

As shown in Table 3-7, the worst case Leq and Lmax construction equipment noise levels associated with the Project are predicted to be approximately 82 and 85 dBA, respectively, at 50 feet. When two or more pieces of equipment are operating in close proximity, construction noise levels could be approximately 85 dBA Leq and 88 dBA Lmax. These are considered to be worst-case noise levels, as the actual magnitude of the Project's temporary and periodic increase in ambient noise levels would depend on the nature of the construction activity (e.g., demolishing the existing structure, grading the site, etc.) and the distance between the construction activity and receptor areas.

Construction noise would be intermittent, occurring only when equipment is in operation. As described in Section 2.3.7, construction activities would be limited to between 7:00 a.m. and 5:00 p.m. Monday through Friday and would avoid the more noise-sensitive nighttime and weekend hours.[4] The noise generated from Project construction would be temporary (construction would last approximately eight months) and would not produce the same sound levels every day. Given the short duration of Project construction activities and compliance with the City's Municipal Code, the Project would not generate a significant temporary noise impact, nor would it conflict with an applicable standard.

Land Use Compatibility

The Project parcel is zoned by the Town as Commercial (C). The Town's General Plan designates the parcel and surrounding area as the Commercial Core Area. The proposed use and new structures are consistent with the intent of that zoning district and are consistent with past and current land uses at the site and at surrounding facilities. As such, the basic land use of the site would not change and the proposed Project would be an appropriate land use with respect to the Noise Compatibility matrix within the Town's Noise Element.

In addition, the future-scenario (Year 2015) noise level contours in the Town's Noise Element indicate that the site is within traffic-generated noise levels between approximately 58 and 70 dBA CNEL. These results were confirmed by inspecting an updated contour map generated for the Town in March of 2014 by CSDA Design Group (CSDA 2014). As discussed under Section 3.13.2, office buildings, industrial, manufacturing, utilities, and agriculture land use designations have a

[4] Since the project is in a non-residential zoning district, additional construction hours can be assigned on a project by project basis by the Building Official.

standard of 50 to 70 dBA CNEL for "normally acceptable" noise conditions. Therefore, the site conditions are consistent with the "normally acceptable" designation for land use noise compatibility.

Long-term Operational Noise Levels

The Project site historically operated as a Babies 'R' Us facility, which generated noise from vehicular traffic (on site as well as Serramonte Boulevard) and heating, ventilation, and air conditioning (HVAC) units.

Although it is anticipated that additional noise would be generated at the site under operation of the proposed Project, it would not adversely increase the noise environment for a number of reasons. First, the types of operational noise sources under buildout of the Project (e.g., motor vehicle operation, car doors shutting, etc.) would be similar to those that have historically operated at the site, as well as those generated by land uses surrounding the Project site (i.e., other car dealerships). The size of the HVAC unit(s) that would be installed as part of the Project are likely to be of a similar size as those that were used for the existing Babies 'R' Us, meaning that this noise source will likely produce noise levels from this source that are similar to historical conditions. In addition, HVAC units are typically located on the center of the building's roof, which not only shields them from the eyes of ground-level receptors, but also from their ears, as well. Third, the proposed Project would involve the use of pneumatic drills and other handheld pieces of equipment for car servicing; however, these will occur inside the facility (i.e., shielded from the outdoor noise environment) and are consistent with other, nearby activities. Finally, due to the volume of traffic on Serramonte Boulevard, the existing noise environment is heavily dominated by the presence of vehicular noise sources. The increase in noise levels associated with the proposed car dealership would be nominal in the context of the noise environment in which the Project is located. The Project would not generate a permanent noise impact, nor would it conflict with an applicable standard. This impact would be less than significant.

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

Less Than Significant Impact. Vibration is the movement of particles within a medium or object such as the ground or a building. As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared, in inches per second (in/sec). PPV represents the maximum instantaneous positive or negative peak of a vibration signal and is most appropriate for evaluating the potential for building damage. Human response to groundborne vibration is subjective and varies from person to person. The Caltrans *Transportation and Construction Vibration Guidance Manual* provides a summary of vibration criteria that have been reported by researchers, organizations, and governmental agencies (Caltrans 2013). Chapters six and seven of this manual summarize vibration detection and annoyance criteria from various agencies and provide Caltrans' recommended guidelines and thresholds for evaluating potential vibration impacts on buildings and humans from transportation and construction projects. These thresholds are summarized in Table 3-8 and Table 3-9.

Table 3-8: Caltrans' Vibration Threshold Criteria for Building Damage

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Extremely fragile buildings, ruins, monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some older buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
Source: Caltrans, 2013b		

Table 3-9: Caltrans' Vibration Threshold Criteria for Human Response

Human Response	Maximum PPV (in/sec)	
	Transient	Continuous
Barely perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10
Severely perceptible	2.00	0.40
Source: Caltrans, 2013b		

Development of the proposed car dealership would not require rock blasting, or pile driving, but could require use a vibratory roller, small bulldozer, loaded trucks, and jackhammer. Construction activities that use vibratory rollers and bulldozers would be mobile and not operating at the same location for a prolonged period of time; therefore, the *transient* criteria is used. Commercial land uses adjacent to the Project site are located to the north, south, and west. To evaluate potential impacts, the *Modern Industrial and Commercial Structures* criteria is used. As shown in Table 3-10, the operation of a vibrator roller could generate groundborne vibration of approximately 0.098 in/sec PPV at a distance of 50 feet. Based on the criteria summarized in Table 3-8, this would not cause damage to any structures.

Table 3-10: Groundborne Vibration Estimates

Equipment	Reference PPV at 25 feet (inches/second)	Reference Lv at 25 feet (dBV)	Estimated PPV at 50 feet (inches/second)	Estimated Lv at 50 feet (dBV)
Vibratory roller	0.21	94.0	0.098	85.0
Large bulldozer	0.089	87.0	0.042	78.0
Small bulldozer	0.003	58.0	0.014	49.0
Loaded truck	0.076	86.0	0.035	77.0
Jackhammer	0.035	79.0	0.016	70.0

Source: Caltrans, 2013b, FTA, 2006.

Notes: Estimated PPV calculated as: PPV(D)= PPVref*(25/D)^1.1 where PPV(D)= Estimated PPV @ Distance, PPVref=Reference PPV @ 25 feet, D=Distance from equipment to receiver, and 1.1=ground attenuation rate

Estimated Lv calculated as: Lv(D)=Lv(25 feet)-30log(D/25) where Lv(D)=velocity level in decibels, and v=RMS velocity amplitude @ 25 feet

Although some construction activities may generate groundborne vibration that is slightly perceptible (i.e., between barely perceptible and distinctly perceptible thresholds for continuous sources shown in Table 3-9), this impact would be less than significant for a number of reasons. First, equipment that have the potential to generate groundborne vibration would be mobile, meaning that they would not operate at the same location and expose a potential receptor to vibration for a prolonged amount of time. Second, equipment is unlikely to operate near the property boundary on a frequent basis. Instead the equipment would likely be used on the interior of the site where the majority of development would occur. Finally, equipment operation that could generate groundborne vibration would be short-term, since overall Project construction is expected to take approximately eight months. In other words, activities that could generate vibration would not occur on a weekly basis for an extended amount of time. As such, the proposed Project would not generate excessive groundborne vibration or groundborne noise levels. This impact would be less than significant.

c) 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. The Project site is not within an airport land use plan, nor within two miles of a public or private use airport. No impact would occur.

3.13.4 References

California Department of Transportation (Caltrans). 2013a. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Prepared by Caltrans Division of Environmental Analysis Environmental Engineering Hazardous Waste, Air Noise, Paleontology Office. Sacramento, CA. November 2009.

______2013b. *Transportation and Construction Vibration Guidance Manual*. Prepared by the California Department of Transportation: Division of Environmental Analysis Environmental Engineering – Hazardous Waste, Air, Noise, Paleontology Office. Report No. CT-HWANP-RT-13-069.25.3. Sacramento, CA. September 2013.

CSDA Design Group (CSDA). 2014. Town of Colma Noise Contours (sic). March 2014.

Town of Colma (Colma). 1999. General Plan Noise Element. June 1999, Administrative Code, Page 5.06.15.

U.S. Federal Transit Administration (FTA) 2006. *Transit Noise and Vibration Assessment*. FTA-VA-90-1003-06. Washington, DC. May 2006.

3.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce a substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 Environmental Setting

The Town of Colma's estimated population was 1,450 in 2018 (US Census Bureau, 2020).

3.14.2 Discussion

Would the project:

a) **Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

b) **Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

No Impact. (Responses a – b). The Project does not directly or indirectly induce substantial population growth as it involves the construction of a new Cadillac dealership on the site of a former Babies 'R' Us retail store; construction workers and employees at the dealership would come from the surrounding employment pool. The proposed Project does not displace any people necessitating the construction of replacement housing elsewhere because there is no housing on the site. No impact would occur.

3.14.3 References

US Census Bureau, 2020. Total Population, Town of Colma. 2018: ACS 5-Year Estimates Detailed Tables. Accessed on April 16, 2020 at: https://data.census.gov/cedsci/table?q=colma,%20ca&g=1600000US0614736&hidePreview=false&tid=ACSDT5Y2018.B01003&layer=VT_2018_160_00_PY_D1&cid=DP05_0001E&vintage=2018

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

3.15.1 Environmental Setting

Police protection in the Town of Colma is provided by the Colma Police Department, located at 1199 El Camino Real, approximately 0.3 miles northeast of the Project site. Fire protection in addition to emergency medical services are provided by the Colma Fire Protection District, located at 50 Reiner Street, approximately 1 mile north of the Project site (Google Earth Pro 2020). In addition to Colma, the Colma Fire Protection District also covers Broadmoor Village.

Colma has neither public nor private schools within the town limits. The Town is part of both the Jefferson Elementary School District, the Jefferson Union High School District, and the South San Francisco Unified School District. Students in Colma attend schools in these districts including: Susan B Anthony School located at 575 Abbot Avenue, approximately one mile northeast of the site, Thomas R. Pollicita Middle School, located at 500 East Market Street in Daly City, approximately 1.1 miles north of the site, Jefferson High School located at 6996 Mission Street in Daly City, approximately 1.5 miles north of the site, Sunshine Gardens Elementary School located at 1200 Miller Avenue in South San Francisco, approximately 1.5 miles southeast of the site, Parkway Heights Middle School located at 825 Park Way in South San Francisco, approximately 2 miles southeast of the site, and El Camino High School located at 1320 Mission Road in South San Francisco, approximately 1.2 miles southeast of the site. The nearest private school available to Colma residents is the Holy Angels School. It is located at 20 Reiner Street in Daly City, approximately 1 mile north of the site. The school is operated by the Holy Angels Catholic Church and teaches grades kindergarten through 8^{th}. There are two private preschools in or directly adjacent to incorporated Colma: Little Giants Daycare and Preschool located at 413 B Street, approximately 0.8 miles north of the site, and Early Learning Academy located at 398 F Street, approximately 0.6 miles north of the site (Town of Colma 2020, Google Earth Pro 2020).

The nearest parks to the Project site include: Bark Park, approximately 0.7 miles to the north of the site; Colma Community Center and History Park, approximately 0.6 miles to the northeast of the site; and Sterling Park Recreation Center, approximately 0.6 miles to the north of the site (Town of Colma 2020, Google Earth Pro 2020). San Bruno Mountain State and County Park lies adjacent to Colma's easternmost boundary, approximately 1.5 miles east of the site.

3.15.2 Discussion

Would the project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i) Fire protection?

ii) Police?

iii) Schools?

iv) Parks?

v) Other public facilities?

No Impact (i-v). The proposed Project consists of the construction of a new Cadillac dealership on the site of a former Babies 'R' Us retail store. The Project does not include new homes and would not cause population growth in the Project area. Therefore, the Project would not increase demand for fire protection or police protection, increase enrollment at local schools, or increase the use of local parks or other public facilities. Therefore, the Project would not impact public services.

3.15.3 References

Colma Fire Protection District. 2020. About Colma Fire Protection District. Accessed April 2, 2020, at https://colmafire.org/about-colma-fire/

Google Earth Pro. 2020. Accessed on April 2, 2020

Town of Colma, 2020. General Plan 2040 Existing Conditions Report. Draft January 2020. Accessed March 16, 2020 at https://www.colma.ca.gov/documents/existing-conditions-report/.

Town of Colma. 2020. Police Department. Accessed April 2, 2020, at https://www.colma.ca.gov/departments/police/

3.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Environmental Setting

The General Plan Public land use designation includes Town offices, police station, community center, recreation center, and public parks. Public land use consists of only 8.6 acres, or 0.70% of the Town's total planning area. Recreational facilities in Colma include the Sterling Park Recreation Center, Colma Community Center and Historic Park, and Bark Park.

3.16.2 Discussion

Would the project:

a) **Increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated?**

b) **Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

No Impact. (Responses a – b). The proposed Project consists of the construction of a car dealership at the site of an existing and vacant Babies-R-Us. The Project would not cause an increase in the use of neighborhood parks or recreational facilities, nor would it include or require the construction of recreational facilities.

3.16.3 References

Town of Colma, 2020. General Plan 2040 Existing Conditions Report. Draft January 2020. Accessed March 16, 2020 at https://www.colma.ca.gov/documents/existing-conditions-report/.

Town of Colma, 2014. Land Use and Urban Design Strategy. October 2014. Accessed March 5, 2020 at https://www.colma.ca.gov/documents/land-use-urban-design-strategy/.

Town of Colma, 1999. General Plan. June 1999. Accessed March 5, 2020 at https://www.colma.ca.gov/current-general-plan/.

3.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☒	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to vehicle miles travelled?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

W-Trans prepared a Focused Traffic Study for the Project (April 2020) which addresses potential transportation impacts associated with construction of the Project. The findings of this report are incorporated, below.

3.17.1 Environmental Setting

The study area consists of Serramonte Boulevard, which runs northeast-southwest along the frontage of the Project site in the Town of Colma, and five intersections. The studied intersections are:

1. *Serramonte Boulevard/I-280 South Ramps.* A signalized tee intersection with protected left-turn phasing and a channelized right turn for the southbound off-ramp approach. There are no pedestrian or bicycle facilities at this intersection.
2. *Serramonte Boulevard/ I-280 North Ramps.* A signalized tee intersection with protected left-turn phasing on the eastbound approach. There are no pedestrian or bicycle facilities at this intersection.
3. *Serramonte Boulevard/Junipero Serra Boulevard.* A signalized four-legged intersection with protected left turn phasing on all four approaches. There are pedestrian crossings on the east and south legs with pedestrian refuge islands with pedestrian push buttons. There are Class II bike facilities on the northbound and southbound approaches.
4. *Serramonte Boulevard/Serra Center Driveway.* An all-way stop-controlled tee intersection. Pedestrian crossings are present on the north and east legs of the intersection. No bicycle facilities are present at this intersection.
5. *El Camino Real/Serramonte Boulevard.* A signalized four-legged intersection with protected left-turn phasing on the northbound and southbound approaches. The eastbound and westbound approaches operate with split phasing. There are crosswalks with pedestrian signal heads on all four approaches. This intersection has no bicycle facilities.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 11 Study Area and Existing Lane Configurations.

The studied intersections are:

1. Serramonte Boulevard/I-280 South Ramps
2. Serramonte Boulevard/I-280 North Ramps
3. Serramonte Boulevard/Junipero Serra Boulevard
4. Serramonte Boulevard/Serra Center Driveway
5. El Camino Real/Serramonte Boulevard

Serramonte Boulevard is classified as a collector arterial street.

3.17.2 Regulatory Setting

Congestion Management Program

The City/County Association of Governments of San Mateo County (C/CAG), as the Congestion Management Agency for San Mateo County, is required by State law to prepare and adopt a Congestion Management Program (CMP) on a biennial basis. The purpose of the CMP is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions.

Colma Municipal Code

Relevant parts of the Colma municipal code include:

5.10.020 Goals and Objectives.

(a) Goals. The goals of this ordinance are to: (1) Assure that all existing and future employers and sponsors participate in mitigating traffic problems by implementing Transportation System Management (TSM) measures. (2) Encourage coordination and consistency between public agencies and the private sector in planning and implementing transportation programs. (3) Increase public awareness and encourage more use of alternatives to commuting by single occupant vehicles. (4) Reduce traffic impacts within the City and the region by reducing the number of automobile trips, daily parking demand, and total vehicle miles per person traveled that would otherwise be generated by commuting.

(b) Objectives. The objectives of this ordinance are: (1) To participate in a Multi-City Agency that works in partnership with employers to promote programs and services that help employers achieve their trip reduction goals in an effort to improve air quality and reduce traffic congestion in the region. (2) To facilitate the achievements of vehicle to employee ration (VER) standards by public and private employers subject to Regulation 13, Rule 1, a regional employer-based trip reduction mandate effective for employers in San Mateo County beginning July 1, 1994. (3) To encourage and facilitate participation by employers with 25-99 employees in promoting commute alternatives for their employees.

6.03.070 Truck Routes. The following streets are hereby declared to be truck traffic routes for the movement of vehicles exceeding a minimum gross weight of three (3) tons (hereinafter called "trucks"). (a) All of El Camino Real within the corporate limits of the Town of Colma; (b) All of Junipero Serra Boulevard within the corporate limits of the Town of Colma; (c) All of Hillside Boulevard within the corporate limits of the Town of Colma; (d) All of A Street between Hillside Boulevard and El Camino Real, also known as Mission Street; (e) All of Market Street between Hillside Boulevard and El Camino Real, also known as Mission Street; (f) All of El Camino Real and Mission Street to the juncture thereof with any of the streets mentioned in subparagraphs (d) and (e) above; (g) All of Junipero Serra Boulevard in and adjacent to the Town of Colma; (h) All of Hillside Boulevard to the juncture thereof with any of the streets mentioned in subparagraphs (d) and (e) above; (i) All streets in the Town of Colma, except F Street and Olivet Parkway.

Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated and adopted, and others are in the process of being updated, but have not yet been finalized or adopted. The following relevant policies are from the Circulation Element of the General Plan, which was updated in 2014:

> *Policy 5.03.711.* Commercial and industrial truck traffic, except for trucks serving local business, should be limited to highways or arterial streets for movement through the Town.
>
> *Policy 5.03.726.* Additional driveway access points to El Camino Real and to arterial and collector streets should be discouraged in order to promote traffic safety and retain landscape corridors. Where possible, access should be developed from other streets.
>
> *Policy 5.03.732.* Street trees should be planted along Colma's street system. Trees should be selected from a plant list approved by the City Council in order to create a unifying theme, Street trees should be planted as a requirement of private development, where such developments involve the public street frontage.

Serramonte Boulevard and Collins Avenue Master Plan

In 2019 the Town completed the preparation of a streetscape master plan for Serramonte Boulevard and Collins Avenue. The plan proposes the reduction of travel lanes on Serramonte Boulevard from 4 lanes to 3 lanes (one travel lane in each direction and a center lane reserved for turns in and out of businesses). By reducing a travel lane, wider sidewalks and landscaping can be added to improve pedestrian safety. Mid-block crosswalks are proposed on Serramonte Boulevard between Junipero Serra Boulevard and El Camino Real. A key component identified for the project is a signalized intersection improvement on Serramonte Boulevard at the Serra Center driveway to facilitate traffic flow through the intersection. The Town anticipates breaking the project into several phases, with the first phase being the installation of the traffic signal and pavement restriping.

Emergency Operations Plan and Evacuation Routes

As described in the Safety Element of the General Plan, the Town of Colma Police Department and the Town of Colma Public Works department would jointly establish excavation routes and maintain traffic control.

The Town has a Standardized Emergency Management System (SEMS) Plan which describes how the Town will manage and coordinate resources and personnel responding to emergency situations.

The Town's circulation system plays a key role in emergency operations, providing access to properties and individuals as well as functioning evacuation infrastructure and routes during emergencies. Major roads, as shown on the Circulation Element of the General Plan, would act as the primary emergency evacuation routes. The nearest routes to the Project site include El Camino Real (Highway 82) to the north-east and Interstate 280 to the south-west.

Scenic Roadways

Scenic roads are an important resource. The State of California has identified I-280 as a State Scenic Highway from the Santa Clara County line to the San Bruno City limit. The section from the San Bruno City limit north through Colma is an Eligible State Scenic Highway – not officially designated. Although the State has no jurisdiction over development in Colma, local consideration should be given to what is visible from the highway (Colma General Plan – Circulation Element 2014).

3.17.3 Discussion

Would the project:

a) **Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?**

Less Than Significant with Mitigation Incorporated. The operation of the Project would not conflict with the Town's General Plan, or its regulations or ordinances relating to traffic, roadways, bicycle or pedestrian facilities.

The Project is expected to generate an average of 877 trips per day, including 50 weekday a.m. peak period trips, 56 weekday p.m. peak period trips, and 127 trips during the weekend midday peak hour. Neither weekend morning nor weekend afternoon peak period exceed 100 trips, and as such, the C/CAG CMP vehicle trip reduction measures would not apply. Peak period weekend trips are not considered in the CMP and likewise do not apply.

The impacts related to the construction of the facility include 110 truck trips spread over an approximate 2-month period. Based on an average of 21 working days in a month, would equate to 2.6 truck trips per day. Converted to passenger car equivalent (PCE), trips this would equal 8 vehicle trips, using an estimate that each truck is equivalent to three passenger cars. It is conservatively assumed that all construction employees would arrive during the a.m. peak hour and leave during the p.m. peak hour, and that all truck trips occur in the peak time period. The number of construction workers is unknown at this time but is not anticipated to increase peak period trips to 100 in a peak period during construction phasing, and therefore the C/CAG Congestion Management Program vehicle trip reduction measures would not apply during construction.

Based the Serramonte Boulevard and Collins Avenue Master Plan project, funds are to be collected for the installation of a traffic signal at the intersection of Serramonte Boulevard/Serra Center Driveway. The estimated cost for signalization of the intersection based on the initial design plans is $600,000. The Town has developed an equitable share policy where it collects fees from developers proportionate to the traffic generated by each development. A calculation was applied based on the equitable share program to determine the Project's equitable share of the cost of the traffic signal installation. The calculation was determined as if the existing retail store was still operating. Based on the trip distribution as detailed in the Traffic Study (Appendix D: Traffic Study), the majority of the Project's trips would be expected to travel through the intersection of Serramonte Boulevard/Serra Center Driveway. Using the existing and Projected future turning movements for the intersection together with the estimated Project trips, the Project's proportional share for improvements to the intersection is 4.3 percent, or $26,062 of the estimated $600,000 (Appendix D).

A significant impact could occur if the Project conflicts with an existing plan. Implementation of Mitigation Measure TRA-1 would ensure consistency with the Serramonte Boulevard and Collins Avenue Master Plan and would reduce impacts to a less than significant level.

Impact TRA-1: The Project could conflict with an existing plan; the Serramonte Boulevard and Collins Avenue Master Plan.

Mitigation Measure TRA-1:

To meet consistency with the Serramonte Boulevard and Collins Avenue Master Plan Project, the applicant will share in the cost of the installation of a traffic signal at the intersection of Serramonte Boulevard/Serra Center Driveway. Based on the volume of traffic the Project will contribute to the intersection, the applicant will pay 4.3 percent of the cost of the installation of the traffic signal.

Effectiveness: This measure would ensure consistency with the Serramonte Boulevard and Collins Avenue Master Plan.

Implementation: The applicant will pay 4.3 percent of the cost of the signalization of the Serramonte Boulevard/Serra Center Driveway

Timing: Prior to Project occupancy.

Monitoring: The Town will not grant a certificate of occupancy until payment from the applicant has been formally received.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to vehicle miles travelled?

Less Than Significant Impact. Vehicle Miles Travelled **(**VMT) significance thresholds for retail projects are based on total VMT. A retail project resulting in an increase to the region's total VMT may reflect a significant impact. Research has shown local-serving retail uses, typically those under 50,000 square feet in size, tend to shift where vehicle trips occur rather than generate wholly new trips (and corresponding vehicle miles traveled). This premise is supported by the California Office of Planning and Research (OPR) in its publication Technical Advisory on Evaluation Transportation Impacts in CEQA, December 2018, as well as draft VMT threshold guidance established by C/CAG. Because the proposed Project is less than 50,000 square feet and would be expected to shift where people purchase or service a vehicle rather than increase the number of vehicles being sold or serviced in the Bay Area, it is reasonable to presume that total VMT associated with customer activity would not increase. The presence of Cadillac dealerships in other Bay Area communities including Burlingame, Santa Clara, Fremont, Dublin, Walnut Creek, and Vallejo also reinforces the conclusion that most customers to the Colma dealership are likely to travel from nearby communities (with shorter trip lengths).

While the proposed Project can be characterized as a retail use, it would employ approximately 55 employees and may warrant consideration of the VMT associated with employee trips. OPR and C/CAG guidance for employment-based travel uses a metric of home-based VMT per employee. A proposed project exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact. OPR encourages the use of screening maps to establish geographic areas that achieve the 15 percent below regional average thresholds, allowing jurisdictions to "screen" projects in those areas from quantitative VMT analysis since impacts can be presumed to be less than significant. C/CAG prepared a draft screening map in 2018 (Appendix D) that shows the Project site to be within a screened area where VMT per employee is more than 15 percent below the regional average.

It is therefore reasonable to conclude that the Project will have a less-than-significant VMT impact associated with employee travel.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant with Mitigation Incorporated. The proposed Project would not affect the existing roadway. Turns into the proposed car dealership, would not be significantly changed from the existing access.

Sight distance along Serramonte Boulevard at the Project driveways was evaluated based on sight distance criteria contained in the Highway Design Manual published by Caltrans. The recommended sight distance for driveway approaches is based on stopping sight distance and uses the approach travel speed as the basis for determining the recommended sight distance. The stopping sight distance was field measured and, for the purposes of the sight distance review, a speed of 30 mph with a stopping sight distance of 200 feet was applied.

At the eastern driveway, sight distance to the east is about 430 feet and sight distance to the west is approximately 360 feet. At the western driveway sight distance to the east is approximately 200 feet and it is approximately 575 feet to the west.

There are shrubs east of the western Project driveway between the sidewalk and the parking lot of the existing development. These shrubs appeared to be neglected as the property has been vacant for more than a year. Although existing sight distance is adequate, the shrubs have the potential to encroach into sight distance triangles if not adequately maintained.

A significant impact could occur if proposed signage or landscaping is incorrectly placed, by blocking sight lines of cars leaving the proposed car dealership along Serramonte Boulevard. Therefore, the proposed Project has the potential to adversely impact traffic design features. Implementation of Mitigation Measure TRA-2 would reduce potential impacts to traffic design features to a less than significant level.

Impact TRA-2: Proposed signage and landscaping could obscure views of traffic leaving the car dealership and increase hazards as a result of a design feature.

Mitigation Measure TRA-2:

Recommendations set out in the Project specific traffic report relating to Project signage and landscaping will be followed to ensure safe design of the Project frontage. Landscaping and signage will be placed back from the frontage to allow unobstructed views from both entrances to the site along Serramonte Boulevard.

The Town will approve the final signage and landscaping design prior to Project approval.

Effectiveness: This measure would minimize and/or avoid impacts to traffic design features.

Implementation: The applicant will design the landscaping and signage to be compliant with the mitigation measure.

Timing: At the design phase, prior to Project approval.

Monitoring: The Town will approve the signage and landscaping plan prior to building permit issuance.

d) Result in inadequate emergency access?

Less than Significant Impact. Access to the Project site would be provided by two existing full-access driveways on Serramonte Boulevard located approximately 545 and 745 feet east of the intersection at Serra Center Driveway. The western driveway would be approximately 27 feet wide and the eastern driveway would be approximately 26 feet wide, both with the exit approach stop-controlled. Driveways of this width would be expected to provide ample space to allow two-way access and would also allow an emergency response vehicle to enter and exit the Project site safely.

3.17.4 References

City/County Association of Governments of San Mateo County (C/CAG), 2019. San Mateo County Congestion Management Program 2019. Accessed May 1, 2020 at https://ccag.ca.gov/wp-content/uploads/2020/04/2019-CMP-Final-040920.pdf

W-Trans, 2020. Draft Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership. Unpublished report kept on file with the Town of Colma and MIG. April 28, 2020.

Town of Colma. 2014. General Plan– Circulation Element. Accessed April 30, 2020 at https://www.colma.ca.gov/documents/3-0-circulation-element/

Source: W-Trans 2020; MIG 2020

MIG

Figure 11 Study Area and Existing Lane Configurations

755 Serramonte Blvd. Colma Car Dealership

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resources, defined in Public Resources Code section 21074 as either a site, feature, place cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☒	☐	☐

3.18.1 Environmental Setting

The Ohlone Native Americans inhabited the Project area prior to invasion by the Spanish in 1769 and were named Costanoans by the Spanish. Costanoan-speaking tribal groups occupied the area from the Pacific Coast to the Diablo Range and from San Francisco to Point Sur. The Ohlones were hunters and gatherers, living in “tribelets” – small independent groups of usually related families occupying a specific territory and speaking the same language or dialect.

The Ohlone, who lived throughout the Bay Area, subdivided themselves into smaller village complexes or tribal groups. These groups were independent political entities, each occupying specific territories defined by physiographic features. Each group-controlled access to the natural resources of the territories. Although each tribal group had one or more permanent villages, their territory contained numerous smaller campsites used as needed during a seasonal round of resource exploitation.

Extended families lived in domed structures thatched with tule, grass, wild alfalfa, ferns or carrizo (Levy 1978). Semi-subterranean sweathouses were built into pits excavated in stream banks and covered with a structure against the bank. The tule raft, propelled by double-bladed paddles similar to those used in the Santa Barbara Island region, were used to navigate across San Francisco Bay (Kroeber 1970).

Warfare was quite common in Ohlone culture and usually centered around territorial disputes (Levy 1978). Music, ritual and myth were extensive in Costanoan life. Song was employed in the telling of myths, in hunting and courtship rituals, and in other ceremonial activities. Musical instruments were typically whistles made of bird bone, and flutes and rattles made of wood from the alder. Mussels were an important staple in the Ohlone diet as were acorns of the coast live oak, valley oak, tanbark oak and California black oak. Seeds and berries, roots, grasses, and the meat of deer, elk, grizzly, sea lion, rabbit, and squirrel also contributed to the Ohlone diet. Careful management of the land through controlled burning served to insure a plentiful and reliable source of all these foods (Kroeber 1970; Levy 1978). The arrival of the Spanish led to the rapid demise of native California populations. Diseases, declining birth rates, and the effects of the mission system served to eradicate the aboriginal life ways (which are currently experiencing resurgence among Ohlone descendants). Brought into the missions, the surviving Ohlone were transformed from hunters and gatherers into agricultural laborers. With abandonment of the mission system and Mexican takeover in the 1840s, numerous ranchos were established. Generally, the few Ohlone who remained were then forced, by necessity, to work on the ranchos.

3.18.2 Regulatory Setting

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

Native American Heritage Commission, Public Resources Code Sections 5097.9 – 5097.991

Section 5097.91 of the Public Resources Code (PRC) established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Under Section 5097.9 of the PRC, a state policy of noninterference with the free expression or exercise of Native American religion was articulated along with a prohibition of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites or sacred shrines located on public property. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner. Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection Act (NAGPRA) is consistent with the federal NAGPRA. Intended to "provide a seamless and consistent state policy to ensure that all California Indian human remains and cultural items be treated with dignity and respect," the California NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The act also provides a process for non–federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

Assembly Bill 52

Assembly Bill (AB) 52 specifies that a project that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined, is a project that may have a significant effect on the environment. AB 52 requires a lead agency to begin consultation with a California Native

American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requests in writing to the lead agency, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

No Native American tribes contacted the Town under AB52, and thus AB52 consultation was not required as part of the Project.

Town of Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated, and others are being update, but have not yet been finalized. The following relevant policies are from the Historic Resources Element of the General Plan, dating from 1999, which has not been finalized or adopted:

Policy 5.08.212. Important historic resources should be protected through designation by the Town of Colma.

Town of Colma General Plan Draft Historic Resources Element

The Town is circulating a draft Historic Resources element, released in 2015, for the General Plan update and is currently seeking public commentary. The following policies are from the draft Historic Resources Element of the General Plan. These policies have not been finalized or adopted but are included here for reference.

Policy HR-1. Ensure that future plans, ordinances, and City programs are complimentary to the historic preservation goals and policies contained within this plan.

Policy HR-2. Acknowledge historic preservation principles as an equal component in the planning and development process.

Policy HR-3. Prevent destruction of properties that add historical or cultural value to Colma's unique history.

Policy HR-4. Work with the Colma Historical Association as a partner in local preservation.

Policy HR-5. Foster awareness, appreciation and celebration of Colma's unique historical and cultural heritage and educate and encourage preservation of these resources.

Policy HR-6. The town shall lead by example and encourage sensitive preservation of all town owned resources by using best practices.

3.18.3 Discussion

Would the project:

a) **Cause a substantial adverse change in the significance of a tribal cultural resources, defined in Public Resources Code section 21074 as either a site, feature, place cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

   i. **Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?**
   ii. **A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code**

Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe?

a) Less Than Significant with Mitigation. There are no known Tribal Cultural Resources (TCRs) on the Project site. The likelihood of encountering cultural resources, including TCRs, during Project construction is considered low. However, as development in the Project vicinity was occurring prior to the introduction of CEQA, there is the possibility that buried archaeological resources that have the potential to be considered TCRs may exist within the Project impact area. Disturbance of TCRs would constitute a significant impact.

Some Native American artifacts may not be considered unique archaeological resources under the CEQA guidelines (i.e. if there is not a demonstrable public interest in that information, it does not possess a special and particular quality such as being the oldest of its type or the best available example of its type, and it is not directly associated with a scientifically recognized important prehistoric event or person). However, it is possible for a lead agency to determine that an artifact is considered significant to a local tribe, and therefore be considered a significant resource under CEQA. Mitigation measures included in Section 3.5 Cultural Resources of this document include language that all Native American artifacts are to be considered significant until the lead agency has enough evidence to determine an artifact not significant. This ensures that the default assumption is that all Native American artifacts are significant resources under CEQA.

Implementation of Mitigation Measure CUL-1 (See Section 3.5 Cultural Resources) would reduce impacts to TCRs to less than significant.

3.18.4 References

Kroeber, A.L. 1976. Handbook of the Indians of California, New York. Dover Publications, Inc.

Levy, Richard. 1987. Costanoan in R.F. Heizer (ed.) Handbook of North American Indians. Vol. 8: California: 485-495. Washington D.C. Smithsonian Institute.

NAHC, 2020. Unpublished letter containing search results from Sacred Lands File search. Kept on file at NAHC and with MIG. Inc.

Town of Colma. 2015. Town of Colma General Plan Historical Resources Element. Draft. Accessed April 17, 2020 at https://www.colma.ca.gov/documents/draft-historic-resources-element/

3.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Environmental Setting

Sanitary Sewer: The Town has approximately 33,600 lineal feet of sewer mains for its wastewater collection system which operates primarily by gravity flow. There are no force mains or pump stations owned/maintained by the Town. The Town owns the sewer collection system but does not have its own wastewater treatment plant. The Town contracts with the North San Mateo County Sanitation District (NSMCSD) and the City of South San Francisco for wastewater treatment (Town of Colma 2017). The South San Francisco/San Bruno Water Quality Control Plant (WQCP) provides wastewater treatment for the cities of South San Francisco, San Bruno, and the Town of Colma. The average dry weather flow through the facility is 9 million gallons per day (MGD) and the average peak wet weather flows can exceed 60 MGD (Town of Colma 2016).

Through an agreement with South San Francisco and San Bruno, Colma can contribute maximum flows of up to 450,000 gallons per day (gpd) to the WQCP for treatment and disposal. However, on average, Colma contributes around 225,000 gpd, which is half of its permissible capacity (Colma 2016).

Solid Waste: Garbage, compost, and recycling pick-up service is provided by Republic Services of Colma and serviced by Ox Mountain Landfill.

Water: Water service to the Town of Colma is provided by Cal Water, South San Francisco District. The South San Francisco District (SSFD) serves the communities of South San

Francisco, Colma, a small portion of Daly City, and an unincorporated area of San Mateo County known as Broadmoor, which lies between Colma and Daly City. Cal Water's Urban Water Management Plan (UWMP) presents a 2015 daily per capita water use is of 103 gallons. Cal Water purchases water for customers from the City and County of San Francisco (SFPUC), and additional water is provided by five groundwater wells. The South San Francisco system includes 144 miles of pipeline, 12 storage tanks, one collection tank, and 21 booster pumps.

<u>Gas:</u> Pacific Gas and Electric Company furnishes natural gas and electricity to the Town of Colma.

3.19.2 Regulatory Setting

Waste Reduction and Recycling. The California Integrated Waste Management Act requires jurisdictions to divert 50 percent of their waste in the year 2000. Jurisdictions select and implement the combination of waste prevention, reuse, recycling, and composting programs that best meet the needs of their community while achieving the diversion requirements of the Act. SB 1016, Wiggins, Chapter 343, Statutes of 2008 passed in 2008, introduced a per capita disposal measurement system that measures the 50 percent diversion requirement using a disposal measurement equivalent.

County of San Mateo Health Services Department. The Environmental Health Services Division of the County of San Mateo Health Services is the State-certified Local Enforcement Agency (LEA) for solid waste in San Mateo County. The LEA regulates all facilities and operations for the collection, handling, transportation, storage, and disposal of solid waste, including construction and demolition debris, in the County.

Town of Colma Sanitary Sewer System Management Plan (SSMP)

The SSMP has been prepared by the Town of Colma in compliance with requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB) pursuant to section 13267 of the California Water Code. The SSMP is intended to meet the requirements of both the RWQCB and the Statewide General Waste Discharge Requirements (GWDR).

Colma General Plan

The Town adopted a General Plan in 1999. Elements of the plan have since been updated and adopted, and others are in the process of being updated, but have not yet been finalized or adopted. The following relevant policies are from the Safety Element of the General Plan, dating from 1999, which has not been updated:

Policy 5.02.361. The Town should require all new construction projects to place power, telephone and cable TV lines underground. Utility boxes and transformers should also be undergrounded if possible. If there is no reasonable alternative than above ground placement then these facilities should be screened by fencing and/or other landscaping.

Policy 5.02.362. The Town should require all new construction projects to hook up to public water and sewer systems.

3.19.3 Discussion

Would the project:

a) **Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?**

Less than Significant Impact. The Project is the redevelopment of the site from one commercial use to another. The Project would not result in the relocation or construction of new or expanded water, wastewater treatment, storm drainage, electric power, natural gas or telecommunications facilities.

The Project is subject to compliance with the requirements of the San Mateo County Storm Water Pollution Prevention Program (SWPPP), and a Project specific SWPPP would be prepared to ensure that contaminants do not enter the storm drain system. To meet C.3 requirements, stormwater run-off from the site would be directed to a series of bioretention swales that allow for the cleansing and infiltration of stormwater before draining to the Town's storm drain system. The water treatment planter areas will be located at each corner of the site, and along the frontage. Pervious surfaces from landscaping and water treatment areas on the Project parcel would be increased from 27,125 sq. ft. to 38,450 sq. ft. The Project is subject to Low Impact Development (LID) standards.

The Project would have a less than significant impact on utilities and service systems.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact. The proposed Project would consume potable water for vehicle maintenance, vehicle washing, employee use, and irrigation of landscaping. The Cal Water 2015 Urban Water Master Plan (UWMP) documents Cal Water's ability to serve the South San Francisco District (SSFD) during both normal and dry years.

The Cal Water SSFD receives its water supply from a combination of purchased water and groundwater from Cal Water owned wells. Cal Water has annual purchased water supply from the San Francisco Public Utilities Commission (SFPUC) of 35.39 million gallons per day (MGD) in normal hydrologic years, which is shared among the Bear Gulch, Mid-Peninsula, and South San Francisco Districts. The amount available to the SSFD varies in any given year and depends on the availability of local supplies in the Bear Gulch and SSFD. SFPUC sources are expected to provide the majority of supply in the SSFD.

The 2015 Urban Water Master Plan demonstrates the SSFD has a sufficient supply during years under normal conditions. However, during one-year or multi-year droughts, shortfalls up to 20%. or more are projected. Under such conditions, Cal Water will implement its Water Shortage Contingency Plan. Cal Water is also striving to increase the water supply portfolio for this District and for the other two peninsula districts (Mid-Peninsula and Bear Gulch. These three Districts share Cal Water's SFPUC supply, and any supply added to one of these District will benefit the others.

Additionally, the reduction in supply during dry years would need to be met through a combination of customer demand reductions from implementation of the Water Shortage Contingency Plan, increased water conservation, and the development of alternative water supplies. Cal Water implements a four-stage approach to drought response that corresponds to specific levels of water supply shortage. At each higher stage Cal Water requires more aggressive water use reductions from its customers. Stage 1 covers water shortages of up to 10 percent, Stage 2 between 10 and 20 percent, Stage 3 between 20 and 35 percent, and Stage 4 between 35 and 50 percent. In the earlier stages, conservation measures include requesting voluntary conservation, increasing educational programs regarding water supply, development of drought ordinances, and increased monitoring of water use. In the later or more aggressive stages, measures such as flow restrictors for high water users, mandatory conservation, restricting potable water use for landscape, and service shutoff for repeat offenders of these measures could be implemented.

Based on water demand factor of 2,124 gallons of water per month per 1,000 square feet of industrial use5 the proposed Project (34,385 sq. ft. building) would use an estimated 70,033 gallons of water per month.

While the 2015 UWMP indicated water supply deficiencies during single- and multiple dry years, the water conservation measures under the 2015 UWMP as described above, along with Town of Colma measures related to water conservation, would ensure adequate supply of water. For example, Subchapter 5.11, Water Efficient Landscape Regulations, of the Colma Municipal Code establishes regulations for the efficient design and operation of a projects irrigation system in order to conserve water and ensure that landscape is consistent with the provisions of any local water conservation programs or drought response laws, rules, policies, and regulations. Further, the Project would include drought tolerant landscape. Lastly, the Project would be constructed using the most recent California Green Buildings Code (Part 11, Title 24, known as “CALGreen”), which among other things, require construction to incorporate water efficiency and conservation measures, such as the installation of low flow toilets and faucets. For those reasons, the Project is not expected to substantially increase water use to the extent that it could not be served by existing entitlements; therefore, a less-than-significant impact would occur with regard to water supply.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?

Less Than Significant Impact. Wastewater would be generated from the Project by employee’s (50 employees) and wash water from the vehicle service and car wash areas. The Project would be connected to an existing eight-inch sanitary sewer main located along Serramonte Boulevard. Colma is currently contributing less than its permissible daily flow to the South San Francisco/San Bruno Water Quality Control Plant WQCP. The proposed Project would not adversely impact the wastewater treatment provider’s ability to serve the Project of the provider’s existing commitments.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. (Responses d and e). Subchapter 3.05 of the Municipal Code regulates the collection and disposal of solid waste within the Town and establishes provisions to comply with the recycling and reporting requirements of the California Integrated Waste Management Board. For example, Section 3.05.130 establishes mandatory recycling requirements for both commercial and residential customers and establishes a target disposal rate of 12.5 pounds/day of waste per employee. Other sections relate to the general collection, handling, and proper disposal of solid waste. Municipal Code Section 5.05 Recycling and Diversion of Construction and Demolition debris would direct the recycling or disposal of construction demolition debris.

The Project would be subject to the requirements of Municipal Code 3.05 and would manage the waste generated on site consistent with regulations for the disposal, handling, and transport of solid waste in the Town to ensure compliance with State regulations, such as meeting the Town’s target disposal rate of 12.5 ppd per employee. Project demolition debris would be managed according to Municipal Code 5.05. Overall, the Project is expected to comply with

5 Town of Colma. 2016. CarMax Project IS/MND.

federal, State, and local regulations regarding solid waste and a less-than-significant impact would occur.

3.19.4 References

California Water Services, 2020. District Information. Accessed April 13, 2020 at https://www.calwater.com/about/district-information/bay/.

California Water Service, 2016. 2015 Urban Water Management Plan, South San Francisco District. June 2016.

Town of Colma, 2020. Trash Recycling Utilities. Accessed April 13, 2020 at https://www.colma.ca.gov/trash-recycling-utilities/

Town of Colma, 2017. Sanitary Sewer System Management Plan. Accessed April 13, 2020 at https://www.colma.ca.gov/documents/colma-ssmp-2017/.

Town of Colma, 2016. Carmax Project Initial Study/Mitigated Negative Declaration. February 2016.

Town of Colma, 1999. General Plan. June 1999. Accessed April 14, 2020 at https://www.colma.ca.gov/current-general-plan/.

3.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Is the project located near state responsibility areas or lands classified as very high fire hazard severity zones?	☐ Yes		☒ No	
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

3.20.1 Environmental Setting

The Project site is situated within the Town of Colma, adjacent to Daly City, Unincorporated San Mateo County, and South San Francisco. Colma is a small community with approximately 72% of its land zoned for cemetery use. The Town is fully developed with urban uses and is not immediately adjacent to wildland areas.

3.20.2 Discussion

Would the project:

a) **Substantially impair an adopted emergency response plan or emergency evacuation plan?**

b) **Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?**

c) **Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

d) **Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

No Impact (a-d). The Project site is in an urban area and not within or near a state responsible area (SRA) and is approximately one mile west from the nearest high fire hazard zone (VHFHZ) (CalEOS 2019), which is located in Unincorporated San Mateo County, near San Bruno Mountain. The Project would involve the construction of a car dealership and would not affect wildfire hazards in the area, therefore, there is no impact.

3.20.3 References

California Governor's Office of Emergency Services (CalEOS). 2019. MyHazards Webmapping Tool. Accessed on March 19, 2020 at: http://myhazards.caloes.ca.gov/.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the efforts of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.21.1 Discussion

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation. Mitigation Measures BIO-1 through BIO-2 would prevent impacts to special status species and nesting birds and implement biological resource protection policies. Mitigation Measures CUL-1 through CUL-2 are included to prevent impacts to unknown cultural and tribal resources and unknown human remains.

Construction of the proposed Project would generate criteria air pollutant emissions from fuel combustion in heavy-duty construction equipment, motor vehicles, and area sources such as landscaping equipment, etc. Mitigation measure AIR-1 has been incorporated into the Project to reduce these impacts to less than significant.

Therefore, with the implementation of the mitigation measures specified above, the proposed Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means the incremental effects of a project are considerable when viewed in connection with the efforts of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant Impact. The proposed Project would consist of the construction and operation of a car dealership in an area already containing similar facilities. The Project would generate limited Project specific impacts, but they would not be cumulatively considerable. This impact would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant with Mitigation. The Project could have potentially significant impacts on aesthetics, air quality, biological resources, cultural/tribal cultural resources, geology/paleontological resources, and transportation. Mitigation measures have been identified and included in the Project to reduce these impacts to less than significant levels. The Project would have a less than significant impact on all other resource areas.

Chapter 4. List of Preparers

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Appendix A

Air Quailty/GHG Calculations

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755 Serramonte Blvd. Colma Car Dealership Project

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Automobile Care Center	34.39	1000sqft	0.79	34,385.00	0
Parking Lot	241.00	Space	2.07	96,400.00	0
Other Non-Asphalt Surfaces	0.86	Acre	0.86	37,461.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	156.52	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MIG Modeler: Phil Gleason ; GHG intensity factors updated to reflect Peninsula Clean Energy's renewable mix from 2018 (CO2) and e-grid values from 2017 (CH4 and N20).

Land Use - Reflects 34,385 sf building, paved area (68,895sf impervious; 21,120 pervious) and remaining area for bioretention and landscaping.

Construction Phase - Schedule updated per information provided by City/Applicant. Reflects 2mo of demo/site prep; 1mo trenching; 5mo of publinc and site construction. Paving and arch coating retained to capture thos activities.

Off-road Equipment - Updated based on info provided by City/Applicant for demo and site prep.

Off-road Equipment - Updated based on info provided by City/Applicant for demo and site prep.

Off-road Equipment - Trencher added to trenching phase.

Off-road Equipment - Updated based on info provided by City/Applicant for site construction.

Off-road Equipment - Updated based on info provided by City/Applicant for demo and site prep; 1 compactor / paving machine. Only paver modeled since compactor would operate at different time than paving. Still 8hr runtime per day.

Off-road Equipment -

Grading - Based on info provided by City/Applicant; 3070 CY would be graded. Assumes entire site would be graded once since already level and developed.

Demolition - 22,348 sf of building space demoed.

Trips and VMT - Updated per information provided by City/Applicant. Would require 30 truck trips of 50 CY dump trucks and 80 truck trips of 20 CY dump trucks (i.e., 110 total between demo and site prep).

Vehicle Trips - Adjusted based on daily trips contained in Traffic Study prepared by W-Trans (877 trips / 34.385 ksf = 25.5 trips / size / day).

Energy Use - Lighting intensity adjusted down to reflect project would comply with 2019 T24 Building Code

Construction Off-road Equipment Mitigation - Watering two times per day in compliance with BAAQMD Fugitive Dust BMPs.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	21.00
tblConstructionPhase	NumDays	230.00	88.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	18.00	21.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	2/22/2021	8/31/2020
tblConstructionPhase	PhaseEndDate	1/1/2021	7/31/2020
tblConstructionPhase	PhaseEndDate	1/28/2020	1/31/2020
tblConstructionPhase	PhaseEndDate	2/14/2020	3/31/2020

tblConstructionPhase	PhaseEndDate	1/27/2021	8/31/2020
tblConstructionPhase	PhaseEndDate	2/4/2020	2/28/2020
tblConstructionPhase	PhaseStartDate	1/28/2021	8/1/2020
tblConstructionPhase	PhaseStartDate	2/15/2020	4/1/2020
tblConstructionPhase	PhaseStartDate	2/5/2020	3/1/2020
tblConstructionPhase	PhaseStartDate	1/2/2021	8/1/2020
tblConstructionPhase	PhaseStartDate	1/29/2020	2/1/2020
tblEnergyUse	LightingElect	2.99	2.09
tblGrading	AcresOfGrading	0.00	3.72
tblGrading	MaterialExported	0.00	3,070.00
tblLandUse	LotAcreage	2.17	2.07
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	641.35	156.52
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	HaulingTripNumber	384.00	8.00
tblVehicleTrips	ST_TR	23.72	25.50
tblVehicleTrips	SU_TR	11.88	25.50
tblVehicleTrips	WD_TR	23.72	25.50

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					
2020	0.3291	1.3177	1.2542	2.4300e-003	0.0486	0.0578	0.1064	0.0115	0.0533	0.0649	0.0000	218.2538	218.2538	0.0546	0.0000	219.6186
Maximum	**0.3291**	**1.3177**	**1.2542**	**2.4300e-003**	**0.0486**	**0.0578**	**0.1064**	**0.0115**	**0.0533**	**0.0649**	**0.0000**	**218.2538**	**218.2538**	**0.0546**	**0.0000**	**219.6186**

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					
2020	0.3291	1.3177	1.2542	2.4300e-003	0.0414	0.0578	0.0992	0.0105	0.0533	0.0638	0.0000	218.2536	218.2536	0.0546	0.0000	219.6184
Maximum	**0.3291**	**1.3177**	**1.2542**	**2.4300e-003**	**0.0414**	**0.0578**	**0.0992**	**0.0105**	**0.0533**	**0.0638**	**0.0000**	**218.2536**	**218.2536**	**0.0546**	**0.0000**	**219.6184**

	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**	**14.88**	**0.00**	**6.79**	**9.11**	**0.00**	**1.62**	**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	**1-1-2020**	**3-31-2020**	0.2826	0.2826
2	**4-1-2020**	**6-30-2020**	0.8077	0.8077
3	**7-1-2020**	**9-30-2020**	0.5526	0.5526
		Highest	0.8077	0.8077

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	0.1639	2.0000e-005	2.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9400e-003	4.9400e-003	1.0000e-005	0.0000	5.2600e-003
Energy	4.5900e-003	0.0417	0.0350	2.5000e-004		3.1700e-003	3.1700e-003		3.1700e-003	3.1700e-003	0.0000	64.0753	64.0753	4.8000e-003	1.3100e-003	64.5857
Mobile	0.1672	0.4199	1.4238	3.7200e-003	0.3238	3.5200e-003	0.3273	0.0870	3.2800e-003	0.0903	0.0000	340.3654	340.3654	0.0143	0.0000	340.7226
Waste						0.0000	0.0000		0.0000	0.0000	26.6588	0.0000	26.6588	1.5755	0.0000	66.0461
Water						0.0000	0.0000		0.0000	0.0000	1.0262	1.7352	2.7613	0.1058	2.5300e-003	6.1602
Total	**0.3357**	**0.4616**	**1.4614**	**3.9700e-003**	**0.3238**	**6.7000e-003**	**0.3305**	**0.0870**	**6.4600e-003**	**0.0935**	**27.6850**	**406.1809**	**433.8658**	**1.7004**	**3.8400e-003**	**477.5198**

2.2 Overall Operational

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	0.1639	2.0000e-005	2.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9400e-003	4.9400e-003	1.0000e-005	0.0000	5.2600e-003
Energy	4.5900e-003	0.0417	0.0350	2.5000e-004		3.1700e-003	3.1700e-003		3.1700e-003	3.1700e-003	0.0000	64.0753	64.0753	4.8000e-003	1.3100e-003	64.5857
Mobile	0.1672	0.4199	1.4238	3.7200e-003	0.3238	3.5200e-003	0.3273	0.0870	3.2800e-003	0.0903	0.0000	340.3654	340.3654	0.0143	0.0000	340.7226
Waste						0.0000	0.0000		0.0000	0.0000	26.6588	0.0000	26.6588	1.5755	0.0000	66.0461
Water						0.0000	0.0000		0.0000	0.0000	1.0262	1.7352	2.7613	0.1058	2.5300e-003	6.1602
Total	**0.3357**	**0.4616**	**1.4614**	**3.9700e-003**	**0.3238**	**6.7000e-003**	**0.3305**	**0.0870**	**6.4600e-003**	**0.0935**	**27.6850**	**406.1809**	**433.8658**	**1.7004**	**3.8400e-003**	**477.5198**

	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**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	1/1/2020	1/31/2020	5	23	
2	Site Preparation	Site Preparation	2/1/2020	2/28/2020	5	20	
3	Utility Construction	Trenching	3/1/2020	3/31/2020	5	22	
4	Building Construction	Building Construction	4/1/2020	7/31/2020	5	88	
5	Paving	Paving	8/1/2020	8/31/2020	5	21	
6	Architectural Coating	Architectural Coating	8/1/2020	8/31/2020	5	21	

Acres of Grading (Site Preparation Phase): 3.72

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.93

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 51,578; Non-Residential Outdoor: 17,193; Striped Parking Area: 8,032 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Utility Construction	Excavators	0	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	0	6.00	80	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Utility Construction	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Generator Sets	0	8.00	84	0.74
Utility Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Utility Construction	Graders	0	8.00	187	0.41
Paving	Paving Equipment	0	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Welders	0	8.00	46	0.45
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Excavators	3	8.00	158	0.38
Utility Construction	Trenchers	1	8.00	78	0.50
Building Construction	Graders	1	8.00	187	0.41
Building Construction	Aerial Lifts	6	8.00	63	0.31

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	4	10.00	0.00	102.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	8.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Utility Construction	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	13	67.00	28.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2020

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					0.0110	0.0000	0.0110	1.6700e-003	0.0000	1.6700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0109	0.1075	0.1390	2.1000e-004		5.5600e-003	5.5600e-003		5.1200e-003	5.1200e-003	0.0000	18.7905	18.7905	6.0800e-003	0.0000	18.9424
Total	**0.0109**	**0.1075**	**0.1390**	**2.1000e-004**	**0.0110**	**5.5600e-003**	**0.0166**	**1.6700e-003**	**5.1200e-003**	**6.7900e-003**	**0.0000**	**18.7905**	**18.7905**	**6.0800e-003**	**0.0000**	**18.9424**

3.2 Demolition - 2020

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	0.0165	6.8600e-003	4.0000e-005	8.5000e-004	5.0000e-005	9.0000e-004	2.3000e-004	5.0000e-005	2.8000e-004	0.0000	4.2601	4.2601	5.3000e-004	0.0000	4.2734
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	3.1000e-004	2.1000e-004	2.2400e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7539	0.7539	1.0000e-005	0.0000	0.7542
Total	**7.6000e-004**	**0.0167**	**9.1000e-003**	**5.0000e-005**	**1.7600e-003**	**6.0000e-005**	**1.8100e-003**	**4.7000e-004**	**6.0000e-005**	**5.3000e-004**	**0.0000**	**5.0140**	**5.0140**	**5.4000e-004**	**0.0000**	**5.0276**

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					4.9500e-003	0.0000	4.9500e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0109	0.1074	0.1390	2.1000e-004		5.5600e-003	5.5600e-003		5.1200e-003	5.1200e-003	0.0000	18.7904	18.7904	6.0800e-003	0.0000	18.9424
Total	**0.0109**	**0.1074**	**0.1390**	**2.1000e-004**	**4.9500e-003**	**5.5600e-003**	**0.0105**	**7.5000e-004**	**5.1200e-003**	**5.8700e-003**	**0.0000**	**18.7904**	**18.7904**	**6.0800e-003**	**0.0000**	**18.9424**

3.2 Demolition - 2020

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	0.0165	6.8600e-003	4.0000e-005	8.5000e-004	5.0000e-005	9.0000e-004	2.3000e-004	5.0000e-005	2.8000e-004	0.0000	4.2601	4.2601	5.3000e-004	0.0000	4.2734
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	3.1000e-004	2.1000e-004	2.2400e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.7539	0.7539	1.0000e-005	0.0000	0.7542
Total	**7.6000e-004**	**0.0167**	**9.1000e-003**	**5.0000e-005**	**1.7600e-003**	**6.0000e-005**	**1.8100e-003**	**4.7000e-004**	**6.0000e-005**	**5.3000e-004**	**0.0000**	**5.0140**	**5.0140**	**5.4000e-004**	**0.0000**	**5.0276**

3.3 Site Preparation - 2020

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					2.1500e-003	0.0000	2.1500e-003	2.4000e-004	0.0000	2.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4400e-003	0.0934	0.1208	1.9000e-004		4.8400e-003	4.8400e-003		4.4500e-003	4.4500e-003	0.0000	16.3395	16.3395	5.2800e-003	0.0000	16.4716
Total	**9.4400e-003**	**0.0934**	**0.1208**	**1.9000e-004**	**2.1500e-003**	**4.8400e-003**	**6.9900e-003**	**2.4000e-004**	**4.4500e-003**	**4.6900e-003**	**0.0000**	**16.3395**	**16.3395**	**5.2800e-003**	**0.0000**	**16.4716**

3.3 Site Preparation - 2020

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	4.0000e-005	1.2900e-003	5.4000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3341	0.3341	4.0000e-005	0.0000	0.3352
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	2.7000e-004	1.8000e-004	1.9500e-003	1.0000e-005	7.9000e-004	0.0000	7.9000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6555	0.6555	1.0000e-005	0.0000	0.6559
Total	**3.1000e-004**	**1.4700e-003**	**2.4900e-003**	**1.0000e-005**	**8.6000e-004**	**0.0000**	**8.6000e-004**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.9897**	**0.9897**	**5.0000e-005**	**0.0000**	**0.9910**

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					9.7000e-004	0.0000	9.7000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4400e-003	0.0934	0.1208	1.9000e-004		4.8400e-003	4.8400e-003		4.4500e-003	4.4500e-003	0.0000	16.3395	16.3395	5.2800e-003	0.0000	16.4716
Total	**9.4400e-003**	**0.0934**	**0.1208**	**1.9000e-004**	**9.7000e-004**	**4.8400e-003**	**5.8100e-003**	**1.1000e-004**	**4.4500e-003**	**4.5600e-003**	**0.0000**	**16.3395**	**16.3395**	**5.2800e-003**	**0.0000**	**16.4716**

3.3 Site Preparation - 2020

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	4.0000e-005	1.2900e-003	5.4000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3341	0.3341	4.0000e-005	0.0000	0.3352
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	2.7000e-004	1.8000e-004	1.9500e-003	1.0000e-005	7.9000e-004	0.0000	7.9000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6555	0.6555	1.0000e-005	0.0000	0.6559
Total	**3.1000e-004**	**1.4700e-003**	**2.4900e-003**	**1.0000e-005**	**8.6000e-004**	**0.0000**	**8.6000e-004**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.9897**	**0.9897**	**5.0000e-005**	**0.0000**	**0.9910**

3.4 Utility Construction - 2020

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	4.6400e-003	0.0420	0.0291	4.0000e-005		3.1400e-003	3.1400e-003		2.8900e-003	2.8900e-003	0.0000	3.2776	3.2776	1.0600e-003	0.0000	3.3041
Total	**4.6400e-003**	**0.0420**	**0.0291**	**4.0000e-005**		**3.1400e-003**	**3.1400e-003**		**2.8900e-003**	**2.8900e-003**	**0.0000**	**3.2776**	**3.2776**	**1.0600e-003**	**0.0000**	**3.3041**

3.4 Utility Construction - 2020

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	9.0000e-005	6.0000e-005	6.4000e-004	0.0000	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2163	0.2163	0.0000	0.0000	0.2164
Total	**9.0000e-005**	**6.0000e-005**	**6.4000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2163**	**0.2163**	**0.0000**	**0.0000**	**0.2164**

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	4.6400e-003	0.0420	0.0291	4.0000e-005		3.1400e-003	3.1400e-003		2.8900e-003	2.8900e-003	0.0000	3.2776	3.2776	1.0600e-003	0.0000	3.3041
Total	**4.6400e-003**	**0.0420**	**0.0291**	**4.0000e-005**		**3.1400e-003**	**3.1400e-003**		**2.8900e-003**	**2.8900e-003**	**0.0000**	**3.2776**	**3.2776**	**1.0600e-003**	**0.0000**	**3.3041**

3.4 Utility Construction - 2020

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	9.0000e-005	6.0000e-005	6.4000e-004	0.0000	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2163	0.2163	0.0000	0.0000	0.2164
Total	**9.0000e-005**	**6.0000e-005**	**6.4000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2163**	**0.2163**	**0.0000**	**0.0000**	**0.2164**

3.5 Building Construction - 2020

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	0.0745	0.8608	0.7859	1.2900e-003		0.0408	0.0408		0.0375	0.0375	0.0000	113.5352	113.5352	0.0367	0.0000	114.4532
Total	**0.0745**	**0.8608**	**0.7859**	**1.2900e-003**		**0.0408**	**0.0408**		**0.0375**	**0.0375**	**0.0000**	**113.5352**	**113.5352**	**0.0367**	**0.0000**	**114.4532**

3.5 Building Construction - 2020

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	4.7700e-003	0.1429	0.0569	3.3000e-004	8.0300e-003	7.1000e-004	8.7400e-003	2.3200e-003	6.8000e-004	3.0000e-003	0.0000	32.6472	32.6472	2.8400e-003	0.0000	32.7182
Worker	8.0400e-003	5.4500e-003	0.0574	2.1000e-004	0.0232	1.5000e-004	0.0234	6.1800e-003	1.3000e-004	6.3100e-003	0.0000	19.3250	19.3250	3.8000e-004	0.0000	19.3344
Total	**0.0128**	**0.1483**	**0.1142**	**5.4000e-004**	**0.0312**	**8.6000e-004**	**0.0321**	**8.5000e-003**	**8.1000e-004**	**9.3100e-003**	**0.0000**	**51.9722**	**51.9722**	**3.2200e-003**	**0.0000**	**52.0526**

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	0.0745	0.8608	0.7859	1.2900e-003		0.0408	0.0408		0.0375	0.0375	0.0000	113.5351	113.5351	0.0367	0.0000	114.4531
Total	**0.0745**	**0.8608**	**0.7859**	**1.2900e-003**		**0.0408**	**0.0408**		**0.0375**	**0.0375**	**0.0000**	**113.5351**	**113.5351**	**0.0367**	**0.0000**	**114.4531**

3.5 Building Construction - 2020

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	4.7700e-003	0.1429	0.0569	3.3000e-004	8.0300e-003	7.1000e-004	8.7400e-003	2.3200e-003	6.8000e-004	3.0000e-003	0.0000	32.6472	32.6472	2.8400e-003	0.0000	32.7182
Worker	8.0400e-003	5.4500e-003	0.0574	2.1000e-004	0.0232	1.5000e-004	0.0234	6.1800e-003	1.3000e-004	6.3100e-003	0.0000	19.3250	19.3250	3.8000e-004	0.0000	19.3344
Total	**0.0128**	**0.1483**	**0.1142**	**5.4000e-004**	**0.0312**	**8.6000e-004**	**0.0321**	**8.5000e-003**	**8.1000e-004**	**9.3100e-003**	**0.0000**	**51.9722**	**51.9722**	**3.2200e-003**	**0.0000**	**52.0526**

3.6 Paving - 2020

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	2.7600e-003	0.0295	0.0304	5.0000e-005		1.4300e-003	1.4300e-003		1.3200e-003	1.3200e-003	0.0000	4.3367	4.3367	1.4000e-003	0.0000	4.3717
Paving	2.7100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.4700e-003**	**0.0295**	**0.0304**	**5.0000e-005**		**1.4300e-003**	**1.4300e-003**		**1.3200e-003**	**1.3200e-003**	**0.0000**	**4.3367**	**4.3367**	**1.4000e-003**	**0.0000**	**4.3717**

3.6 Paving - 2020

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	9.0000e-005	6.0000e-005	6.1000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2065	0.2065	0.0000	0.0000	0.2066
Total	**9.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2065**	**0.2065**	**0.0000**	**0.0000**	**0.2066**

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	2.7600e-003	0.0295	0.0304	5.0000e-005		1.4300e-003	1.4300e-003		1.3200e-003	1.3200e-003	0.0000	4.3367	4.3367	1.4000e-003	0.0000	4.3717
Paving	2.7100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.4700e-003**	**0.0295**	**0.0304**	**5.0000e-005**		**1.4300e-003**	**1.4300e-003**		**1.3200e-003**	**1.3200e-003**	**0.0000**	**4.3367**	**4.3367**	**1.4000e-003**	**0.0000**	**4.3717**

3.6 Paving - 2020

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	9.0000e-005	6.0000e-005	6.1000e-004	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2065	0.2065	0.0000	0.0000	0.2066
Total	**9.0000e-005**	**6.0000e-005**	**6.1000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2065**	**0.2065**	**0.0000**	**0.0000**	**0.2066**

3.7 Architectural Coating - 2020

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	0.2072					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0177	0.0192	3.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	2.6809	2.6809	2.1000e-004	0.0000	2.6861
Total	**0.2098**	**0.0177**	**0.0192**	**3.0000e-005**		**1.1600e-003**	**1.1600e-003**		**1.1600e-003**	**1.1600e-003**	**0.0000**	**2.6809**	**2.6809**	**2.1000e-004**	**0.0000**	**2.6861**

3.7 Architectural Coating - 2020

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	3.7000e-004	2.5000e-004	2.6600e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8948	0.8948	2.0000e-005	0.0000	0.8952
Total	**3.7000e-004**	**2.5000e-004**	**2.6600e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8948**	**0.8948**	**2.0000e-005**	**0.0000**	**0.8952**

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	0.2072					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0177	0.0192	3.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	2.6809	2.6809	2.1000e-004	0.0000	2.6861
Total	**0.2098**	**0.0177**	**0.0192**	**3.0000e-005**		**1.1600e-003**	**1.1600e-003**		**1.1600e-003**	**1.1600e-003**	**0.0000**	**2.6809**	**2.6809**	**2.1000e-004**	**0.0000**	**2.6861**

3.7 Architectural Coating - 2020

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	3.7000e-004	2.5000e-004	2.6600e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8948	0.8948	2.0000e-005	0.0000	0.8952
Total	**3.7000e-004**	**2.5000e-004**	**2.6600e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8948**	**0.8948**	**2.0000e-005**	**0.0000**	**0.8952**

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	0.1672	0.4199	1.4238	3.7200e-003	0.3238	3.5200e-003	0.3273	0.0870	3.2800e-003	0.0903	0.0000	340.3654	340.3654	0.0143	0.0000	340.7226
Unmitigated	0.1672	0.4199	1.4238	3.7200e-003	0.3238	3.5200e-003	0.3273	0.0870	3.2800e-003	0.0903	0.0000	340.3654	340.3654	0.0143	0.0000	340.7226

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	876.82	876.82	876.82	873,473	873,473
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	876.82	876.82	876.82	873,473	873,473

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
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	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
Automobile Care Center	0.482816	0.049967	0.258264	0.138365	0.017696	0.006700	0.022365	0.006431	0.004044	0.003214	0.008927	0.000452	0.000759
Other Non-Asphalt Surfaces	0.482816	0.049967	0.258264	0.138365	0.017696	0.006700	0.022365	0.006431	0.004044	0.003214	0.008927	0.000452	0.000759
Parking Lot	0.482816	0.049967	0.258264	0.138365	0.017696	0.006700	0.022365	0.006431	0.004044	0.003214	0.008927	0.000452	0.000759

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	18.6612	18.6612	3.9300e-003	4.8000e-004	18.9017
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	18.6612	18.6612	3.9300e-003	4.8000e-004	18.9017
NaturalGas Mitigated	4.5900e-003	0.0417	0.0350	2.5000e-004		3.1700e-003	3.1700e-003		3.1700e-003	3.1700e-003	0.0000	45.4141	45.4141	8.7000e-004	8.3000e-004	45.6840
NaturalGas Unmitigated	4.5900e-003	0.0417	0.0350	2.5000e-004		3.1700e-003	3.1700e-003		3.1700e-003	3.1700e-003	0.0000	45.4141	45.4141	8.7000e-004	8.3000e-004	45.6840

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					
Automobile Care Center	851029	4.5900e-003	0.0417	0.0350	2.5000e-004		3.1700e-003	3.1700e-003		3.1700e-003	3.1700e-003	0.0000	45.4141	45.4141	8.7000e-004	8.3000e-004	45.6840
Other Non-Asphalt Surfaces	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
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		**4.5900e-003**	**0.0417**	**0.0350**	**2.5000e-004**		**3.1700e-003**	**3.1700e-003**		**3.1700e-003**	**3.1700e-003**	**0.0000**	**45.4141**	**45.4141**	**8.7000e-004**	**8.3000e-004**	**45.6840**

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					
Automobile Care Center	851029	4.5900e-003	0.0417	0.0350	2.5000e-004		3.1700e-003	3.1700e-003		3.1700e-003	3.1700e-003	0.0000	45.4141	45.4141	8.7000e-004	8.3000e-004	45.6840
Other Non-Asphalt Surfaces	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
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		**4.5900e-003**	**0.0417**	**0.0350**	**2.5000e-004**		**3.1700e-003**	**3.1700e-003**		**3.1700e-003**	**3.1700e-003**	**0.0000**	**45.4141**	**45.4141**	**8.7000e-004**	**8.3000e-004**	**45.6840**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	229107	16.2658	3.4300e-003	4.2000e-004	16.4754
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33740	2.3954	5.1000e-004	6.0000e-005	2.4263
Total		**18.6612**	**3.9400e-003**	**4.8000e-004**	**18.9017**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	229107	16.2658	3.4300e-003	4.2000e-004	16.4754
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	33740	2.3954	5.1000e-004	6.0000e-005	2.4263
Total		**18.6612**	**3.9400e-003**	**4.8000e-004**	**18.9017**

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	0.1639	2.0000e-005	2.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9400e-003	4.9400e-003	1.0000e-005	0.0000	5.2600e-003
Unmitigated	0.1639	2.0000e-005	2.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9400e-003	4.9400e-003	1.0000e-005	0.0000	5.2600e-003

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	0.0207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1429					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9400e-003	4.9400e-003	1.0000e-005	0.0000	5.2600e-003
Total	**0.1639**	**2.0000e-005**	**2.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.9400e-003**	**4.9400e-003**	**1.0000e-005**	**0.0000**	**5.2600e-003**

6.2 Area by SubCategory

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	0.0207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1429					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-004	2.0000e-005	2.5500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.9400e-003	4.9400e-003	1.0000e-005	0.0000	5.2600e-003
Total	**0.1639**	**2.0000e-005**	**2.5500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.9400e-003**	**4.9400e-003**	**1.0000e-005**	**0.0000**	**5.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.7613	0.1058	2.5300e-003	6.1602
Unmitigated	2.7613	0.1058	2.5300e-003	6.1602

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	3.23451 / 1.98244	2.7613	0.1058	2.5300e-003	6.1602
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.7613**	**0.1058**	**2.5300e-003**	**6.1602**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	3.23451 / 1.98244	2.7613	0.1058	2.5300e-003	6.1602
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.7613**	**0.1058**	**2.5300e-003**	**6.1602**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	26.6588	1.5755	0.0000	66.0461
Unmitigated	26.6588	1.5755	0.0000	66.0461

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	131.33	26.6588	1.5755	0.0000	66.0461
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**26.6588**	**1.5755**	**0.0000**	**66.0461**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	131.33	26.6588	1.5755	0.0000	66.0461
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**26.6588**	**1.5755**	**0.0000**	**66.0461**

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

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Appendix B

Cultural Resources Due Diligence Review

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CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

3/24/2020 NWIC File No.: 19-1483

Emily Goetschius
MIG, Inc.
2055 Junction Avenue, Suite 205
San Jose, CA 95134

re: #16159.02/775, Serramonte Blvd. Colma Car Dealership

The Northwest Information Center received your record search request for the project area referenced above, located on the San Francisco South USGS 7.5' quad. The following reflects the results of the records search for the project area and a 0.25 radius:

Resources within project area:	None
Resources within 0.25 mile radius:	P-41-001777, 000404, & 001755.
Reports within project area:	S-27930 & 3043.
Reports within 0.25 mile radius:	S-3074, 39631, 3043, 17191, 12436, & 49340.

Resource Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☐ enclosed	☒ not requested	☐ nothing listed
Report Copies:	☐ enclosed	☒ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☐ enclosed	☒ not requested	☐ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☒ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Local Inventories:	☐ enclosed	☒ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed

*Notes:

** Current versions of these resources are available on-line:

Caltrans Bridge Survey: http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Soil Survey: http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA

Shipwreck Inventory: http://www.slc.ca.gov/Info/Shipwrecks.html

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Lisa C. Hagel
Researcher

STATE OF CALIFORNIA Gavin Newsom, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

February 26, 2020

Emily Goetschius, Project Analyst, Project Archaeologist
MIG Inc.

Via Email to: egoetschius@migcom.com

Re: 775 Serramonte Blvd. Colma Car Dealership Project, San Mateo County

Dear Ms. Goetschius:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Sarah.Fonseca@nahc.ca.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Mateo County
2/26/2020

Amah MutsunTribal Band of Mission San Juan Bautista Irenne Zwierlein, Chairperson 789 Canada Road Woodside, CA, 94062 Phone: (650) 851 - 7489 Fax: (650) 332-1526 amahmutsuntribal@gmail.com	Costanoan
Costanoan Rumsen Carmel Tribe Tony Cerda, Chairperson 244 E. 1st Street Pomona, CA, 91766 Phone: (909) 629 - 6081 Fax: (909) 524-8041 rumsen@aol.com	Costanoan
Indian Canyon Mutsun Band of Costanoan Ann Marie Sayers, Chairperson P.O. Box 28 Hollister, CA, 95024 Phone: (831) 637 - 4238 ams@indiancanyon.org	Costanoan
Muwekma Ohlone Indian Tribe of the SF Bay Area Monica Arellano, 20885 Redwood Road, Suite 232 Castro Valley, CA, 94546 Phone: (408) 205 - 9714 marellano@muwekma.org	Costanoan
The Ohlone Indian Tribe Andrew Galvan, P.O. Box 3388 Fremont, CA, 94539 Phone: (510) 882 - 0527 Fax: (510) 687-9393 chochenyo@AOL.com	Bay Miwok Ohlone Patwin Plains Miwok

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 775 Serramonte Blvd, Colma Car Dealership Project, San Mateo County.

March 25, 2020

Irenne Zwierlein, Chairperson
Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062
Sent via email to amahmutsuntribal@gmail.com

Subject: 775 Serramonte Blvd. Colma Car Dealership Project, San Mateo County

Dear Irenne Zwierlein:

I am writing to inform you of a proposed project in the Town of Colma in San Mateo County, and to request any information you may have about Tribal Cultural Resources in the vicinity. The proposed project is located at 775 Serramonte Boulevard. It is in Section 13, Township 3 South, Range 6 West on the USGS San Francisco South 7.5 Minute Quadrangle, as shown on the attached USGS topographic map (Attachment 1).

The purpose of the proposed project is to redevelop 775 Serramonte Boulevard from a Babies-R-Us store to a car dealership. The proposed project would construct an extension to the front of the existing warehouse building and demolish the rear. The interior of the building would house a sales department, parts department, and a full-service mechanical department with 18 service bays and a car wash facility. The site will contain 235 parking spaces for both visitors and sales.

The proposed project will involve partial demolition of the existing two story, 38,000-sq-ft retail warehouse; grading of the existing asphalt parking lot and existing building foundations; reconstruction of two driveway approaches on Serramonte Boulevard; reconstruction of the sidewalk along the project frontage on Serramonte Boulevard; construction of a retaining wall towards the south-east of the site; paving the site with a high-grade asphalt; construction of a 33,300-sq-ft single story building; installation of bioretention water treatment areas; tie-ins with the Town's existing storm drain system; and landscaping including the installation of signage and lighting. Construction is anticipated to take eight months, with a projection for the project to be fully operational in early 2021.

To ensure protection of unknown buried cultural resources, best management practices or mitigation measures will be enacted during all ground disturbing activities.

A Sacred Lands File search for the project area and 0.25-mi study area was completed on February 26, 2020 with negative results. A California Historical Resources Information System

(CHRIS) search was completed for the project area and 0.25-mi study area on March 24, 2020. The results of the CHRIS search were negative within the project area and identified three historic properties within the study area.

If you are aware of any Tribal Cultural Resources in the vicinity of this project, please contact me via telephone at (650) 327-0429 x561, or email at egoetschius@migcom.com. Any culturally sensitive information that you provide will be treated with the upmost respect and confidentiality and will not be made publicly available.

Thank you in advance for your assistance in this matter. I look forward to hearing from you.

Sincerely,

Emily Goetschius
Project Analyst/ Project Archaeologist I

Attachment 1: USGS 7.5 Minute Topographic Map

March 25, 2020

Tony Cerda, Chairperson
Costanoan Rumsen Carmel Tribe
244 E. 1st Street
Pomona, CA 91766
Sent via email to rumsen@aol.com

Subject: 775 Serramonte Blvd. Colma Car Dealership Project, San Mateo County

Dear Tony Cerda:

I am writing to inform you of a proposed project in the Town of Colma in San Mateo County, and to request any information you may have about Tribal Cultural Resources in the vicinity. The proposed project is located at 775 Serramonte Boulevard. It is in Section 13, Township 3 South, Range 6 West on the USGS San Francisco South 7.5 Minute Quadrangle, as shown on the attached USGS topographic map (Attachment 1).

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Thank you in advance for your assistance in this matter. I look forward to hearing from you.

Sincerely,

Emily Goetschius

Emily Goetschius
Project Analyst/ Project Archaeologist I

Attachment 1: USGS 7.5 Minute Topographic Map

MIG

March 25, 2020

Ann Marie Sayers, Chairperson
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024
Sent via email to ams@indiancanyon.org

Subject: 775 Serramonte Blvd. Colma Car Dealership Project, San Mateo County

Dear Ann Marie Sayers:

I am writing to inform you of a proposed project in the Town of Colma in San Mateo County, and to request any information you may have about Tribal Cultural Resources in the vicinity. The proposed project is located at 775 Serramonte Boulevard. It is in Section 13, Township 3 South, Range 6 West on the USGS San Francisco South 7.5 Minute Quadrangle, as shown on the attached USGS topographic map (Attachment 1).

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The proposed project will involve partial demolition of the existing two story, 38,000-sq-ft retail warehouse; grading of the existing asphalt parking lot and existing building foundations; reconstruction of two driveway approaches on Serramonte Boulevard; reconstruction of the sidewalk along the project frontage on Serramonte Boulevard; construction of a retaining wall towards the south-east of the site; paving the site with a high-grade asphalt; construction of a 33,300-sq-ft single story building; installation of bioretention water treatment areas; tie-ins with the Town's existing storm drain system; and landscaping including the installation of signage and lighting. Construction is anticipated to take eight months, with a projection for the project to be fully operational in early 2021.

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If you are aware of any Tribal Cultural Resources in the vicinity of this project, please contact me via telephone at (650) 327-0429 x561, or email at egoetschius@migcom.com. Any culturally sensitive information that you provide will be treated with the upmost respect and confidentiality and will not be made publicly available.

Thank you in advance for your assistance in this matter. I look forward to hearing from you.

Sincerely,

Emily Goetschius

Emily Goetschius
Project Analyst/ Project Archaeologist I

Attachment 1: USGS 7.5 Minute Topographic Map

March 25, 2020

Monica Arellano
Muwekma Ohlone Indian Tribe of the SF Bay Area
20885 Redwood Road, Suite 232
Castro Valley, CA 4546
Sent via email to marellano@muwekma.org

Subject: 775 Serramonte Blvd. Colma Car Dealership Project, San Mateo County

Dear Monica Arellano:

I am writing to inform you of a proposed project in the Town of Colma in San Mateo County, and to request any information you may have about Tribal Cultural Resources in the vicinity. The proposed project is located at 775 Serramonte Boulevard. It is in Section 13, Township 3 South, Range 6 West on the USGS San Francisco South 7.5 Minute Quadrangle, as shown on the attached USGS topographic map (Attachment 1).

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If you are aware of any Tribal Cultural Resources in the vicinity of this project, please contact me via telephone at (650) 327-0429 x561, or email at egoetschius@migcom.com. Any culturally sensitive information that you provide will be treated with the upmost respect and confidentiality and will not be made publicly available.

Thank you in advance for your assistance in this matter. I look forward to hearing from you.

Sincerely,

Emily Goetschius
Project Analyst/ Project Archaeologist I

Attachment 1: USGS 7.5 Minute Topographic Map

March 25, 2020

Andrew Galvan
The Ohlone Indian Tribe
P.O. Box 3388
Fremont, CA 94539
Sent via email to chochenyo@aol.com

Subject: 775 Serramonte Blvd. Colma Car Dealership Project, San Mateo County

Dear Andrew Galvan:

I am writing to inform you of a proposed project in the Town of Colma in San Mateo County, and to request any information you may have about Tribal Cultural Resources in the vicinity. The proposed project is located at 775 Serramonte Boulevard. It is in Section 13, Township 3 South, Range 6 West on the USGS San Francisco South 7.5 Minute Quadrangle, as shown on the attached USGS topographic map (Attachment 1).

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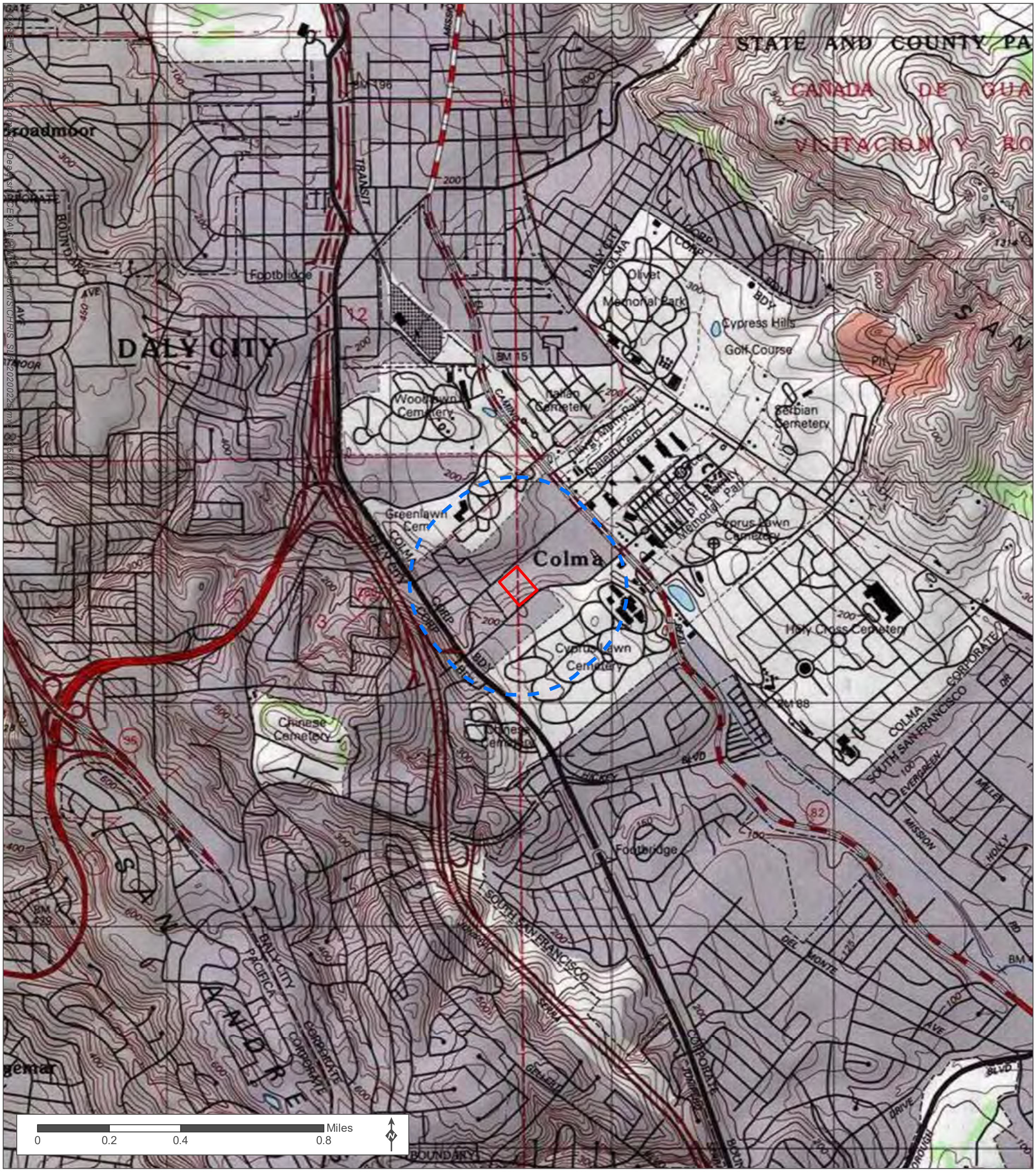
Thank you in advance for your assistance in this matter. I look forward to hearing from you.

Sincerely,

Emily Goetschius

Emily Goetschius
Project Analyst/ Project Archaeologist I

Attachment 1: USGS 7.5 Minute Topographic Map



Source: ESRI 2020; USGS 2020; San Mateo County 2020; MIG 2020

Project Area

0.25 Mi Study Area

San Francisco South 7.5 Minute USGS Quadrangle
S13 T3S R6W / 10S E: 547,479 N: 4,169,720
Scale: 1:24,000

Attachment 1 Project Location

775 Serramonte Blvd. Colma Car Dealership

Emily Goetschius <egoetschius@migcom.com>

Proposed Project in San Mateo County

andrew galvan <chochenyo@aol.com> Mon, Mar 30, 2020 at 2:20 PM
To: egoetschius@migcom.com

Hi Emily,

Based on what you have written, I agree and support the best practices that you propose.

Thank you,

Andrew Galvan
The Ohlone Indian Tribe

-----Original Message-----
From: Emily Goetschius <egoetschius@migcom.com>
To: andrew galvan <chochenyo@aol.com>
Sent: Mon, Mar 30, 2020 10:52 am
Subject: Re: Proposed Project in San Mateo County

Hi Andrew,

At this point, we have not established any concrete recommendations as we are still in the process of assessing the responses from Tribal representatives to determine if there are any archaeological or tribal cultural resources in the area that were not included on the CHRIS and SLF databases.

However, based on the negative SLF search and the lack of archaeological sites identified in the CHRIS search, the likelihood of archaeological discoveries seems to be quite low and we're assuming that standard best management practices will be sufficient. These would generally include items such as contacting a qualified archaeologist in the event that anything is found and in the event of a discovery of Native American cultural/archaeological resources, to treat them as significant resources under CEQA and include Native American monitoring.

Please let me know if you have any other questions.

Kind regards,

Emily Goetschius
Project Analyst / Project Archaeologist I
she/her

PLANNING | DESIGN | COMMUNICATIONS | MANAGEMENT | SCIENCE | TECHNOLOGY

2055 Junction Avenue, Suite 205
San Jose, California 95131 | USA
o 650-327-0429 ext 561 *c* 216-315-0144
egoetschius@migcom.com
www.migcom.com

On Sat, Mar 28, 2020 at 10:12 AM andrew galvan <chochenyo@aol.com> wrote:

> **Hi there,**
>
> **Thank you for reaching out to me.**
>
> **Can you tell me what are the archaeological recommendations for this project.**

Andrew Galvan
The Ohlone Indian Tribe

-----Original Message-----
From: Emily Goetschius <egoetschius@migcom.com>
To: chochenyo <chochenyo@aol.com>
Sent: Wed, Mar 25, 2020 12:40 pm
Subject: Proposed Project in San Mateo County

Hi Andrew Galvan,

My name is Emily and I am an archaeologist with MIG. The Native American Heritage Commission recommended that we contact you regarding a proposed project in San Mateo County. Please see the attached letter for details.

Due to California's shelter-in-place order, all members of our office are working remotely until further notice. We would prefer any correspondence concerning this matter to be conducted via email or phone.

Thank you,

Emily Goetschius
Project Analyst / Project Archaeologist I
she/her

MIG
PLANNING | DESIGN | COMMUNICATIONS | MANAGEMENT | SCIENCE | TECHNOLOGY

2055 Junction Avenue, Suite 205
San Jose, California 95131 | USA
o 650-327-0429 ext 561 *c* 216-315-0144
egoetschius@migcom.com
www.migcom.com

MIG

Emily Goetschius <egoetschius@migcom.com>

Proposed Project in San Mateo County

5 messages

Emily Goetschius <egoetschius@migcom.com> Wed, Mar 25, 2020 at 12:40 PM
To: amahmutsuntribal@gmail.com

Hi Irenne Zwierlein,

My name is Emily and I am an archaeologist with MIG. The Native American Heritage Commission recommended that we contact you regarding a proposed project in San Mateo County. Please see the attached letter for details.

Due to California's shelter-in-place order, all members of our office are working remotely until further notice. We would prefer any correspondence concerning this matter to be conducted via email or phone.

Thank you,

Emily Goetschius

Project Analyst / Project Archaeologist I

she/her

MIG

PLANNING | DESIGN | COMMUNICATIONS | MANAGEMENT | SCIENCE | TECHNOLOGY

2055 Junction Avenue, Suite 205
San Jose, California 95131 | USA
o 650-327-0429 ext 561 *c* 216-315-0144
egoetschius@migcom.com
www.migcom.com

16159.02_Scoping Letter IZwierlein.pdf
2383K

Amah Mutsun <amahmutsuntribal@gmail.com> Thu, Mar 26, 2020 at 7:06 AM
To: Emily Goetschius <egoetschius@migcom.com>

Thank you for the information. Did you ge a report from the State Clearing house at Sonoma State?

[Quoted text hidden]

--

Michelle Zimmer

Enrollment and Communications Officer of the
Amah Mutsun Tribal Band of Mission San Juan Bautista

Emily Goetschius <egoetschius@migcom.com> Thu, Mar 26, 2020 at 9:30 AM
To: Amah Mutsun <amahmutsuntribal@gmail.com>

Hi Michelle,

Yes, the Northwest Information Center at Sonoma State advised that there were no archaeological resources within the project area or search radius. They did note that three historic properties associated with Cypress Lawn Memorial Park are within the search radius, however, these will not be impacted by the project.

[Quoted text hidden]
[Quoted text hidden]

Amah Mutsun <amahmutsuntribal@gmail.com>
To: Emily Goetschius <egoetschius@migcom.com>

Thu, Mar 26, 2020 at 4:48 PM

Thank you for letting me know.
So please make sure whatever digging is going to happen that the crew has sensitivity training
thank you call if you have any questions or consents 650 851-7747
[Quoted text hidden]

Emily Goetschius <egoetschius@migcom.com>
To: Amah Mutsun <amahmutsuntribal@gmail.com>

Fri, Mar 27, 2020 at 10:20 AM

Hi Michelle,
We absolutely will. Thank you so much!
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Appendix C

Geotechnical Report

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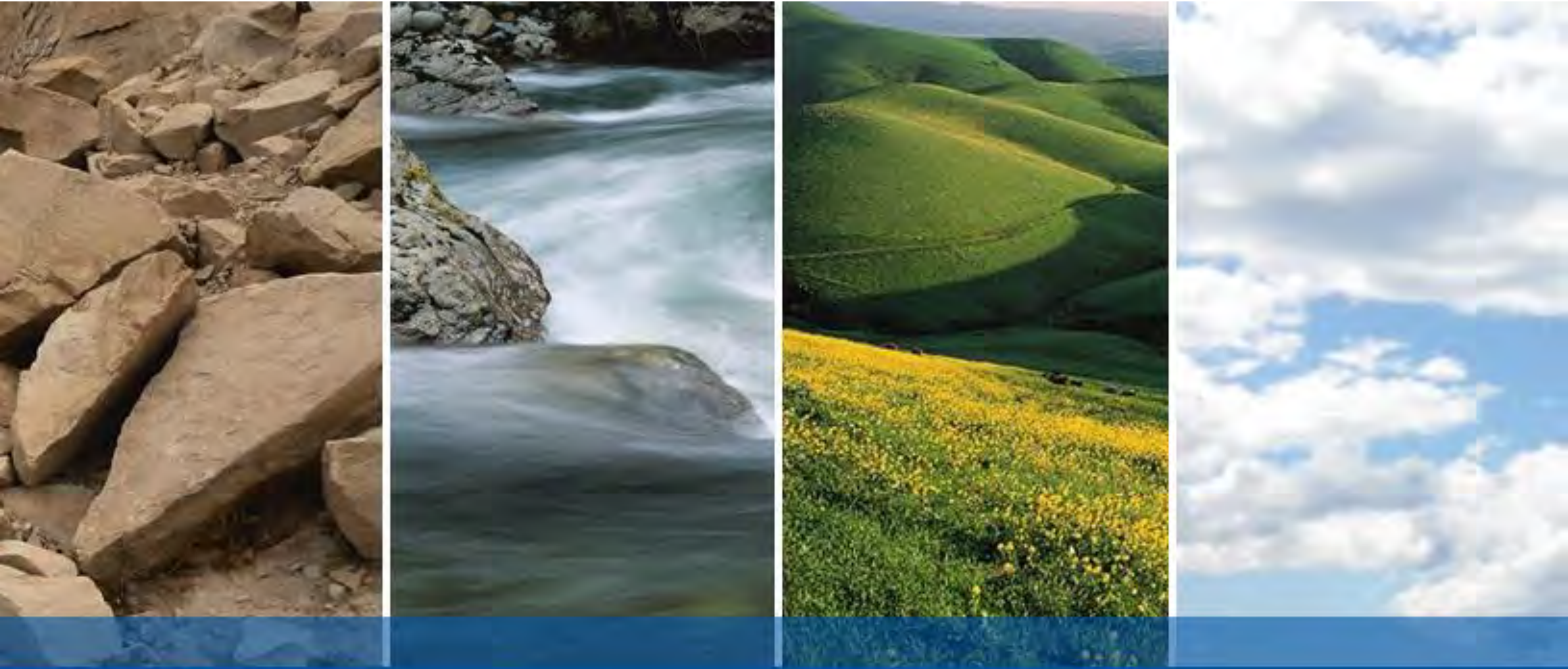

COLMA AUTO DEALERSHIP
COLMA, CALIFORNIA

GEOTECHNICAL EXPLORATION

SUBMITTED TO
Mr. Andrew Grunloh
NorthPoint Development
12977 North Forty Drive -, Suite 203
St. Louis, MO 63141

PREPARED BY
ENGEO Incorporated

October 25, 2019

PROJECT NO.
16635.000.000

ENGEO
Expect Excellence

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Expect Excellence

GEOTECHNICAL
ENVIRONMENTAL
WATER RESOURCES
CONSTRUCTION SERVICES

Project No.
16635.000.000

October 25, 2019

Mr. Andrew Grunloh
NorthPoint Development
12977 North Forty Drive -, Suite 203
St. Louis, MO 63141

Subject: Colma Auto Dealership
775 Serramonte Blvd
Colma, California

GEOTECHNICAL EXPLORATION

Dear Mr. Grunloh:

ENGEO prepared this geotechnical report for NorthPoint Development as outlined in our agreement dated September 25, 2019. We characterized the subsurface conditions at the site to provide the enclosed geotechnical recommendations for design.

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to review the project plans and specifications and provide geotechnical observation and testing services during construction. Please let us know when working drawings are nearing completion, and we will be glad to discuss these additional services with you.

If you have any questions or comments regarding this report, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated

Taylor Strack, PE

Steve Harris, GE

REGISTERED PROFESSIONAL ENGINEER
STEVE HARRIS
No. 2804
GEOTECHNICAL
STATE OF CALIFORNIA

ts/sh/dt

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

ENGEO prepared this geotechnical report for design of Colma Auto Dealership in Colma, California. We prepared this report as outlined in our agreement dated 9/25/2019. NorthPoint Development, LLC. authorized ENGEO to conduct the following scope of services:

- Subsurface field exploration
- Soil laboratory testing
- Data analysis and conclusions
- Report preparation

For our use, we received a preliminary dealership site plan prepared by Gensler, dated August 9, 2019.

This report was prepared for the exclusive use of our client and their consultants for design of this project. In the event that any changes are made in the character, design or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to evaluate whether modifications are recommended. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without our express written consent.

1.2 PROJECT LOCATION

The site is located at 775 Serramonte Boulevard in Colma California. The site is currently an abandoned parking lot with a former Babies 'R' Us department store building with access provided by Serramonte Boulevard. Figure 1 displays a Site Vicinity Map.

Figure 2 shows site boundaries, existing building and pavement areas, and our exploratory locations. The project site is bordered to the northeast by a 'Dollar Tree' store and parking lot and the southwest the site is bordered by a 'Ford' Car Dealership and parking lots. The site is bounded to the northwest by Serramonte Boulevard and to the southeast by Collins Avenue.

1.3 PROJECT DESCRIPTION

Based on our discussion with you and review of the information provided, we understand that site improvements will consist of the following:

1. Earthwork consisting primarily of minor cuts and fills to achieve design grades.
2. One dealership structure.
3. Paved streets, parking, and drive lanes.
4. Utilities and other infrastructure improvements.
5. Concrete flatwork.

Structural loads are yet to be determined; however, we assume that structural loads and maximum allowable differential settlements will be representative for this type of construction.

2.0 FINDINGS

2.1 FIELD EXPLORATION

Our field exploration included drilling three borings, and advancing three Cone Penetration Test (CPT) soundings at various locations on the site. We performed our field exploration between October 7 and October 11, 2019.

The location and elevations of our explorations are approximate and were estimated by pacing from features shown on the reference site plan; they should be considered accurate only to the degree implied by the method used.

2.1.1 Borings

We observed drilling of three borings at the locations shown on the Site Plan, Figure 3. An ENGEO representative observed the drilling and logged the subsurface conditions at each location. We retained a truck-mounted Mobile B53 drill rig and crew to advance the borings using 4-inch-diameter solid flight auger methods, switching to mud rotary at groundwater level in Boring 1-B3. The borings were advanced to depths ranging from 31.5 to 58 feet below existing grade. We permitted and backfilled the borings in accordance with the requirements of San Mateo County Health Services Division.

We retrieved both disturbed and relatively undisturbed soil samples at various intervals in the borings using standard penetration tests and thin-walled tube samples. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration. In addition, 2.5-inch I.D. samples were obtained using a Modified California Sampler driven into the soil with the 140 pound hammer previously described. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows to drive the last 1 foot of penetration; the blow counts have not been converted using any correction factors. When sampler driving was difficult, penetration was recorded only as inches penetrated for 50 hammer blows.

We used the field logs to develop the report logs in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

2.1.2 Cone Penetration Tests

We retained a CPT rig to push the cone penetrometer to a maximum depth of about 60 feet. The CPT has a 20-ton compression-type cone with a 15-square-centimeter (cm^2) base area, an apex angle of 60 degrees, and a friction sleeve with a surface area of 225 cm^2. The cone, connected with a series of rods, is pushed into the ground at a constant rate. Cone readings are taken at approximately 5-cm intervals with a penetration rate of 2 cm per second in accordance with ASTM D-5778. Measurements include the tip resistance to penetration of the cone (Qc), the resistance of the surface sleeve (Fs), and pore pressure (U) (Robertson and Campanella, 1988). CPT logs are presented in Appendix C.

2.2 SITE BACKGROUND

The proposed project is located on a city lot that was once used as a Babies 'R' Us department store and the existing structure is planned to be demolished. Adjacent to the existing structure, the site is level and has been paved for previous use as a parking lot. Based on our review of historical aerials dating back to 1946, a majority of the site has been left undeveloped since approximately year 2000. In addition, based on our review of historical Aerial imagery from 1946 and 1965 (Exhibits 2.2-1 and 2.2-2), the northern most portion of the site was likely a low lying area subject to slope wash debris and ravine fill as shown in Figure 3. Based on our review of historical topo map, the subject site appears to be located on a previous 50-foot tall gentle slope with a creek near the Slope Debris and Ravine Fill area, as shown on Figure 4.

EXHIBIT 2.2-1: Aerial Imagery year 1946

EXHIBIT 2.2-2: Aerial Imagery year 1965

Additional information regarding previous site use was not provided at the time of this report.

2.3 GEOLOGY AND SEISMICITY

2.3.1 Geology

The project site is located in a flat-lying area of the peninsula near San Francisco, California, approximately 1.5 miles west of the uplifted San Bruno Mountain area. The site is located in Colma Formation, which are described as friable, well-sorted, yellowish orange to gray, fine- to medium-grained sand containing a few beds of sandy silt, clay, and gravel. The northern side of the site closest to Serramonte Boulevard is mapped as being in slope debris and ravine fill, described as stony silty to sandy clay, locally silty to clayey sand or gravel, yellowish orange to medium gray, unstratified or poorly stratified and where it overlies Colma Formation, it is commonly a silty to clayey sand, or gravel. The site area appears to be free of any landslide deposits. The project site does appear to fall within an area of high liquefaction susceptibility.

2.3.2 Seismicity

The site is located in an area of moderate seismicity. No known active faults cross the site and the property is not located within an Alquist-Priolo Earthquake Fault Zone; however, large (>M_W7) earthquakes have historically occurred in the Bay Area and many earthquakes of low magnitude occur every year. The two nearest earthquake faults zoned as active by the State of California

Geological Survey are the San Andreas Fault, located approximately 1 mile to the southwest, and the San Gregorio fault, located approximately 5.7 miles southwest.

Other active faults capable of producing significant ground shaking at the site include the Hayward fault, 17 miles northeast; the Calaveras fault, 26.6 miles northeast; and the Mount Diablo Thrust fault, 27 miles northeast. Any one of these faults could generate an earthquake capable of causing strong ground shaking at the subject site.

2.4 SURFACE CONDITIONS

Site topography slopes gently from southwest to northeast along Serramonte Boulevard. Site elevations range from Elevation 162 feet (Datum WGS84) in the southwest to Elevation 151 feet along the northeastern boundary.

We observed the following site features during our reconnaissance:

- We observed a steep slope with trees and dense vegetation at the southern edge of the property. The west-southwestern edge of the site is lined with a grassy area with occasional shrubs and trees. The northeastern edge of the site is lined with a row of hedges and the north-northwestern edge of the site also contains an area with grasses and small shrubs and landscaping.
- The southwestern half of the site is occupied by an existing department store structure.
- The remaining surface area of the site is occupied by paved parking lot with streetlights.

2.5 SUBSURFACE CONDITIONS

Based on our review of explorations, we generally encountered medium dense to dense silty sand within the upper 10 feet across the site. Beneath this material, we generally encountered interbedded stratum of medium dense to dense sand with varying amounts of clay fines and stiff to very stiff lean clay with varying amounts of sand to the maximum depth explored. Exploration 1-CPT1 encountered refusal at approximately 30 feet depth. Atterberg limits testing on the near surface materials resulted in non-plastic plasticity Indices.

Consult the Site Plan and boring and CPT logs for specific soil and groundwater conditions at each exploration location. Our boring and CPT logs are included in Appendix A. The boring logs contain the soil type, color, consistency, and visual classifications in general accordance with the Unified Soil Classification System.

2.6 GROUNDWATER CONDITIONS

We observed static groundwater in each of our boring, as summarized in Table 2.6-1 below:

TABLE 2.6-1: Groundwater Observations

EXPLORATION LOCATION	APPROX. DEPTH TO GROUNDWATER (FEET)
1-B1	14
1-B2	11.25
1-B3	14.75

Depths recorded from borings were recorded with short periods of time following exploration. Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

2.7 LABORATORY TESTING

We performed laboratory tests on selected soil samples to evaluate their engineering properties. For this project, we performed moisture content, dry density, triaxial compression, plasticity index and sieve analysis. Moisture contents and dry densities are recorded on the boring logs in Appendix A; other laboratory data is included in Appendix B.

3.0 CONCLUSIONS

From a geotechnical engineering viewpoint, in our opinion, the site is suitable for the proposed development, provided the geotechnical recommendations in this report are properly incorporated into the design plans and specifications. The primary geotechnical concerns that could affect development on the site is liquefaction. We summarize our conclusions below.

3.1 NON-ENGINEERED FILL

As discussed in Section 2.2 and shown in Figure 4, a previous creek crossed the northern portion of the subject site. Based on our boring explorations, we did not encounter noticeable undocumented creek or ravine fill. Non-engineered fill can undergo excessive settlement, especially under new fill or building loads. The subject site is currently paved and will likely undergo demolition prior to improvements. We recommend ENGEO be on site during demolition activities to confirm near surface non-engineered fills are not present at the subject site. We present fill removal recommendations in Section 5.1.

3.2 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include liquefaction, ground shaking, and ground lurching. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift, lateral spreading, landslides, tsunamis, flooding or seiches is considered low to negligible at the site.

3.2.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.2.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the 2007 California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. Empirical evidence indicates that loose- to medium-dense gravels, silty sands, and low- to moderate-plasticity silts and clays may be susceptible to liquefaction. In addition, sensitive high-plasticity soils may be susceptible to significant strength loss (cyclic softening) as a result of significant cyclic loading. The results of our liquefaction analysis are presented in Appendix C. We summarize the results of our analysis below.

3.2.2.1 Liquefaction-Induced Settlement

We evaluated the liquefaction potential of the site soil with CPT data using methods published by Robertson (2009). The Cyclic Stress Ratio (CSR) was estimated for a Peak Ground Acceleration (PGA_M) value of 1.06g, which is the mapped Maximum Considered Earthquake (MCE) Geometric Mean Peak Ground Acceleration based on the 2019 ASCE 7-16 Standard for a Site Class D. We also used a moment magnitude (M_w) of 7.9 in our analysis, which corresponds to the maximum magnitude for the San Andreas Fault based on the United States Geological Survey (USGS) national seismic hazard maps. Groundwater elevations assumed in our analysis were based on the groundwater depths discussed in Section 2.6.

The results of our liquefaction analyses indicate various sand layers below groundwater are potentially liquefiable. Consequences of liquefaction include surface disruption, settlement, and downdrag on deep foundations. Given the relative thickness of non-liquefiable surface soils and potentially liquefiable soil, the risk of surface disruption is low to moderate. Based on our analysis, we estimate approximately up to 3¼ inches of total settlement from liquefaction. We provide recommended differential settlements to be used for design in Section 6.4.

3.2.3 Densification Due to Earthquake Shaking

Densification of loose granular soil above the groundwater level can cause settlement due to earthquake-induced vibrations; this phenomenon, which is a result of the redistribution of dry sand particles, is commonly referred to as dry sand settlement. Based on our explorations, we anticipated the potential for dry sand settlement at the subject site to be low.

3.2.4 Flooding

Based on site elevation and distance from water sources, flooding is not expected at the subject site; however, the Civil Engineer should review pertinent information relating to possible flood levels for the subject site based on final pad elevations and provide appropriate design measures for development of the project, if recommended.

3.3 2019 CBC SEISMIC DESIGN PARAMETERS

The 2019 CBC utilizes design criteria set forth in the ASCE 7-16 Standard. Based on the subsurface conditions encountered, we characterized the site as Site Class D in accordance with the 2019 CBC. We provide the 2019 CBC seismic design parameters in Table 3.3-1 below, which include design spectral response acceleration parameters based on the mapped Risk Targeted Maximum Considered Earthquake (MCER) spectral response acceleration parameters.

TABLE 3.3-1: 2019 CBC Seismic Design Parameters, Latitude: 37.673515 **Longitude:** -122.461833

PARAMETER	VALUE
Site Class	D
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	2.25
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	0.94
Site Coefficient, F_A	1.0
Site Coefficient, F_V	See Section 11.4.8 (ASCE 7-16)
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	2.25
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	See Section 11.4.8 (ASCE 7-16)
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	1.50
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	See Section 11.4.8 (ASCE 7-16)
MCE_G Peak Ground Acceleration adjusted for Site Class effects, PGA_M (g)	1.06
Long period transition-period, T_L	8 sec

Refer to ASCE 7-16 Section 11.4.8 for code minimums based on proposed structure period. Site-specific response analysis may be required if exemptions do not apply.

3.4 SOIL CORROSION POTENTIAL

Selected soil samples were collected during our field exploration and transported to Cerco for laboratory corrosivity testing. Samples were tested for redox potential, pH, sulfate ion and chloride ion concentration. These tests provide an indication of the corrosion potential of the soil environment on buried concrete and metal materials.

TABLE 3.4-1: Soil Corrosivity Test Results

SAMPLE NO.	REDOX (mv)	PH	MINIMUM RESISTIVITY (ohms-cm)	CHLORIDE* (mg/kg)	SULFATE* (mg/kg)
1-B1 at 3’	250	7.74	11,000	N.D.	23
1-B3 at 3’	270	8.15	9,000	N.D.	N.D.

The following table summarizes ACI 318 exposure categories and class requirements for concrete in contact with soil based on exposure risk.

TABLE 3.4-2: ACI Table 4.2.1: Exposure Categories and Classes

CATEGORY	SEVERITY	CLASS	CONDITION	
F Freezing and thawing	Not Applicable	F0	Concrete not exposed to freezing-and-thawing cycles	
	Moderate	F1	Concrete exposed to freezing-and-thawing cycles and occasional exposure to moisture	
	Severe	F2	Concrete exposed to freezing-and-thawing cycles and in continuous contact with moisture	
	Very Severe	F3	Concrete exposed to freezing-and-thawing cycles and in continuous contact with moisture and exposed to deicing chemicals	
			WATER- SOLUBLE SULFATE IN SOIL % BY WEIGHT*	**DISSOLVED SULFATE IN WATER mg/kg (ppm)****
S Sulfate	Not applicable	S0	$SO_4 < 0.10$	$SO_4 < 150$
	Moderate	S1	$0.10 \leq SO_4 < 0.20$	$150 \leq SO_4 \leq 1{,}500$ seawater
	Severe	S2	$0.20 \leq SO_4 \leq 2.00$	$1{,}500 \leq SO_4 \leq 10{,}000$
	Very severe	S3	$SO_4 > 2.00$	$SO_4 > 10{,}000$
			CONDITION	
P Requiring low permeability	Not applicable	P0	In contact with water where low permeability is not required.	
	Required	P1	In contact with water where low permeability is required.	
C Corrosion protection of reinforcement	Not applicable	C0	Concrete dry or protected from moisture	
	Moderate	C1	Concrete exposed to moisture but not to external sources of chlorides	
	Severe	C2	Concrete exposed to moisture and an external source of chlorides from deicing chemicals, salt, brackish water, seawater, or spray from these sources	

*Percent sulfate by mass in soil determined by ASTM C1580
**Concentration of dissolved sulfates in water in ppm determined by ASTM D516 or ASTM D4130

The reported sulfate concentration results were up to 23 mg/kg or 0.0023% in soil, which indicates a 'Not Applicable' sulfate exposure. Considering a 'Not Applicable' sulfate exposure, there is no requirement for cement type or water-cement ratio, however, a minimum concrete compressive strength of 2,500 psi is specified by the building code. For this sulfate range, we recommend Type II cement and a concrete mix design for foundations and building slabs-on-grade that incorporates a maximum water-cement ratio of 0.50. It should be noted, however, that the structural engineering design requirements for concrete may result in more stringent concrete specifications.

We present the analytical lab test results in Appendix B.

4.0 CONSTRUCTION MONITORING

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to:

1. Review the final grading and foundation plans and specifications prior to construction to evaluate whether our recommendations have been implemented, and to provide additional or modified recommendations, as needed. This also allows us to check if any changes have occurred in the nature, design or location of the proposed improvements and provides the opportunity to prepare a written response with updated recommendations.

2. Perform construction monitoring to check the validity of the assumptions we made to prepare this report. Earthwork operations should be performed under the observation of our representative to check that the site is properly prepared, the selected fill materials are satisfactory, and that placement and compaction of the fills has been performed in accordance with our recommendations and the project specifications. Sufficient notification to us prior to earthwork is important.

If we are not retained to perform the services described above, then we are not responsible for any party's interpretation of our report (and subsequent addenda, letters, and verbal discussions).

5.0 EARTHWORK RECOMMENDATIONS

The relative compaction and optimum moisture content of soil, and aggregate base referred to in this report are based on the most recent ASTM D1557 test method. Compacted soil is not acceptable if it is unstable. It should exhibit only minimal flexing or pumping, as observed by an ENGEO representative.

As used in this report, the term "moisture condition" refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry.

We define "structural areas" in Section 4 of this report as any area sensitive to settlement of compacted soil. These areas include, but are not limited to building pads, sidewalks, pavement areas, and retaining walls.

5.1 NON-ENGINEERED FILL REMOVAL

As discussed in Section 3.1, if encountered, all non-engineered fills located within the building footprint, parking areas and structural areas should be removed to expose competent native soil. Figure 3 and 4 shows the approximate location of the previous creek, we recommend ENGEO be onsite during demolition and grading activities to confirm non-engineered fill are not present at the site.

5.2 GENERAL SITE CLEARING

Areas to be developed should be cleared of all surface and subsurface deleterious materials, including the existing building, buried utility lines, pavements, trees (including their root system) and debris. Clean and backfill excavations extending below the planned finished site grades with suitable material compacted to the recommendations presented in this section. Retain ENGEO to observe and test all backfilling.

5.3 OVER-OPTIMUM SOIL MOISTURE CONDITIONS

The contractor should anticipate encountering excessively over-optimum (wet) soil moisture conditions during winter or spring grading, or during or following periods of rain. Wet soil can make proper compaction difficult or impossible. Wet soil conditions can be mitigated by:

1. Frequent spreading and mixing during warm dry weather;
2. Mixing with drier materials;
3. Mixing with a lime or cement product; or
4. Stabilizing with aggregate, geotextile stabilization fabric, or both.

Options 3 and 4 should be evaluated and approved by ENGEO prior to implementation.

5.4 ACCEPTABLE FILL

Onsite soil material is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 6 inches in maximum dimension. Imported fill materials should meet the above requirements and have a plasticity index less than 12. Import materials with a plasticity index greater than 12 may be imported to the site but lime treating of the material may be required. Allow ENGEO to sample and test proposed imported fill materials at least one week prior to delivery to the site.

5.5 FILL COMPACTION

Onsite soil material is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 6 inches in maximum dimension.

Imported fill materials should meet the above requirements and be consistent with the material properties of the onsite soil. Allow ENGEO to sample and test proposed imported fill materials at least 72 hours prior to delivery to the site.

5.5.1 Grading in Structural Areas

Perform subgrade compaction prior to fill placement, following cutting operations, and in areas left at grade as follows.

1. Scarify to a depth of at least 12 inches;

2. Moisture condition soil to at least 1 percentage point above the optimum moisture content; **and**

3. Compact the subgrade to at least 92 percent relative compaction. Compact the upper 12 inches of finish pavement subgrade to at least 95 percent relative compaction prior to aggregate base placement.

After the subgrade soil has been compacted, place and compact acceptable fill (defined in Section 5.5) as follows:

1. Spread fill in loose lifts that do not exceed 12 inches;

2. Moisture condition lifts to at least 1 percentage point above the optimum moisture content; **and**

3. Compact fill to a minimum of 92 percent relative compaction; Compact the upper 12 inches of fill in pavement areas to 95 percent relative compaction prior to aggregate base placement.

5.5.1.1 Aggregate Base

Compact the pavement Caltrans Class 2 Aggregate Base section to at least 95 percent relative compaction (ASTM D1557). Moisture condition aggregate base to or slightly above the optimum moisture content prior to compaction.

5.5.2 Underground Utility Backfill

5.5.2.1 General

The contractor is responsible for conducting all trenching and shoring in accordance with CALOSHA requirements. Project consultants involved in utility design should specify pipe bedding materials.

Place and compact trench backfill as follows:

1. Trench backfill should have a maximum particle size of 6 inches;

2. Moisture condition trench backfill to at least 1 percent above the optimum moisture content. Moisture condition backfill outside the trench;

3. Place fill in loose lifts not exceeding 12 inches; and

4. Compact fill to a minimum of 92 percent relative compaction (ASTM D1557).

5.6 SLOPE GRADIENTS

Construct final slope gradients to 2:1 (horizontal:vertical) or flatter. The contractor is responsible to construct temporary construction slopes in accordance with CALOSHA requirements.

5.7 SURFACE DRAINAGE

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we recommend that finish grades be sloped away from buildings and pavements to the maximum extent practical. As a minimum, we recommend the following:

1. Discharge roof downspouts into closed conduits and direct away from foundations to appropriate drainage devices.

2. Do not allow water to pond near foundations, pavements, or exterior flatwork.

3. Consider the use of surface drainage collection systems to reduce overland surface drainage across the site.

6.0 FOUNDATION AND SLAB-ON-GRADE RECOMMENDATIONS

We developed structural improvement recommendations using data obtained from our field exploration, laboratory test results, and engineering analysis. The proposed building can be supported on continuous or isolated spread footings bearing in competent native soil or compacted fill, in conjunction with slab-on-grade floors.

6.1 FOOTING DIMENSIONS AND ALLOWABLE BEARING CAPACITY

Provide minimum footing dimensions as follows in the Table 6.1-1 below.

TABLE 6.1-1: Minimum Footing Dimensions

FOOTING TYPE	*MINIMUM DEPTH (INCHES)	MINIMUM WIDTH (INCHES)
Continuous	24	18
Isolated	24	24

Minimum footing depths shown above are taken from lowest adjacent pad grade. The cold joint between the exterior footing and slab-on-grade should be located at least 4 inches above adjacent exterior grade.

Design foundations recommended above for a maximum allowable bearing pressure of 2,000 pounds per square foot (psf) for dead-plus-live loads. Increase this bearing capacity by one-third for the short-term effects of wind or seismic loading.

The maximum allowable bearing pressure is a net value; the weight of the footing may be neglected for design purposes. All footings located adjacent to utility trenches should have their bearing surfaces below an imaginary 1:1 (horizontal:vertical) plane projected upward from the bottom edge of the trench to the footing.

6.2 CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

The structural engineer should design footing reinforcement to support the intended structural loads without excessive settlement. Reinforce all continuous footings with top and bottom steel to provide structural continuity and to permit spanning of local irregularities.

6.3 FOUNDATION LATERAL RESISTANCE

Lateral loads may be resisted by friction along the base and by passive pressure along the sides of foundations. The passive pressure is based on an equivalent fluid pressure in pounds per cubic foot (pcf). We recommend the following allowable values for design:

- Passive Lateral Pressure: 300 pcf
- Coefficient of Friction: 0.30

6.4 SETTLEMENT

We recommend differential settlement of approximately ½ inch over a distance of 50 feet during a design-level earthquake event. In addition, we estimate that total static settlement beneath the proposed structure to be approximately ½ inch and ¼ inch of differential settlement may occur over a distance of 50 feet. The above estimates of total and differential settlement should be reviewed once structural loads are available. Structural elements should accommodate the above provided total and differential settlements.

6.5 INTERIOR CONCRETE SLAB-ON-GRADE

We anticipate that the operation of the dealership will include vehicle loads on the interior concrete floor slab. While no loading information was provided, we developed our recommendations assuming a lightly loaded concrete floor.

Prior to construction of the slab, the surface should be proof-rolled with heavy equipment to check that the base material is uniformly compacted and does not deflect under equipment loads. Prior to placing the base material, the building subgrade should be prepared in accordance with the Earthwork Recommendations.

We recommend consideration be given to providing concrete floors with a minimum thickness of 6 inches and at least 4 inches of aggregate base. A thicker section may be needed depending on the actual loading conditions. Adequate slab reinforcement should be provided to satisfy with the anticipated use and loading requirements. The structural engineer should provide final design thickness, concrete strength, and additional reinforcement for any structural loads including anticipated vehicle loads.

The contractor should notify and consult with the structural engineer if slab-on-grade floors will be subject to construction traffic or equipment loads. Additional slab thickness or reinforcement may be needed if the slab-on-grade floors are subject to construction loads.

Post-construction cracking of concrete slabs-on-grade is inherent in any project. Adequate slab reinforcement and control joints should be provided by the structural engineer to satisfy the anticipated use and loading requirements.

When buildings are constructed with concrete slab-on-grade, water vapor from beneath the slab will migrate through the slab and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building. When water vapor migrating through the slab would be undesirable, such as in any designated office areas where floor coverings may be applied, for example, we recommend installation of a durable vapor retarder beneath the concrete floor. The vapor retarder should be sealed at all seams and pipe penetrations and connected to all footings. Vapor retarders should conform to Class A vapor retarders in accordance with ASTM E 1745-97 "Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs."

6.5.1 Slab On Grade Structural Design

A subgrade modulus of 150 psi/in can be used for structural slab design.

6.6 TRENCH BACKFILL

Backfill and compact all trenches below building slabs-on-grade in accordance with the Underground Utility Backfill recommendations in a previous section of this report.

7.0 RETAINING WALLS

7.1 LATERAL SOIL PRESSURES

For drained restrained retaining walls, at-rest lateral earth pressures should be considered. If retaining wall are designed as unrestrained at the top of wall active pressures should be considered. Table 7.1-1 provides active and at rest lateral earth pressures for retaining wall design with level backfill conditions.

TABLE 7.1-1: Lateral Earth Pressures for Drained Retaining Walls with Level Backfill

ACTIVE PRESSURE (PCF)	AT-REST PRESSURE (PCF)
40	60

Appropriate surcharge loads from buildings, hardscape, and vehicles should be incorporated when the surcharge loading is situated above a 1:1 (horizontal:vertical) line of projection extending up the rear base edge of the bottom of the footing. A uniform horizontal surcharge load of 50 percent of the vertical surcharge load should be assumed to act over the height of the wall.

If adequate drainage is not provided, we recommend that an additional equivalent fluid pressure of 40 pcf be added to the values recommended above for both restrained and unrestrained walls. Damp-proofing of the walls should be included in areas where wall moisture would be problematic.

Passive pressures acting on foundations and keyways may be assumed as 300 pounds per cubic foot (pcf) provided that the area in front of the retaining wall is level for a distance of at least 10 feet or three times the depth of foundation and keyway, whichever is greater. The friction factor for sliding resistance may be assumed as 0.30. The upper 1 foot of soil should be excluded from passive pressure computations unless it is confined by pavement or a concrete slab.

7.2 RETAINING WALL DRAINAGE

Construct either graded rock drains or geosynthetic drainage composites behind the retaining walls to reduce hydrostatic lateral forces. For rock drain construction, we recommend two types of rock drain alternatives:

1. A minimum 12-inch-thick layer of Class 2 Permeable Filter Material (Caltrans Specification 68-1.025) placed directly behind the wall, or

2. A minimum 12-inch-thick layer of washed, crushed rock with 100 percent passing the ¾-inch sieve and less than 5 percent passing the No. 4 sieve. Envelop rock in a minimum 6-ounce nonwoven geotextile filter fabric.

For both types of rock drains:

1. Place the rock drain directly behind the walls of the structure.

2. Extend rock drains from the wall base to within 12 inches of the top of the wall.

3. Place a minimum of 4-inch-diameter perforated pipe at the base of the wall, inside the rock drain and fabric, with perforations placed down.

4. Place pipe at a gradient at least 1 percent to direct water away from the wall by gravity to a drainage facility.

ENGEO should review and approve geosynthetic composite drainage systems prior to use.

7.3 BACKFILL

Backfill behind retaining walls should be placed and compacted in accordance with Earthwork Recommendations contained in this report. Use light compaction equipment within 5 feet of the wall face. If heavy compaction equipment is used, the walls should be temporarily braced to avoid excessive wall movement.

7.4 FOUNDATIONS

Retaining walls may be supported on continuous footings designed for an allowable bearing pressure of 2,000 psf embedded to a minimum depth of 24 inches.

8.0 PAVEMENT DESIGN

8.1 FLEXIBLE PAVEMENTS

Based on our subsurface exploration, we judge an R-Value of 25 be appropriate for preliminary design. Using estimated traffic indices for various pavement loading requirements, we developed the following recommended pavement sections using Topic 633 of the Caltrans Highway Design Manual (including the asphalt factor of safety), presented in the table below. It may be feasible to pulverize the existing pavement section and create a recycled aggregate sub base material. For the purpose of our calculations, we assumed that an aggregate sub base with a minimum R-Value of 50 can be achieved.

TABLE 8.1-1: Recommended Asphalt Concrete Pavement Sections

TRAFFIC INDEX	TYPICAL SECTION		ALTERNATIVE SECTION	
	Asphalt Concrete (inches)	Class 2 AB (inches)	Class 2 AB (inches)	Recycled Aggregate Sub-base (inches)
5	3	6 ½	4	8
6	3½	8 ½	4	8
7	4	11	6	8
8	5	12	7	8
9	5½	14½	10	8
10	6½	16	11	8
11	7	18	13	8
12	8	19½	15	8

The civil engineer should determine the appropriate traffic indices based on the estimated traffic loads and frequencies.

8.2 SUBGRADE AND AGGREGATE BASE COMPACTION

Compact finish subgrade and aggregate base in accordance with the Fill Compaction section of this report. Aggregate Base should meet the requirements for ¾-inch maximum Class 2 AB in accordance with the latest Caltrans Standard Specifications.

8.3 CUT-OFF CURBS

Saturated pavement subgrade or aggregate base can cause premature failure or increased maintenance of asphalt concrete pavements. This condition often occurs where landscape areas directly abut and drain toward pavements. If desired to install pavement cutoff barriers, they should be considered where pavement areas lie downslope of any landscape areas that are to be sprinklered or irrigated, and should extend to a depth of at least 4 inches below the base rock layer. Cutoff barriers may consist of deepened concrete curbs or deep-root moisture barriers.

9.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.3 for the Colma Auto Dealership project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data are representative of the actual subsurface conditions across the site. Considering possible underground variability of soil and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, ENGEO must be notified immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, the proper regulatory officials must be notified immediately.

This document must not be subject to unauthorized reuse, that is, reusing without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time.

Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

SELECTED REFERENCES

1. American Concrete Institute, 2014, Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary.

2. American Society of Civil Engineers, 2010, Minimum Design Loads for Buildings and Other Structures, ASCE Standard, ASCE/SEI 7-10.

3. California Building Standards Commission, 2019. California Building Code 209, Volumes 1 and 2, Sacramento, California

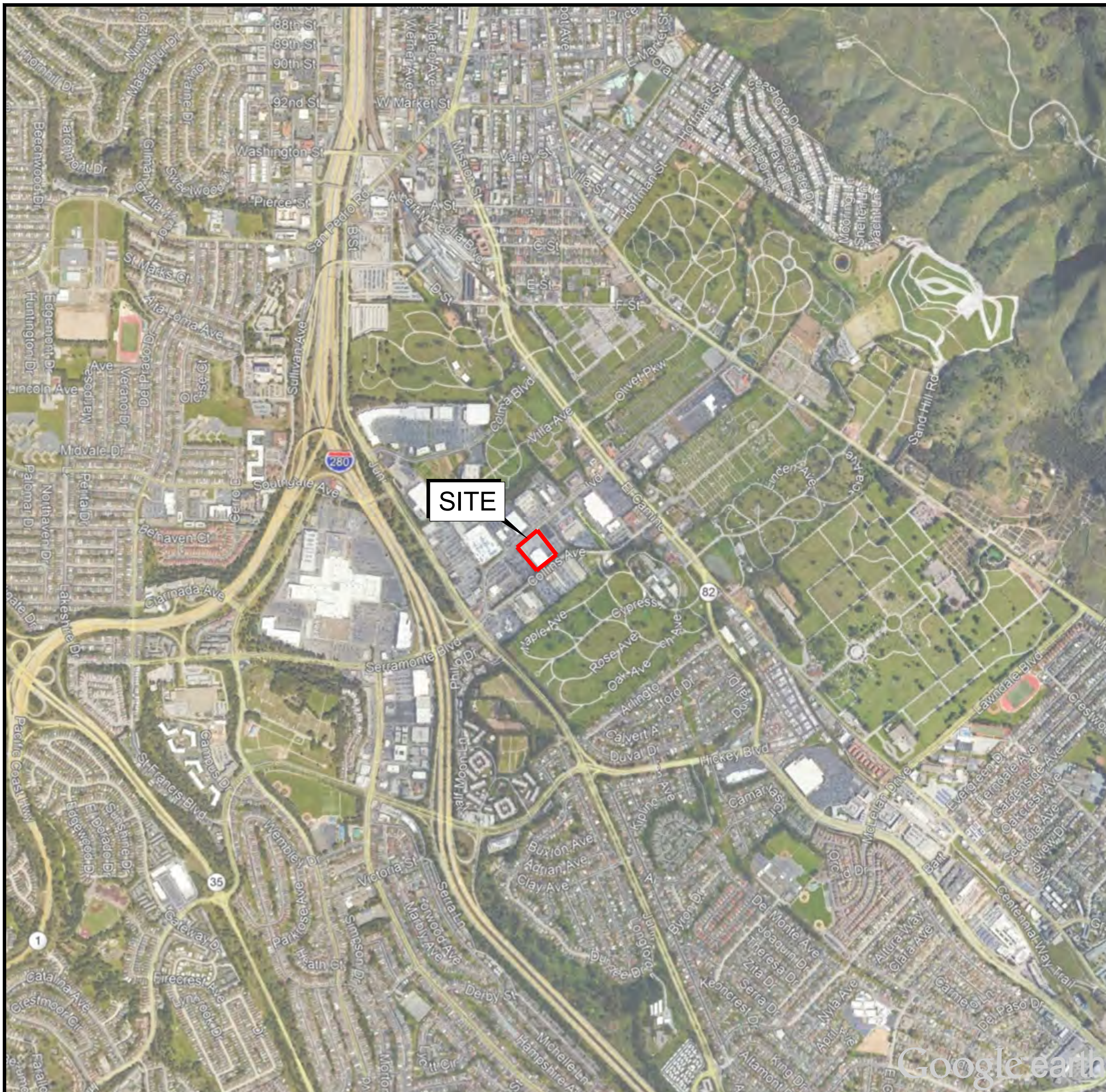
4. California Department of Transportation, 2012. Highway Design Manual.

5. Robertson, P. K. and R. G. Campanella, 1988, Guidelines for Geotechnical Design Using CPT and CPTU Data.

6. Robertson, P.K., 2009, Interpretation of cone penetration tests - a unified approach, Canadian Geotechnical Journal 2009, vol. 46, pp. 1337-1355.

7. United States Geologic Survey (USGS); 2008, National Seismic Hazard Maps Fault Parameters.

FIGURES



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FEET

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BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE

ENGEO Expect Excellence	VICINITY MAP COLMA AUTO DEALERSHIP COLMA, CALIFORNIA	PROJECT NO.: 16635.000.000		FIGURE NO. 1
		SCALE: AS SHOWN		
		DRAWN BY: LL	CHECKED BY: SDH	

ORIGINAL FIGURE PRINTED IN COLOR

FILE PATH: G:\Drafting\PROJECTS_16000 to 17999\16635\166350000000\Geotechnical\GEX\GEX-ColmaAuto\16635000000-GEX-1-VICMAP-ColmaAuto-1019.dwg SAVE DATE: 10/22/2019 6:05:01 PM SAVED BY: llee

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FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

B-3 BORING (ENGEO, 2019)

CPT-3 CONE PENETRATION TEST (ENGEO, 2019)

BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE

ENGEO Expect Excellence	SITE PLAN COLMA AUTO DEALERSHIP COLMA, CALIFORNIA	PROJECT NO.: 16635.000.000 SCALE: AS SHOWN DRAWN BY: LL CHECKED BY: SDH	FIGURE NO. 2

ORIGINAL FIGURE PRINTED IN COLOR

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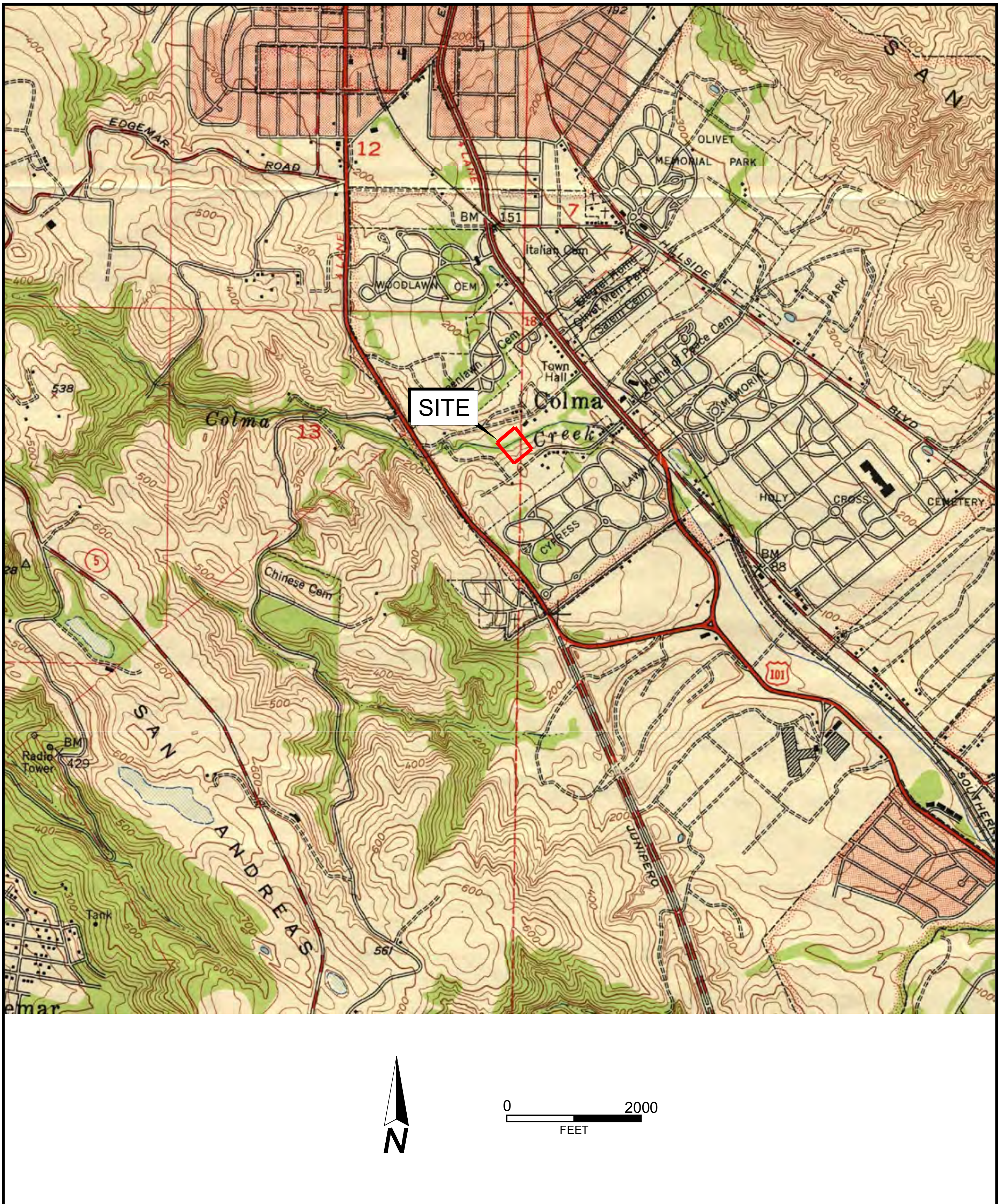

BASE MAP SOURCE: U.S.G.S., 1947

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TOPOGRAPHIC MAP
COLMA AUTO DEALERSHIP
COLMA, CALIFORNIA

PROJECT NO.: 16635.000.000		FIGURE NO. 3
SCALE: AS SHOWN		
DRAWN BY: LL	CHECKED BY: SDH	

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FEET

EXPLANATION

Qaf ARTIFICIAL FILL
Qsr SLOPE DEBRIS & RAVINE FILL
Qc COLMA FORMATION
Qu SEDIMENTARY DEPOSITS
Qtm MERCED FORMATION

BASE MAP SOURCE: U.S.G.S., 2016

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REGIONAL GEOLOGIC MAP COLMA AUTO DEALERSHIP COLMA, CALIFORNIA	PROJECT NO.: 16635.000.000		FIGURE NO.
	SCALE: AS SHOWN		4
	DRAWN BY: LL	CHECKED BY: SDH	

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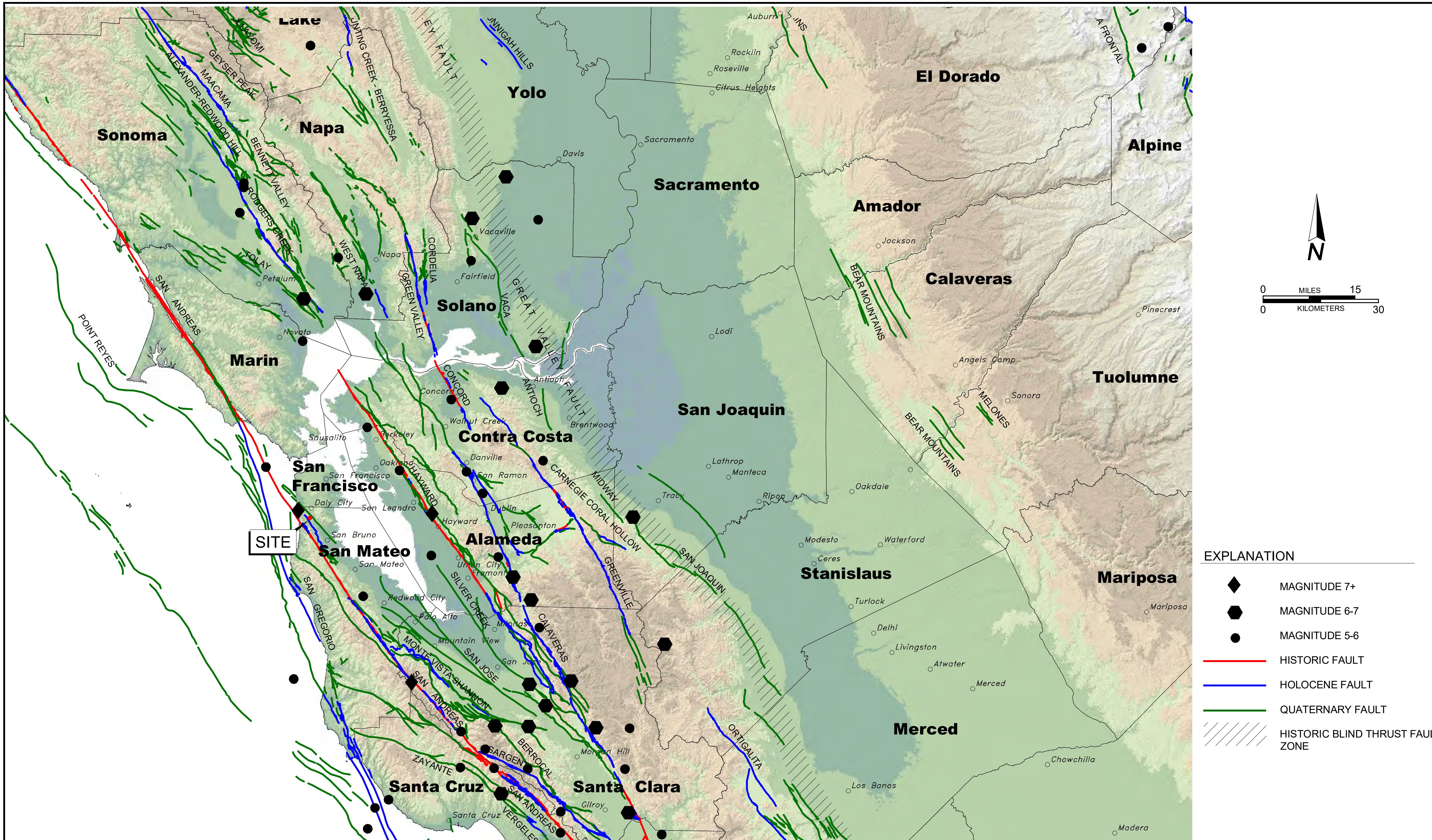

BASE MAP SOURCE:
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATASET (NED) AT 30 METER RESOLUTION
U.S.G.S. QUATERNARY FAULT DATABASE, NOVEMBER, 2010
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800–2000)

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REGIONAL FAULTING AND SEISMICITY
COLMA AUTO DEALERSHIP
COLMA, CALIFORNIA

PROJECT NO.: 16635.000.000	FIGURE NO. 5
SCALE: AS SHOWN	
DRAWN BY: LL	CHECKED BY: SDH

ORIGINAL FIGURE PRINTED IN COLOR

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APPENDIX A

EXPLORATION LOGS

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures
			GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures
			GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures
			SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures
			SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity
			CL - Inorganic clay with low to medium plasticity
			OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity
			CH - Fat clay with high plasticity
			OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE: 200, 40, 10, 4 — CLEAR SQUARE SIEVE OPENINGS: 3/4 ", 3", 12"

SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Dames and Moore Piston
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ________ Solid - Layer Break
- _ _ _ _ _ _ Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

- ∇ Groundwater level during drilling
- ▼ Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 1-B1

LATITUDE: 37.6735739884 LONGITUDE: -122.461318676

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/7/2019
HOLE DEPTH: 33 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 155 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	DESCRIPTION	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
		ASPHALT 4 Inches of AC									
		SILTY SAND (SM), dark yellowish brown mottled with dark brown, medium dense, moist, 15 to 30% fines, fine- to medium-grained sand									
				42							
5	150			17							
				33							
				10					12 10	98 101	
		CLAYEY SAND (SC), dark yellowish brown, medium dense, moist, 15 to 30% fines, fine- to medium-grained sand, clay fines olive brown, contains iron oxide staining									
10	145			23							
		SANDY CLAY (CL), very dark gray and black, stiff to hard, moist, 25 to 35% fine- to medium-grained sand									
				18	NP	NP	NP				
			∇								
15	140	Color grades to dark gray and bluish gray to dark olive brown		38					14	124	4.3
				24							
20	135										

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LOG OF BORING 1-B1

LATITUDE: 37.6735739884 LONGITUDE: -122.461318676

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/7/2019
HOLE DEPTH: 33 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 155 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			CLAYEY SAND (SC), gray mottled with reddish orange, dense, moist to wet, 20 to 30% fine- to medium-grained sand, contains pockets of black clay, contains iron oxide staining			37							
						37							
25	130		SANDY CLAY (CL), dark yellowish brown to bluish gray, stiff to very stiff, moist to wet, 20 to 30%fine- to medium-grained sand, contains pockets of black clay and wood fragments			57							
			SILTY SAND (SM), bluish gray and black, medium dense, moist to wet, 28% fines, fine- to medium-grained sand			13				28	13	120	
30	125		Reddish orange mottled with pale olive, very dense, moist to wet, contains iron oxide staining, manganese, color grades to reddish orange with pale olive, interbedded with clean sand lenses, contains iron oxide staining			50/5"							
						57							
			Bottom of boring at approximately 33 feet. Groundwater encountered at approximately 14 feet.										

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LOG OF BORING 1-B2

LATITUDE: 37.6736371983 LONGITUDE: -122.46182636

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/7/2019
HOLE DEPTH: 31.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 155 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	DESCRIPTION	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
		ASPHALT 4 Inches of AC									
		POORLY GRADED SAND WITH SILT (SP-SM), dark yellowish brown to reddish brown, medium dense to dense, moist, 10% fines, fine- to medium-grained sand									
				44							
				30				10			
5	150										
				42	NP	NP	NP				
		Color grades to gray									
				32							
		CLAYEY SAND (SC), dark yellowish brown, dense, moist, 20 to 30% fines, fine- to medium-grained sand									
10	145										
		SILTY SAND (SM), olive brown mottled with gray, dense, moist to very moist, 20 to 30% fines, fine- to medium-grained sand	∇	51							
				38							
		Color grades to dark yellowish brown interbedded dark gray sand laminations									
15	140										
		CLAYEY SAND (SC), olive brown, dense, moist, 20 to 30% fines, fine- to medium-grained sand, contains manganese and iron oxide staining, increased clay with depth		50/6"							
				43							
20	135										

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LOG OF BORING 1-B2

LATITUDE: 37.6736371983 LONGITUDE: -122.46182636

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/7/2019
HOLE DEPTH: 31.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 155 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			CLAYEY SAND (SC), olive brown, dense, moist, 20 to 30% fines, fine- to medium-grained sand, contains manganese and iron oxide staining, increased clay with depth Color grades to gray and olive brown, contains wood fragments, iron oxide staining			45 50							
25	130		SILTY SAND (SM), dark yellowish brown, medium dense, very moist, 20 to 30% fines, fine- to medium-grained sand, contains manganese and iron oxide staining			28							
30	125		SANDY CLAY (CL), bluish gray mottled with dark olive brown, very stiff, moist, 25 to 35% fine- to medium-grained sand, contains wood fragments			26							
			Bottom of boring at approximately 31.5 feet. Groundwater encountered at approximately 11.25 feet.										

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LOG OF BORING 1-B3

LATITUDE: 37.673754588 LONGITUDE: -122.461968968

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/8/2019
HOLE DEPTH: 58 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 157 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: SFA, Switch to Mud
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			ASPHALT 4 Inches of AC										
			SILTY SAND (SM), dark yellowish brown, medium dense to dense, moist, iron oxide staining, 15 to 25% fines, fine- to medium-grained sand, contains manganese										
	155												
						54	NP	NP	NP				
						20							
5													
						28							
	150		CLAYEY SAND (SC), dark yellowish brown mottled with gray, medium dense to dense, moist, 15 to 25% fines, fine- to medium-grained sand, contain iron oxide staining										
						19				14			
10													
						44							
	145												
						24							
15			Grades more clay fines										
						50							
	140												
						30							
20													

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LOG OF BORING 1-B3

LATITUDE: 37.673754588 LONGITUDE: -122.461968968

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/8/2019
HOLE DEPTH: 58 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 157 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: SFA, Switch to Mud
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			CLAYEY SAND (SC), dark yellowish brown mottled with gray, medium dense to dense, moist, 15 to 25% fines, fine- to medium-grained sand, contain iron oxide staining Color grades to yellowish brown to olive brown, contains fine gravel			52							
	135					35							
25													
						50/5"							
	130		Color grades to very dark gray and black			41							
30													
						46							
	125		Grades more clay, iron and manganese, contain bluish grey sand seams, interbedded with dark yellowish brown			16				21			
35			Contains wood fragments										
						45					18	114	
	120					37							
40													

LOG OF BORING 1-B3

ENGEO
Expect Excellence

LATITUDE: 37.673754588 LONGITUDE: -122.461968968

Geotechnical Exploration
Colma Auto Dealership
775 Serramonte Blvd., Colma CA
16635.000.000

DATE DRILLED: 10/8/2019
HOLE DEPTH: 58 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (WGS84): 157 ft.

LOGGED / REVIEWED BY: M. Bromfield / TS
DRILLING CONTRACTOR: H1 Drilling Company
DRILLING METHOD: SFA, Switch to Mud
HAMMER TYPE: 140 lb. Auto Trip

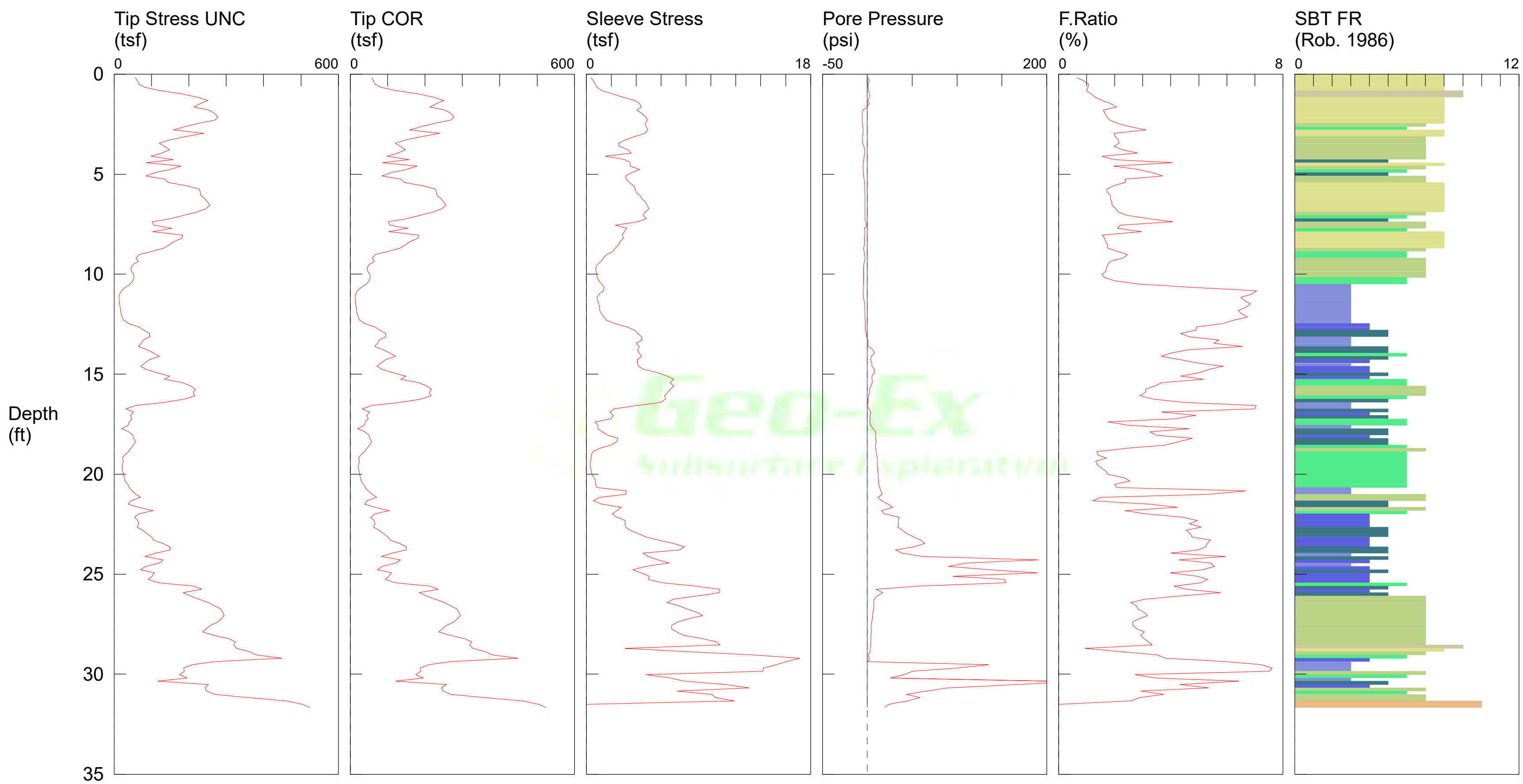
Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), light gray and black, medium dense, moist, 15 to 25% fines, fine- to medium-grained sand, pockets of black fat clay			26							
	115					26							
			FAT CLAY (CH), black, very stiff, moist, <10% fine- to medium-grained sand, contains organics										
45						29					20	113	2.7
	110					22							3.5*
50			SANDY CLAY (CL), olive brown, hard, moist, 20 to 30% fine- to medium-grained sand, contains manganese and iron oxide			54							
	105		SILTY SAND (SM), light gray to bluish gray, medium dense to dense, moist, 20 to 30% fines, fine- to medium-grained sand, contain clay seams			25							>4.5*
55						28							
	100					41							
			Bottom of boring at approximatley 58 feet. Groundwater encountered at approximately 14.75 feet.										

1-CPT1

CUSTOMER: Engeo
HOLE NUMBER: 1-CPT1
TEST DATE: 10/11/2019 8:26:32 AM
TOTAL DEPTH: 31.660 ft

CONE ID: DDG1316
LOCATION: Colma

OPERATOR: Nick Maher
GPS (LAT,LON,ALT): 0.00,0.00,0.0
DEPTH INTERVAL: 0.050 m
JOB NUMBER: 16635.000.000



1 Sensitive fine grained
2 Organic material
3 Clays
4 Silty clay to clay
5 Clayey silt to silty clay
6 Sandy silt to clayey silt
7 Silty sand to sandy silt
8 sand to silty sand
9 Sand
10 Gravelly sand to sand
11 Very stiff fine grained **
12 Sand to clayey sand **

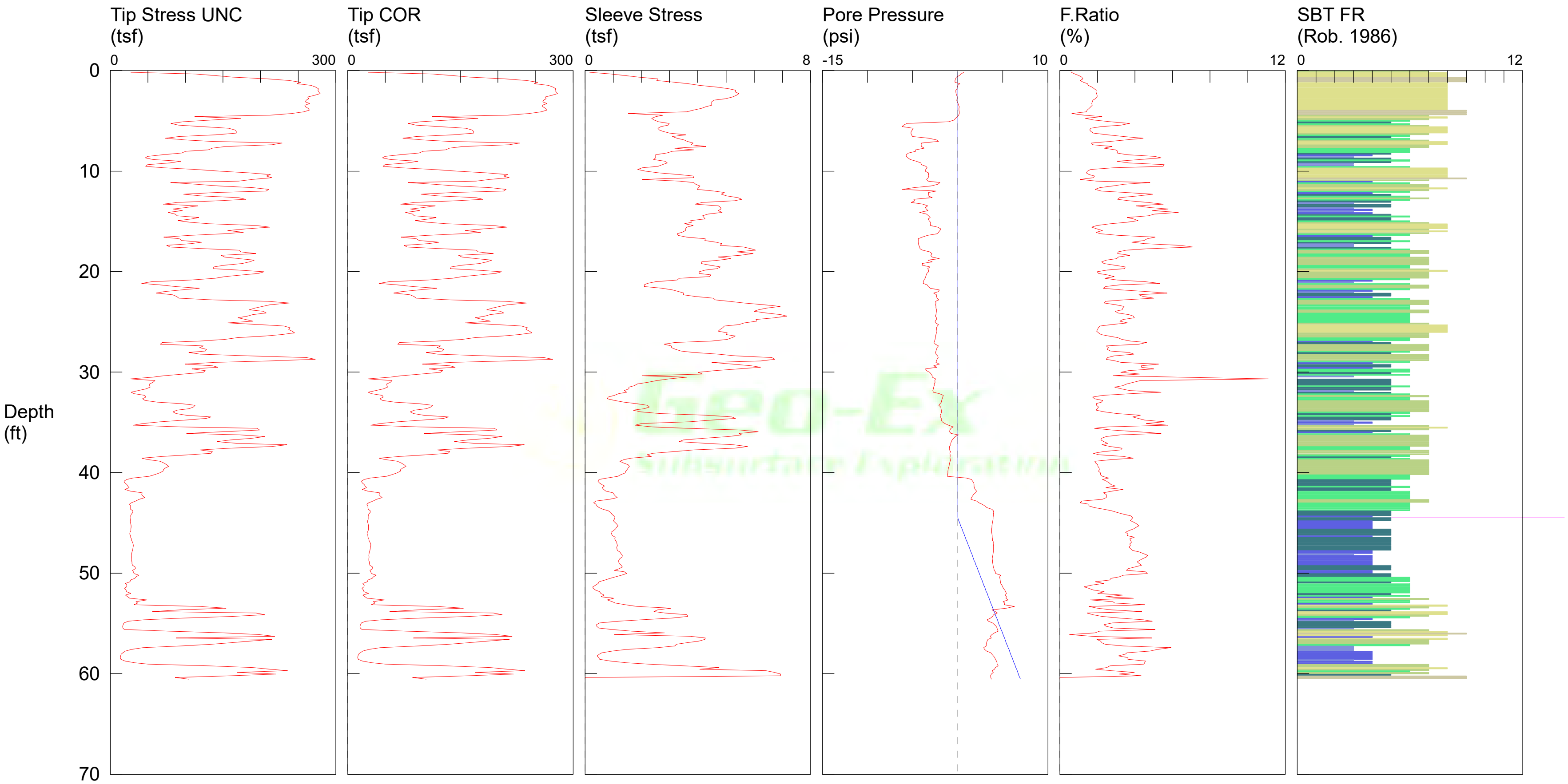
*SBT: Robertson 1986; **Overconsolidated or Cemented; *SBT/SPT CORRELATION: UBC-1983

1-CPT2

CUSTOMER: Engeo
HOLE NUMBER: 1-CPT2
TEST DATE: 10/11/2019 9:24:23 AM
TOTAL DEPTH: 60.532 ft

CONE ID: DDG1316
LOCATION: Colma

OPERATOR: Nick Maher
GPS (LAT,LON,ALT): 0.00,0.00,0.0
DEPTH INTERVAL: 0.050 m
JOB NUMBER: 16635.000.000



1	Sensitive fine grained	4	Silty clay to clay	7	Silty sand to sandy silt	10	Gravelly sand to sand
2	Organic material	5	Clayey silt to silty clay	8	sand to silty sand	11	Very stiff fine grained **
3	Clays	6	Sandy silt to clayey silt	9	Sand	12	Sand to clayey sand **

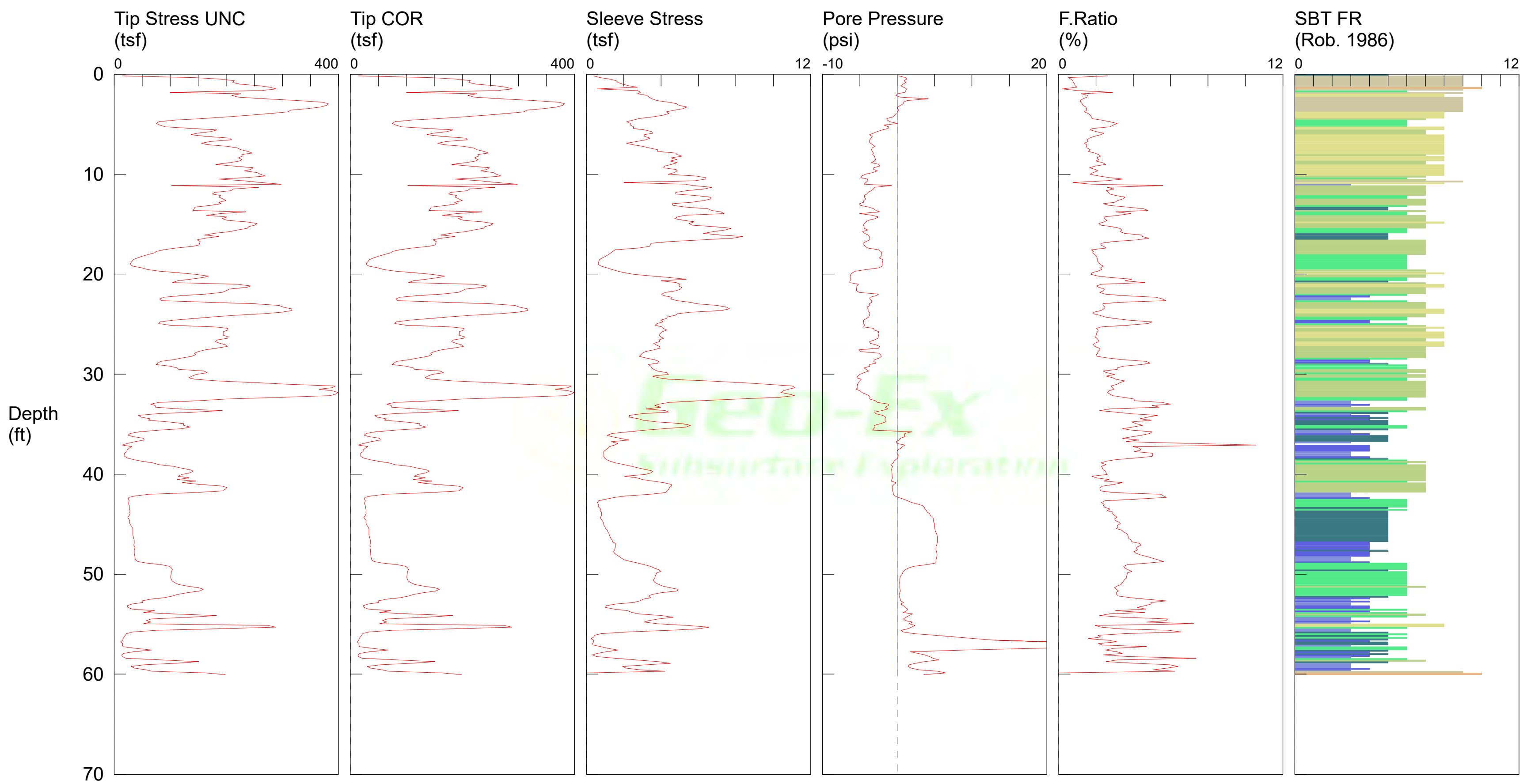
*SBT: Robertson 1986; **Overconsolidated or Cemented; *SBT/SPT CORRELATION: UBC-1983

1-CPT3

CUSTOMER: Engeo
HOLE NUMBER: 1-CPT3
TEST DATE: 10/11/2019 10:32:26 AM
TOTAL DEPTH: 60.039 ft

CONE ID: DDG1316
LOCATION: Colma

OPERATOR: Nick Maher
GPS (LAT,LON,ALT): 0.00,0.00,0.0
DEPTH INTERVAL: 0.050 m
JOB NUMBER: 16635.000.000



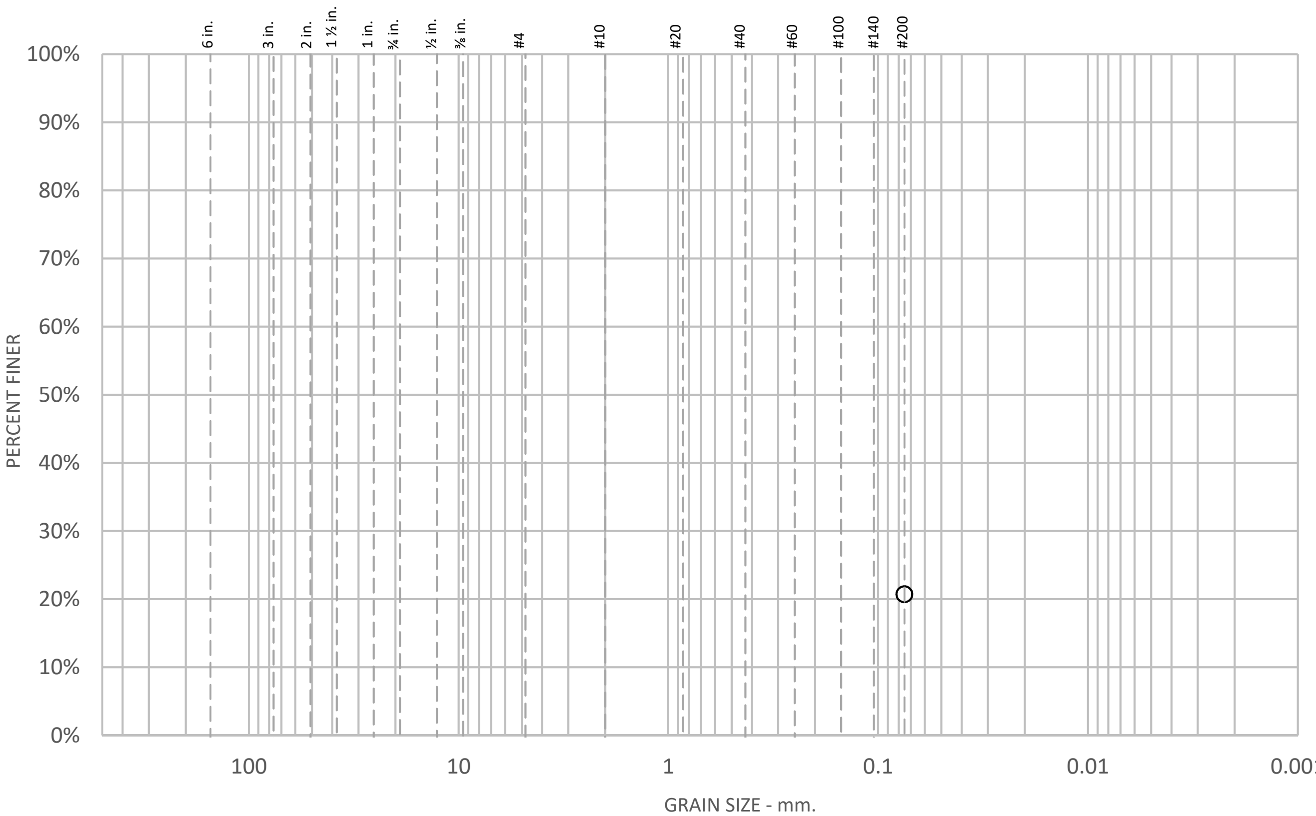
1 Sensitive fine grained
2 Organic material
3 Clays
4 Silty clay to clay
5 Clayey silt to silty clay
6 Sandy silt to clayey silt
7 Silty sand to sandy silt
8 sand to silty sand
9 Sand
10 Gravelly sand to sand
11 Very stiff fine grained **
12 Sand to clayey sand **

*SBT: Robertson 1986; **Overconsolidated or Cemented; *SBT/SPT CORRELATION: UBC-1983

APPENDIX B

LABORATORY TEST DATA

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						20.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	20.7		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL = LL = PI =

Coefficients

D_{90} = D_{85} = D_{60} =
D_{50} = D_{30} = D_{15} =
D_{10} = C_u = C_c =

Classification

USCS =

Remarks

GS: ASTM D422

ASTM D1140, Method A
Soak time = 12 min
Dry sample weight = 156.46 g

Sample Number: 1-B3 @ 31.5-33

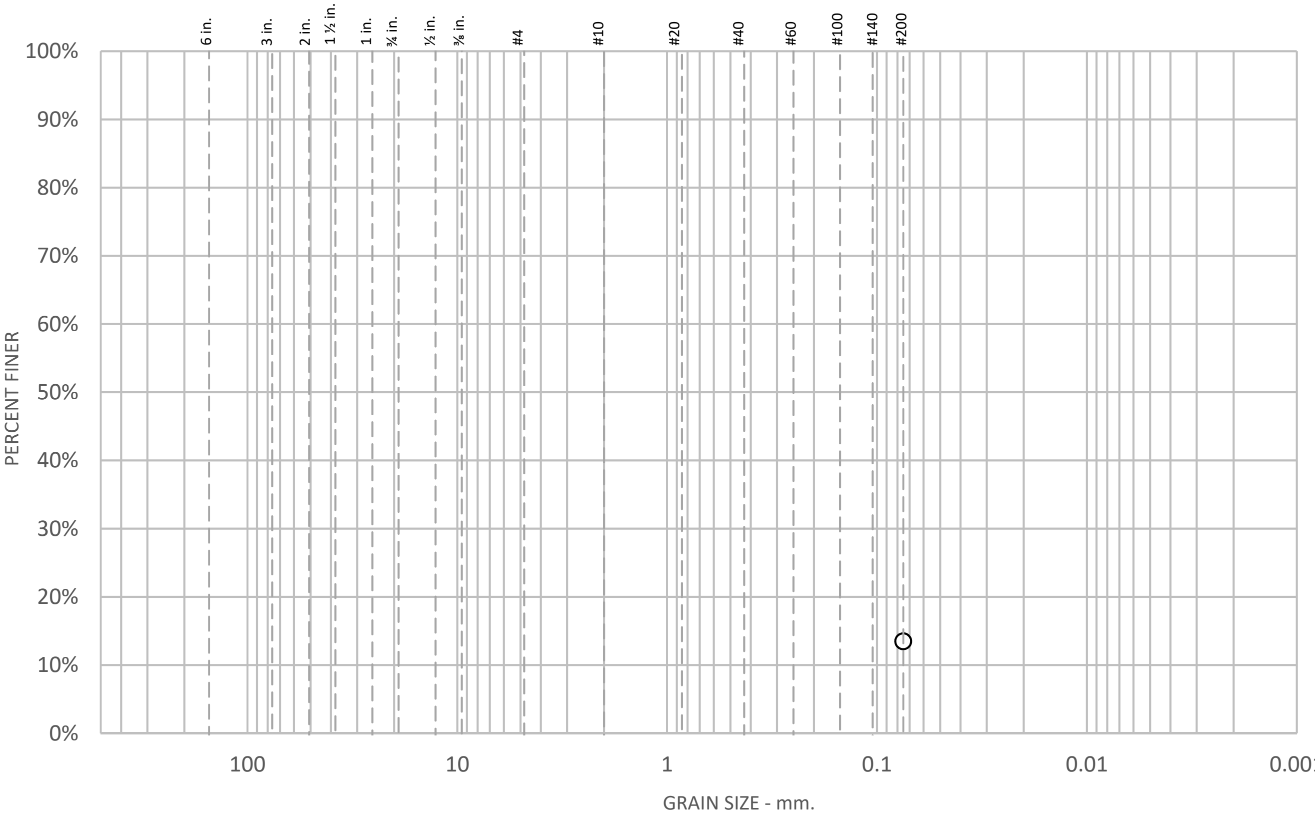
Client: NorthPoint Development
Project: Colma Cadillac
Project location: Colma, California
Project Number: 16635.000.000
Date: 10/16/2019

ENGEO
Expect Excellence

Tested By: M. Quasem **Checked By:** W. Miller

Test Location: 3420 Fostoria Way, Suite E, Danville, CA 94526

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						13.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	13.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL = LL = PI =

Coefficients

D_{90} = D_{85} = D_{60} =
D_{50} = D_{30} = D_{15} =
D_{10} = C_u = C_c =

Classification

USCS =

Remarks

GS: ASTM D422
ASTM D1140, Method A
Soak time = 12 min
Dry sample weight = 127.8 g

Sample Number: 1-B3 @ 7.5-9

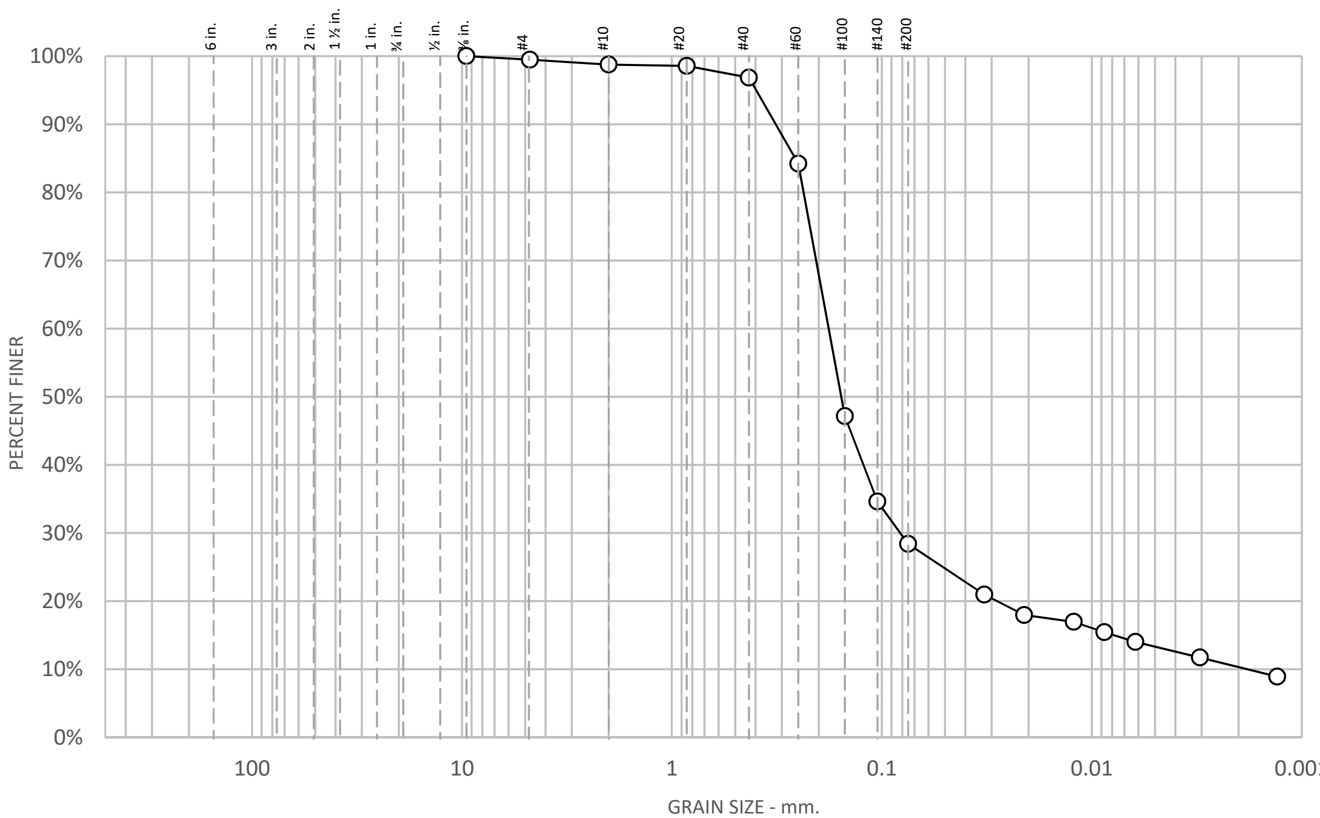
Client: NorthPoint Development
Project: Colma Cadillac
Project location: Colma, California
Project Number: 16635.000.000
Date: 10/16/2019

ENGEO Expect Excellence

Tested By: M. Quasem **Checked By:** W. Miller

Test Location: 3420 Fostoria Way, Suite E, Danville, CA 94526

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		0.5	0.7	1.9	68.5	18.1	10.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
⅜ in.	100.0		
#4	99.5		
#10	98.8		
#20	98.6		
#40	96.8		
#60	84.2		
#100	47.1		
#140	34.6		
#200	28.4		
0.0325 mm.	21.0		
0.0210 mm.	18.0		
0.0122 mm.	17.0		
0.0087 mm.	15.4		
0.0062 mm.	14.0		
0.0031 mm.	11.7		
0.0013 mm.	8.9		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL = LL = PI =

Coefficients

D_{90} = 0.3204 mm D_{85} = 0.2585 mm D_{60} = 0.1791 mm
D_{50} = 0.1560 mm D_{30} = 0.0818 mm D_{15} = 0.0079 mm
D_{10} = 0.0018 mm C_u = 98.61 C_c = 20.58

Classification

USCS =

Remarks

GS: ASTM D422 ASTM D422
Silt/clay division of 0.002mm used

Sample Number: 1-B1 @ 26.5-28

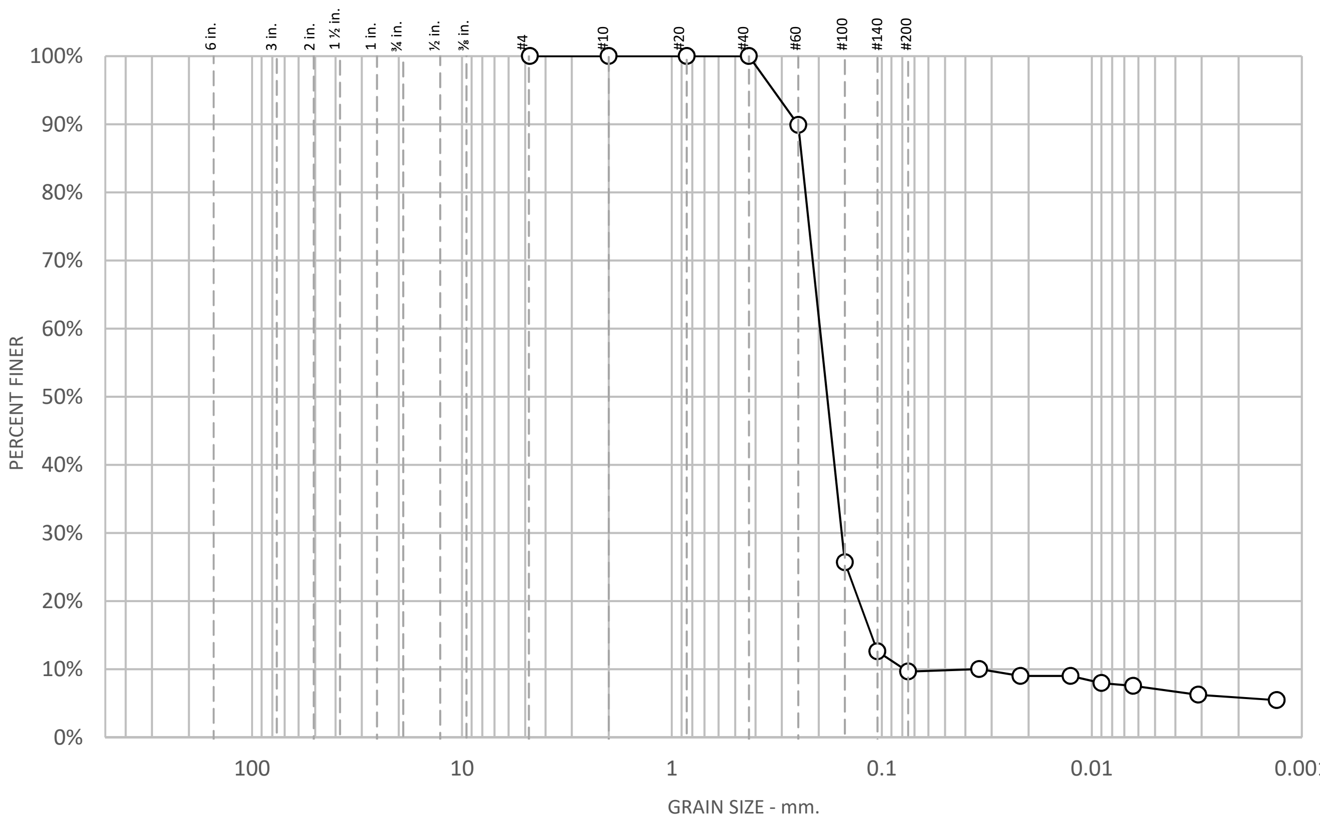
Client: NorthPoint Development **Project Number:** 16635.000.000
Project: Colma Cadillac **Date:** 10/16/2019
Project location: Colma, California

ENGEO Expect Excellence

Tested By: M. Quasem **Checked By:** W. Miller

Test Location: 3420 Fostoria Way, Suite E, Danville, CA 94526

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					90.3	3.8	5.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	100.0		
#40	100.0		
#60	89.9		
#100	25.7		
#140	12.6		
#200	9.7		
0.0344 mm.	10.0		
0.0219 mm.	9.0		
0.0126 mm.	9.0		
0.0090 mm.	8.0		
0.0064 mm.	7.6		
0.0031 mm.	6.3		
0.0013 mm.	5.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL =   LL =   PI =

Coefficients

D_{90} = 0.2514 mm D_{85} = 0.2405 mm D_{60} = 0.1971 mm
D_{50} = 0.1820 mm D_{30} = 0.1552 mm D_{15} = 0.1121 mm
D_{10} = 0.0780 mm C_u = 2.53 C_c = 1.57

Classification

USCS = SP

Remarks

GS: ASTM D422   ASTM D422
Silt/clay division of 0.002mm used

Sample Number: 1-B2 @ 3.5-5

Client: NorthPoint Development   **Project Number:** 16635.000.000
Project: Colma Cadillac   **Date:** 10/16/2019
Project location: Colma, California

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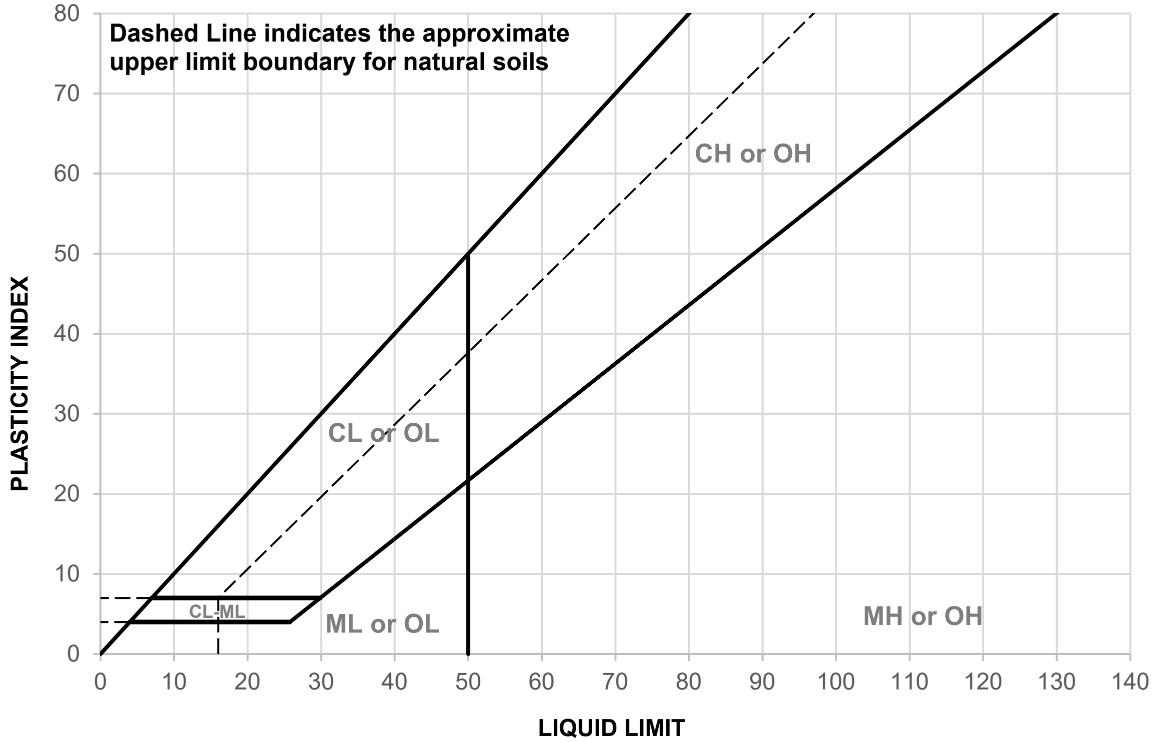
Tested By: M. Quasem   **Checked By:** W. Miller

Test Location: 3420 Fostoria Way, Suite E, Danville, CA 94526

LIQUID AND PLASTIC LIMITS TEST REPORT
ASTM D4318



	SAMPLE ID	DEPTH	MATERIAL DESCRIPTION	LL	PL	PI
▲	1-B1	11.5-13	See exploration logs	NV	NP	NP
◆	1-B2	7.5-8	See exploration logs	NV	NP	NP
☐	1-B3	2.5-3	See exploration logs	NV	NP	NP

	SAMPLE ID	TEST METHOD	REMARKS
▲	1-B1	PI: ASTM D4318, Wet Method	
◆	1-B2	PI: ASTM D4318, Wet Method	
☐	1-B3	PI: ASTM D4318, Wet Method	

ENGEO
Expect Excellence

CLIENT: NorthPoint Development
PROJECT NAME: Colma Cadillac
PROJECT NO: 16635.000.000
PROJECT LOCATION: Colma, California
REPORT DATE: 10/17/2019
TESTED BY: M. Quasem
REVIEWED BY: W. Miller

Isotropic Unconsolidated Undrained Triaxial Test

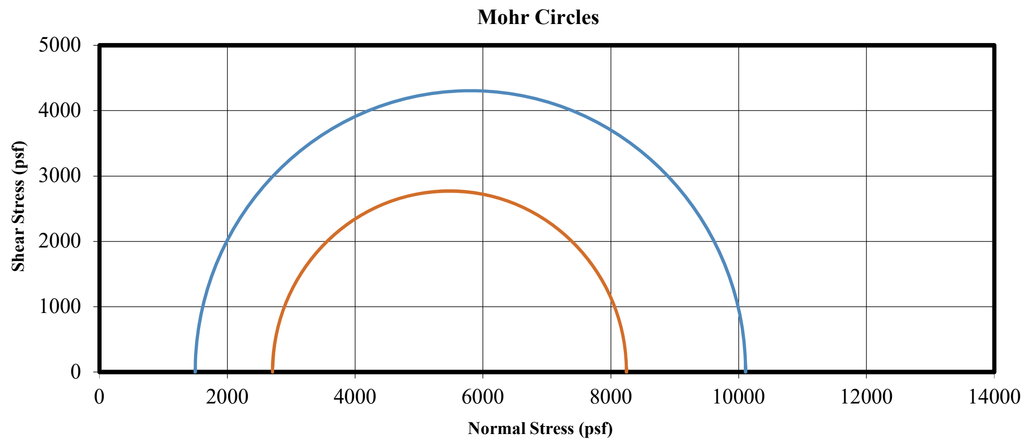
ASTM D2850

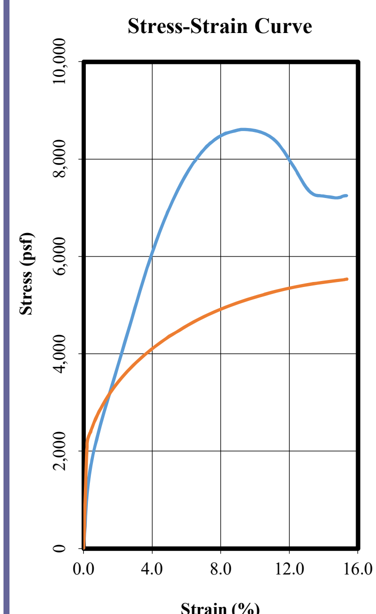
Date: 10/15/19

Checked By: G. Criste

Date: 10/14/2019

Tested By: M. Quasem





Before Test	Specimen 1-B1@15.5	1-B3@45.5		
Water Content (%)	14.26	19.52		
Dry Density (pcf)	124.10	112.70		
Saturation (%)	99.49	100.48		
Void Ratio	0.40	0.54		
Diameter (in)	2.370	2.380		
Height (in)	5.010	5.010		
Height-to-Diameter Ratio	2.114	2.105		
ASTM D4318 - Wet Method				
Liquid Limit	-	-		
Plastic Limit	-	-		
ASTM D854 - Assumed				
Specific Gravity	2.780	2.780		
After Test	**1-B1@15.5**	**1-B3@45.5**		
Water Content (%)	14.26	19.52		
Saturation (%)	99.49	100.00		
Strain Rate (in/min)	0.05	0.05		
Peak Deviator Stress (psf)	8610.7	5537.9		
Axial Strain @ Failure (%)	9.183	15.352		
	Cell Pressure			
Cell (psf)	1497.6	2707.2		
Back (psf)	n/a	n/a		
	Principle Stresses at Failure			
σ1 (psf)	10108.3	8245.1		
σ3 (psf)	1497.6	2707.2		
Corrected Peak Deviator Stress				

Mohr-Coulomb Parameters with a Non-zero Friction Angle (Ø≠0)			Cohesion at Failure with a Zero Friction Angle (Ø=0)			
Cohesion, c (psf)	n/a		4305.4	2769.0		
Friction Angle Ø	n/a		n/a	n/a		

Project Information	
Project Name:	Colma Cadillac
Project Number:	16635.000.000
Project Location:	Colma, California
Client:	NorthPoint Development
Description:	See exploration logs
Test Remarks:	

ENGEO
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Isotropic Unconsolidated Undrained Triaxial Test

ASTM D2850

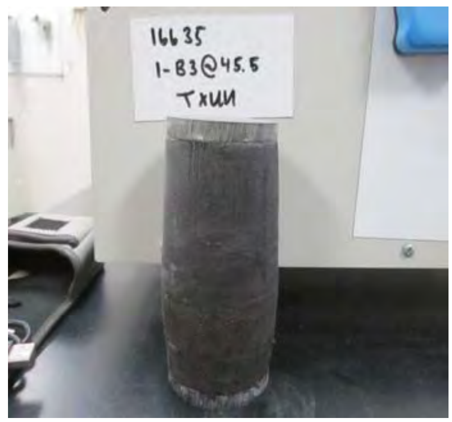
Date: 10/15/19

Checked By: G. Criste

Date: 10/14/2019

Tested By: M. Quasem

SPECIMEN PHOTOS

SAMPLE NUMBER: 1-B1@15.5	SAMPLE NUMBER: 1-B3@45.5
	

Project Information	
Project Name:	Colma Cadillac
Project Number:	16635.000.000
Project Location:	Colma, California
Client:	NorthPoint Development
Description:	See exploration logs
Test Remarks:	

ENGEO Expect Excellence

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: ENGEO Incorporated
Client's Project No.: 16635.000.000
Client's Project Name: Colma, CA
Date Sampled: 14-Oct-19
Date Received: 14-Oct-19
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 25-Oct-2019

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1910100-001	1-B1 @ 3-3.5'	250	7.74	-	11,000	-	N.D.	23
1910100-002	1-B3 @ 3-3.5'	270	8.15	-	9,000	-	N.D.	N.D.

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
	23-Dec-2019	23-Oct-2019	-	22-Oct-2019	-	23-Oct-2019	23-Oct-2019

Cheryl McMillen
Cheryl McMillen
Laboratory Director

* Results Reported on "As Received" Basis
N.D. - None Detected

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

Chain of Custody

Concord, CA 94520-1006
925 462 2771
Fax: 925 462 2775
CERCO analytical

Job No.	CU#	Client Project I.D.
1910100	10160	16635.000.000

Full Name Mari Bromfield
Phone 925-784-4571
Fax
Company and/or Mailing Address ENGEO
Cell ☒
Sample Source Colma, CA

Schedule
Analyte

Date Sampled | Date Due

ANALYSIS | ASTM

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.	Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated			Brief Evaluation						
001	1-B1@3-3.5	10/14/19						1	x	x	x	x	x									
002	1-B3@3-3.5	10/14/19						1	x	x	x	x	x									

MATRIX
DW - Drinking Water
GW - Ground Water
SW - Surface Water
WW - Waste Water
SL - Sludge
S - Soil
Product

ABBREVIATIONS
HB - Hosebib
PV - Petcock Valve
PT - Pressure Tank
PH - Pump House
RR - Restroom
GL - Glass
PL - Plastic
ST - Sterile

SAMPLE RECEIPT
Total No. of Containers
Rec'd Good Cond/Cold
Conforms to Record
Temp. a t Lab -°C
Sampler

		Date	Time
Relinquished By:	[signature]	10/15	1:50pm
Received By:	[signature]	10/15/19	1356
Relinquished By:	[signature]	10/15/19	1435
Received By:	[signature]	10/15/19	1435
Relinquished By:			
Received By:			

Comments:

THERE IS AN ADDITIONAL CHARGE FOR EXTRUDING SOIL FROM METAL TUBES

Email Address: mbromfield@engeo.com

APPENDIX C

LIQUEFACTION ANALYSIS

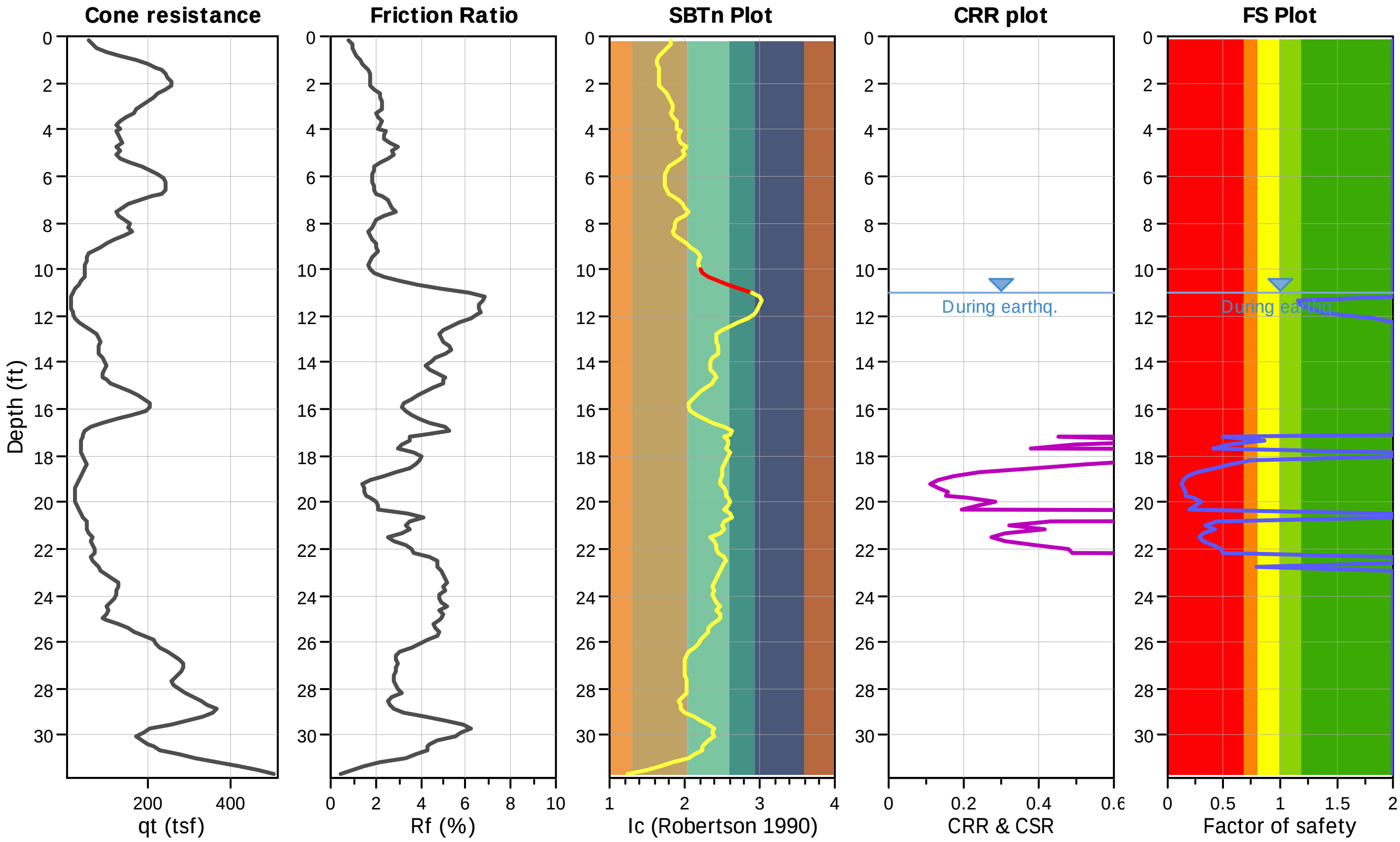
LIQUEFACTION ANALYSIS REPORT

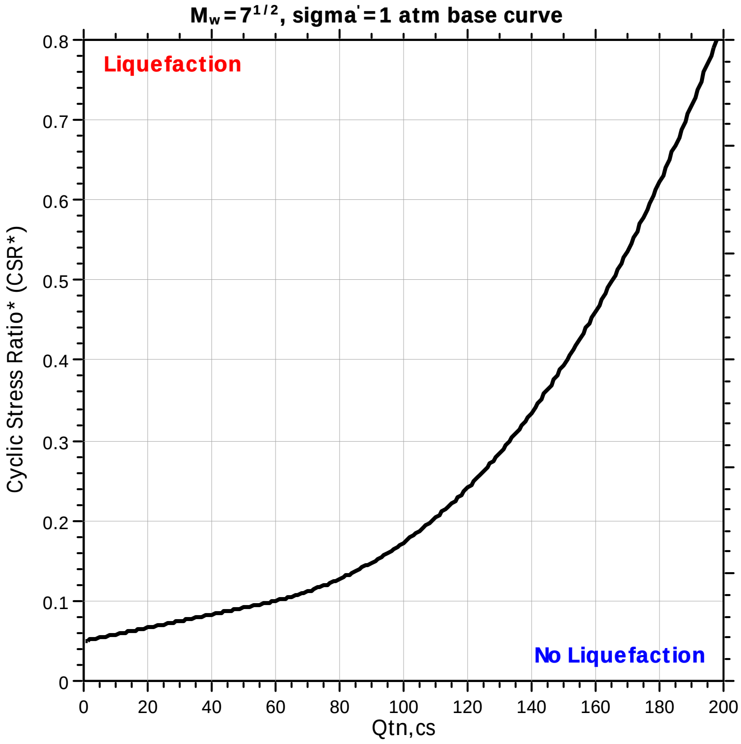
Project title : Colma Auto Dealership **Location : Colma, CA**

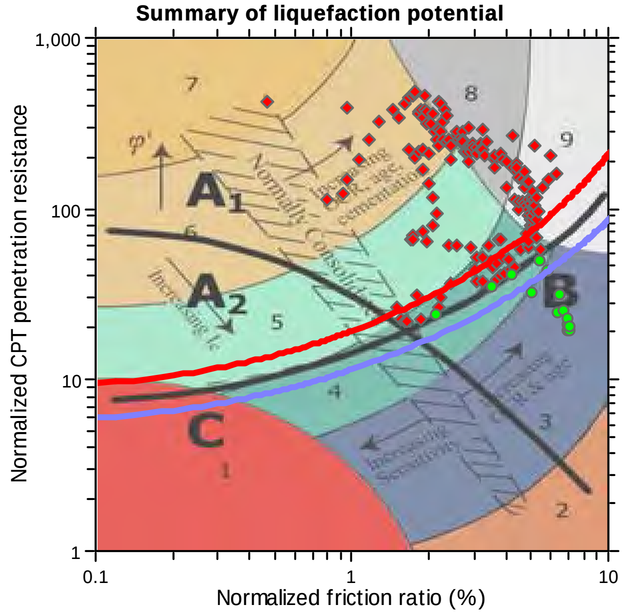
CPT file : 1-CPT1

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	11.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	11.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	5	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.90	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	No		







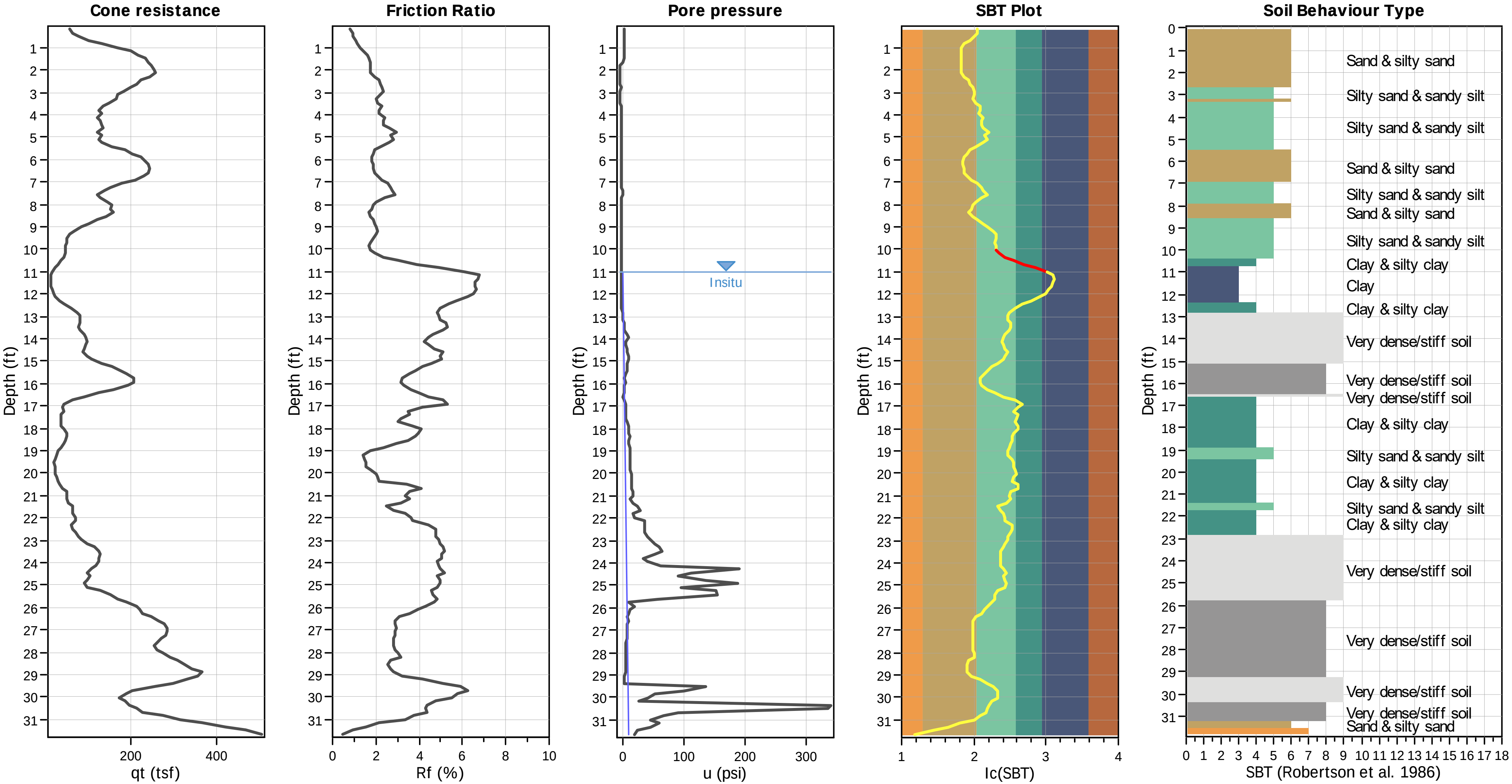
Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading

Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry

Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening

Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



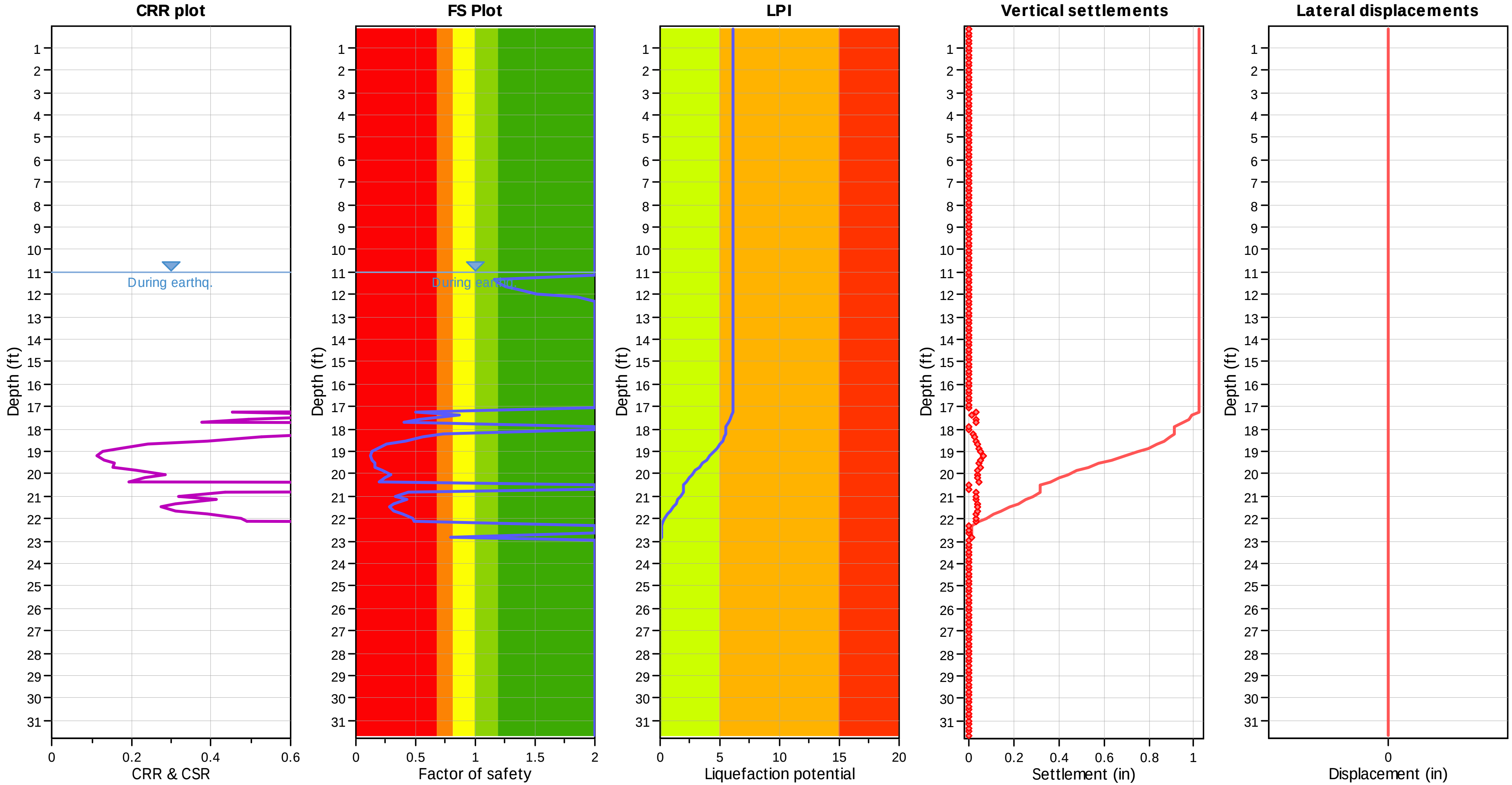
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	11.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	5	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	7.90	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	11.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	5	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	7.90	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

ENGEO
Expect Excellence

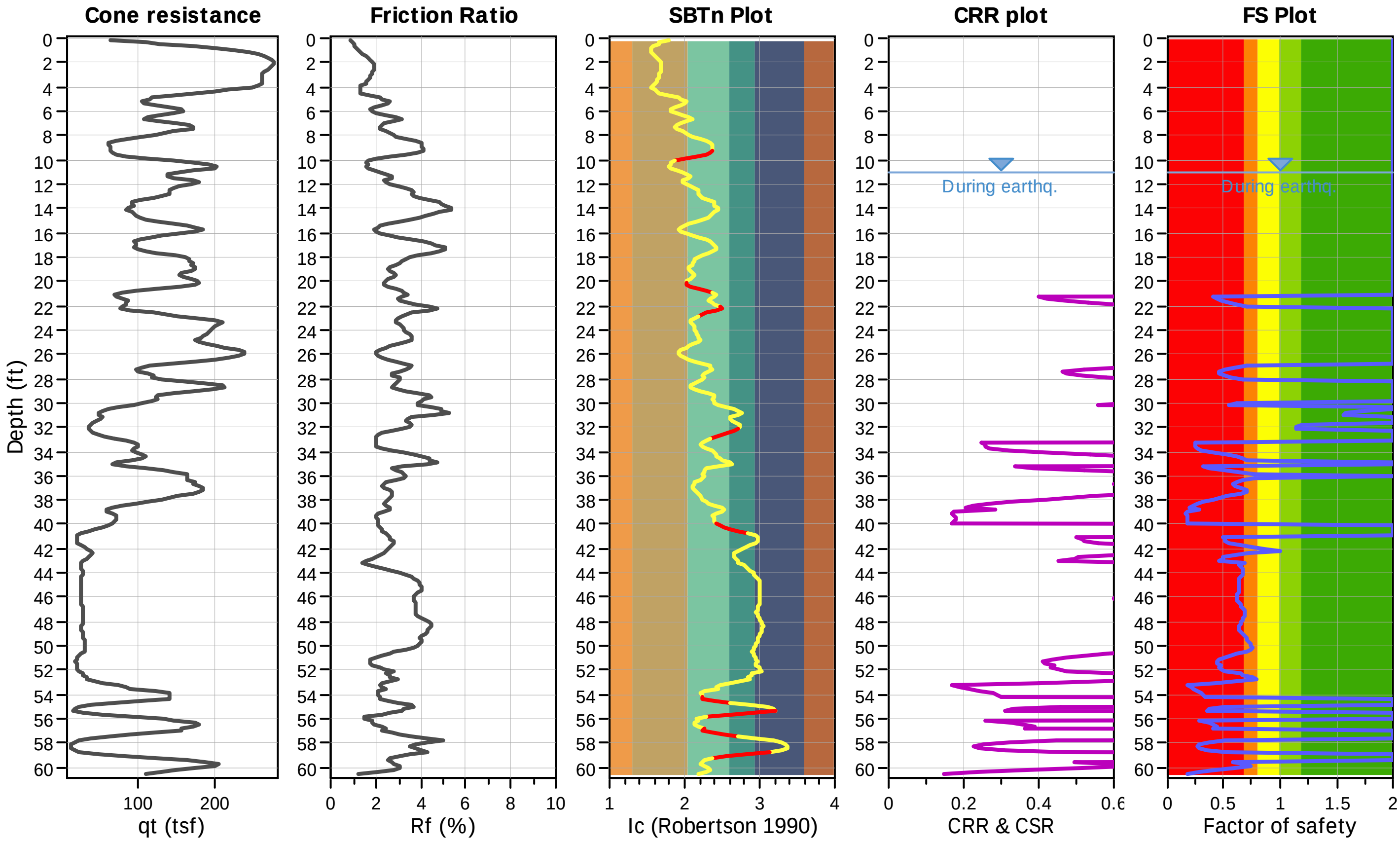
LIQUEFACTION ANALYSIS REPORT

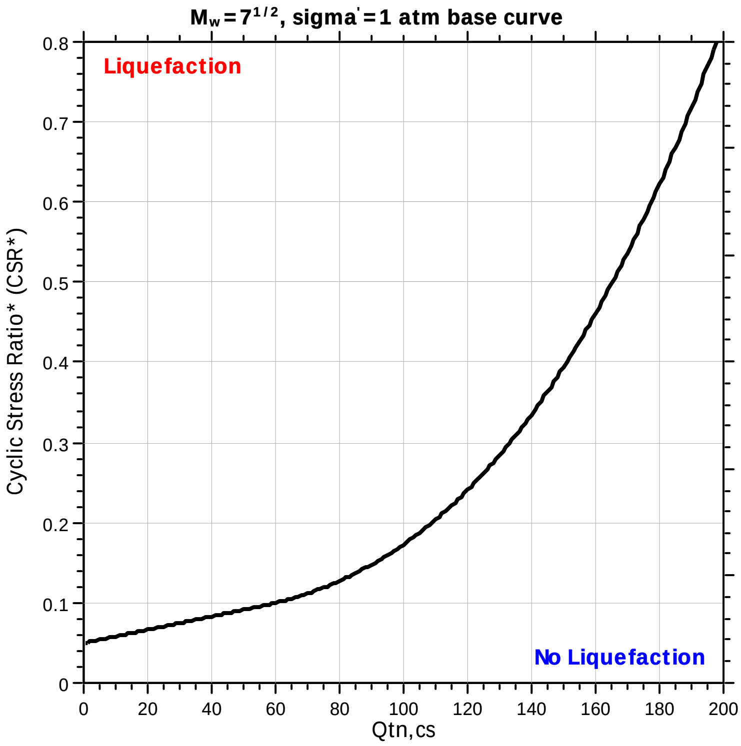
Project title : Colma Auto Dealership **Location : Colma, CA**

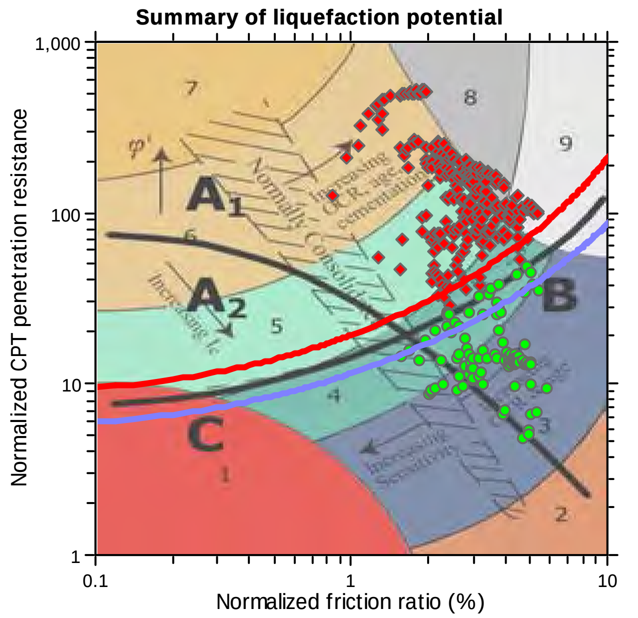
CPT file : 1-CPT2

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	11.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	11.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	5	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.90	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	No		

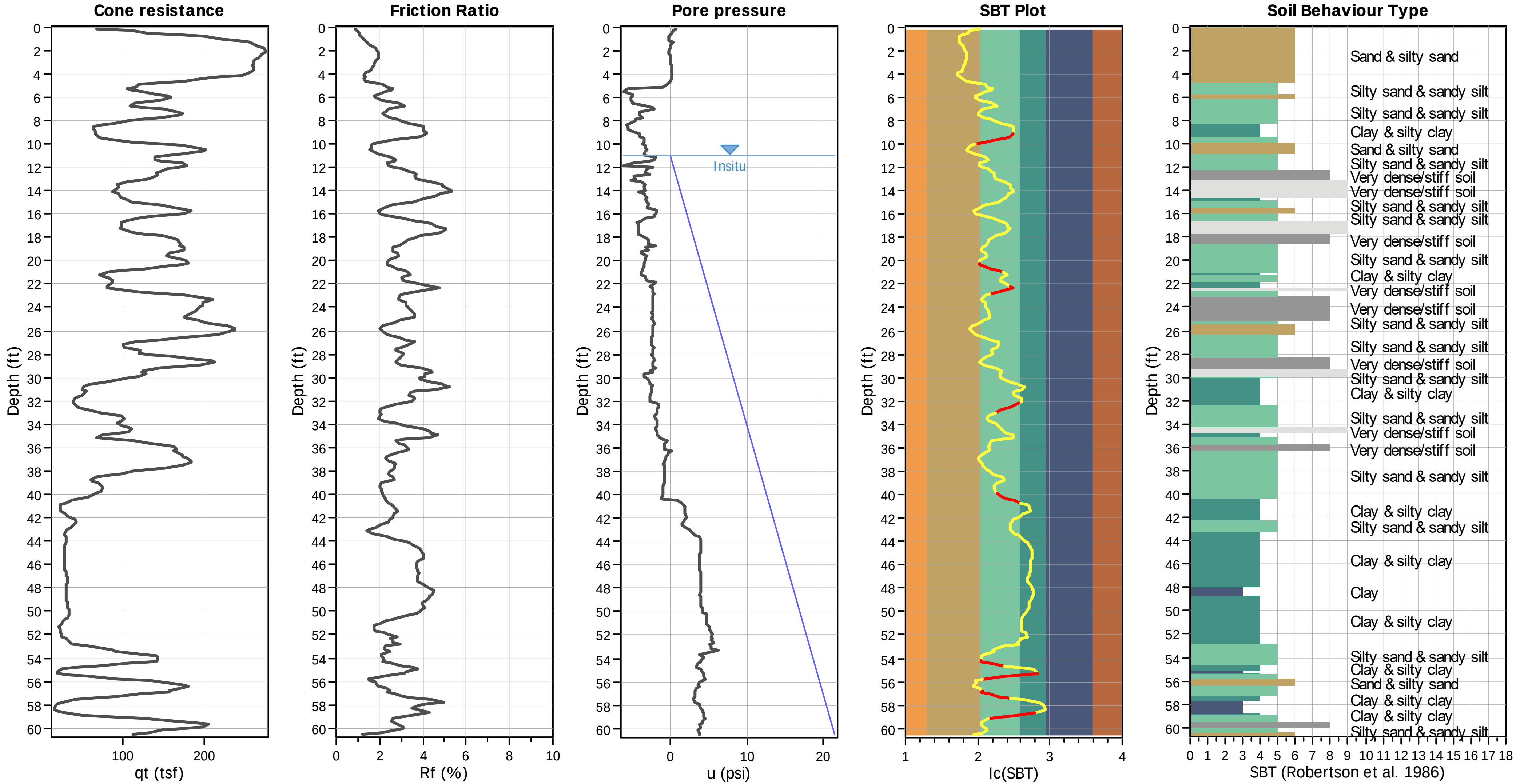






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



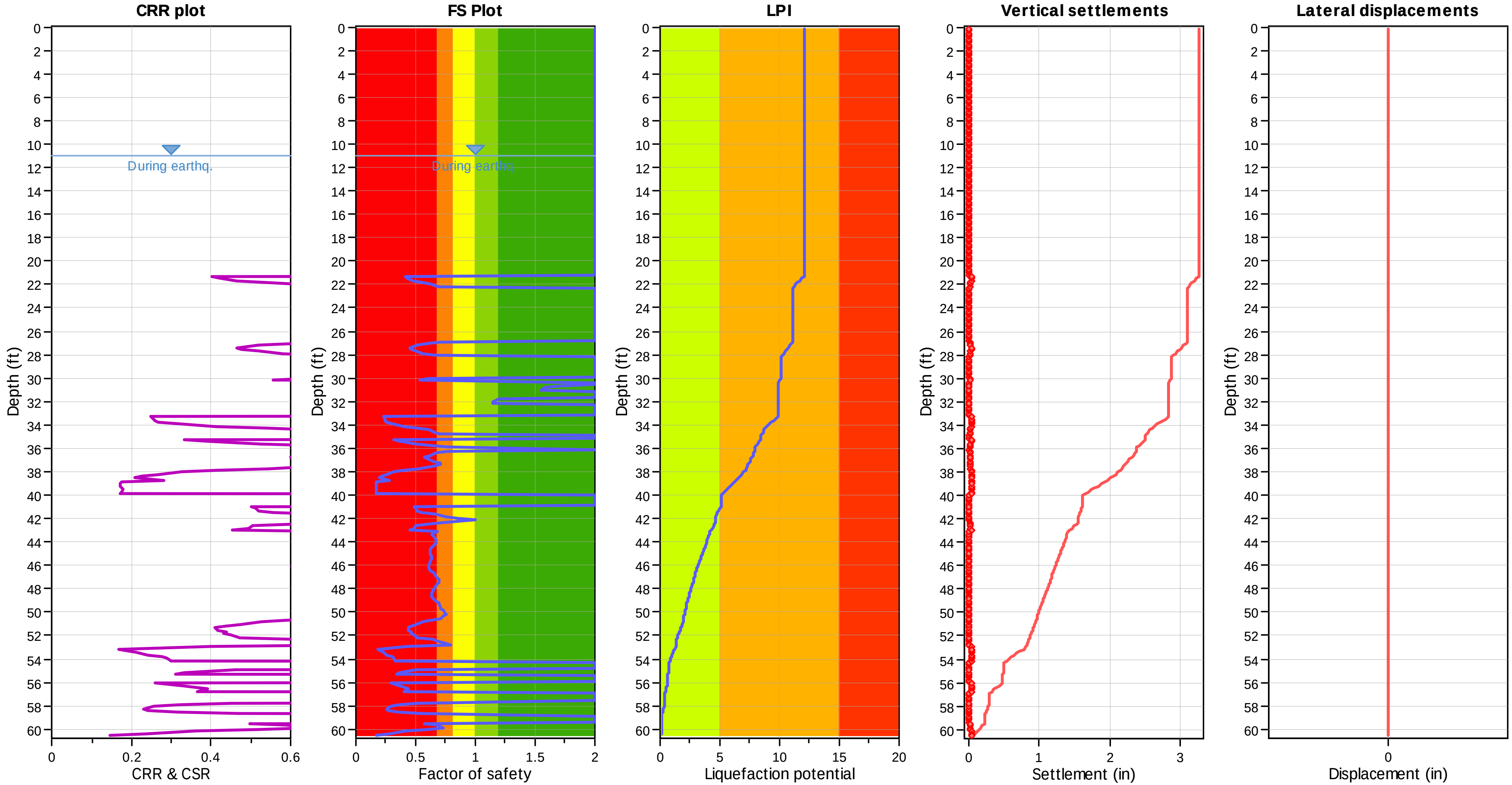
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	11.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	5	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	7.90	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	11.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	5	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	7.90	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

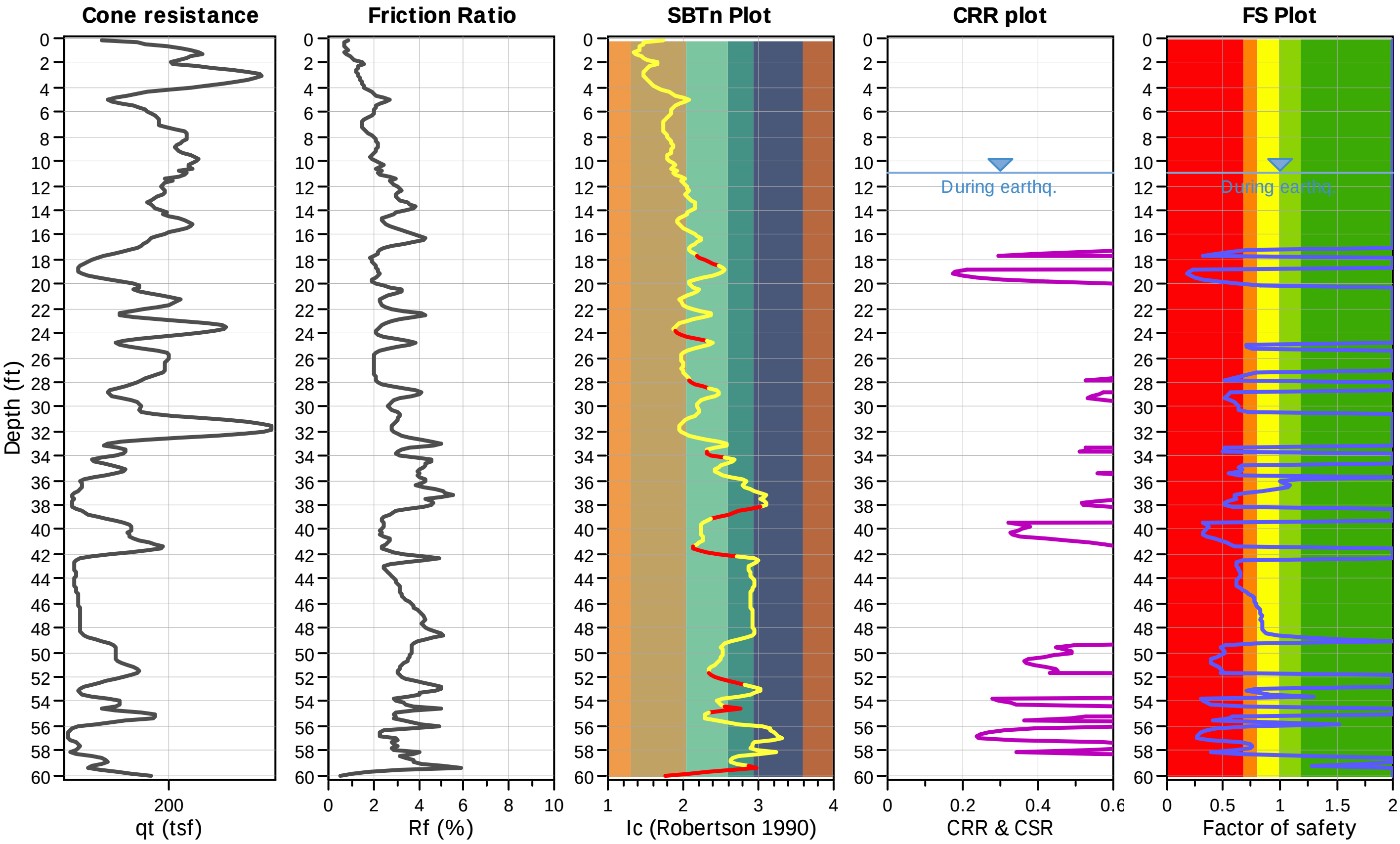
LIQUEFACTION ANALYSIS REPORT

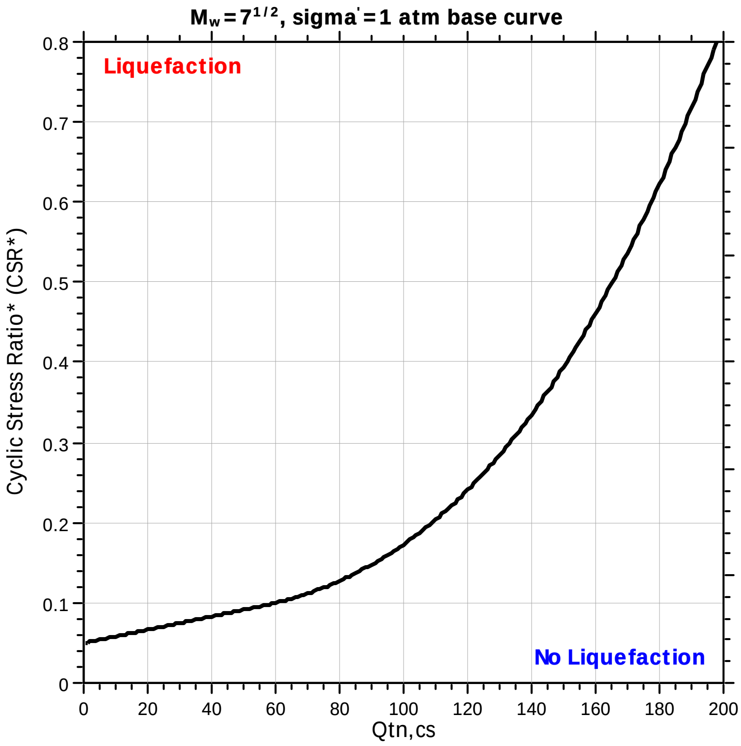
Project title : Colma Auto Dealership **Location : Colma, CA**

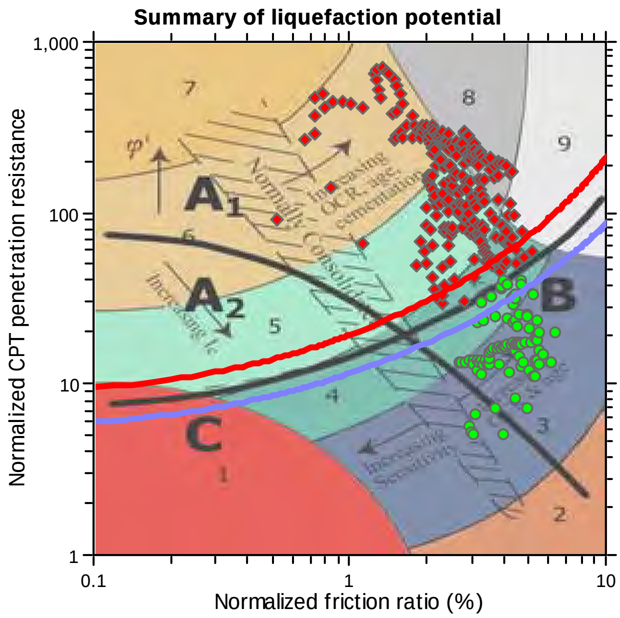
CPT file : 1-CPT3

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	11.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	11.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	5	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.90	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.06	Unit weight calculation:	Based on SBT	K_σ applied:	No		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
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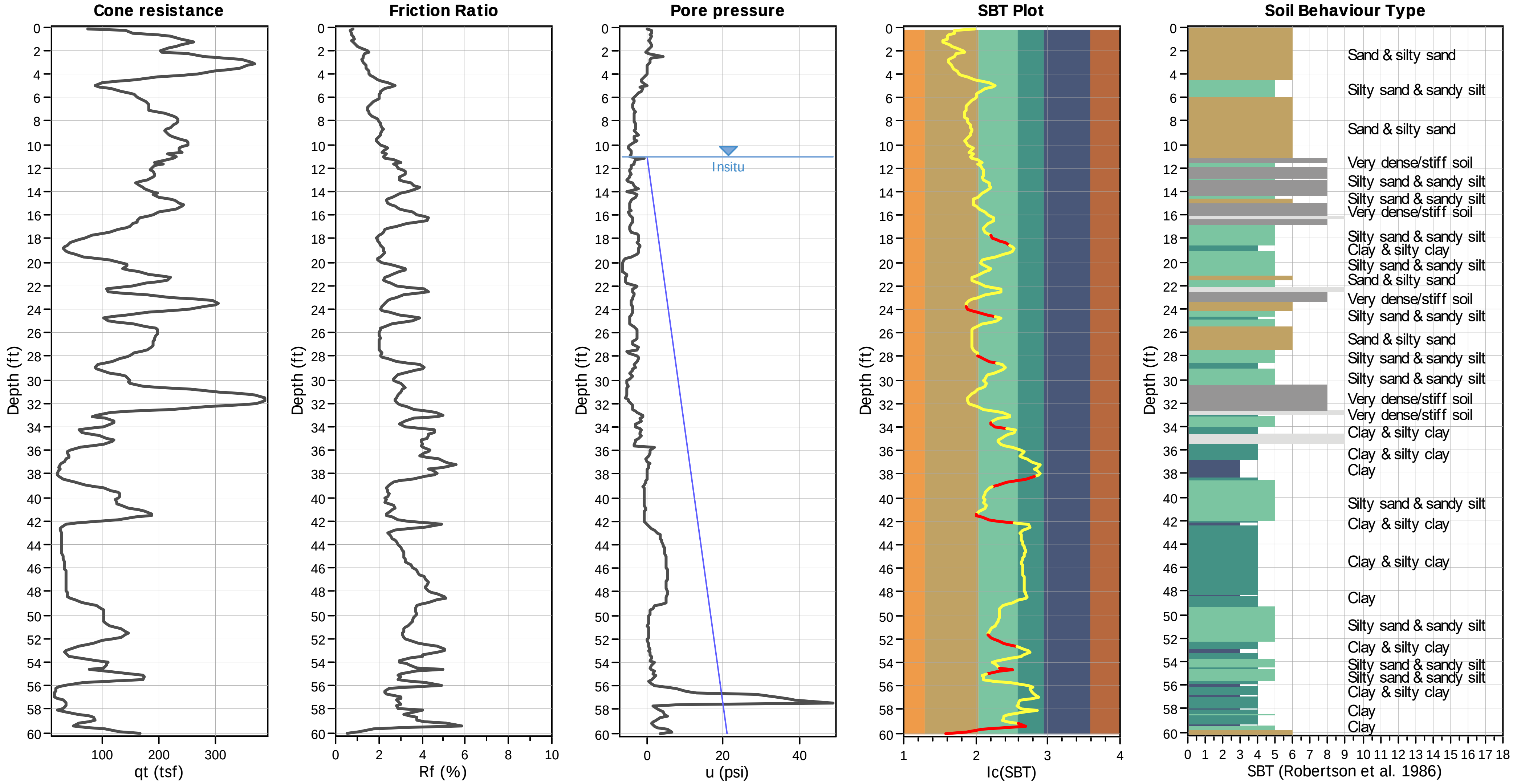
CPT basic interpretation plots



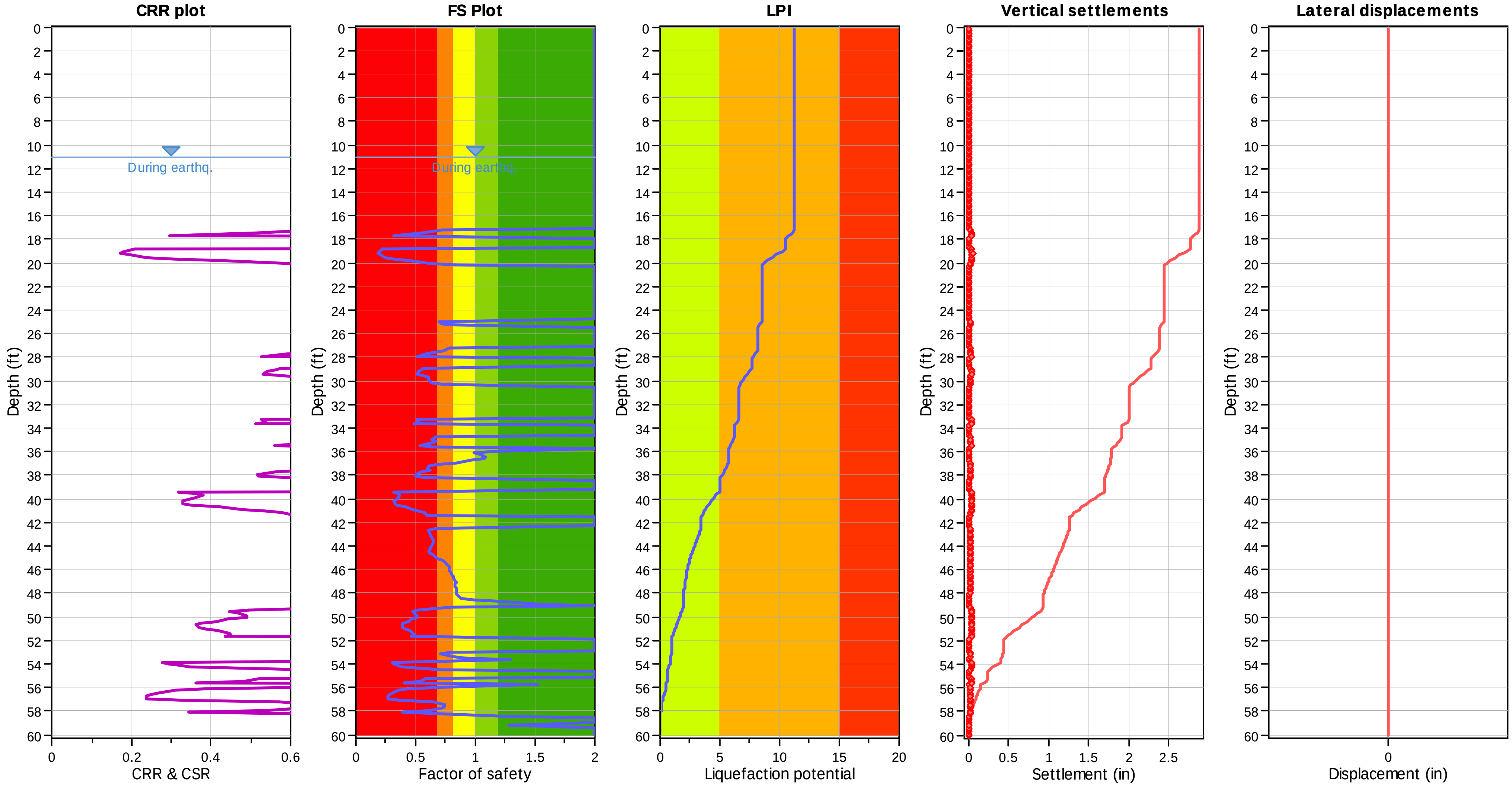
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	11.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	5	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	7.90	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	11.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	5	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
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Peak ground acceleration:	1.06	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

ENGEO

Expect Excellence

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Appendix D

Focused Traffic Study

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Traffic Study for the
775 Serramonte Boulevard Cadillac Dealership

Source: Spring Engineering

Prepared for the Town of Colma

Submitted by
W-Trans

June 3, 2020

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Table of Contents

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Executive Summary

The proposed project includes the development of a 31,547 square foot Cadillac automobile dealership at 775 Serramonte Boulevard in the Town of Colma. The project would be expected to generate an average of 877 trips per day, including 50 a.m. peak hour trips, 56 p.m. peak hour trips, and 58 trips during the weekend midday p.m. peak hour.

The study area includes five intersections all of which are operating acceptably under Existing Conditions during the three peak periods evaluated, and they are expected to continue operating acceptably with project-generated traffic added. Similarly, the study intersections are expected to operate acceptably under projected future volumes and with project trips added to Future Conditions.

Off-site facilities for pedestrians, bicycles and transit riders are adequate. While sight distance along Serramonte Boulevard is adequate from both driveways, any signage or landscaping placed near the driveway should be set back sufficiently to maintain visibility of oncoming traffic.

The proposed project would provide 241 on-site parking spaces, which is more than the number of spaces required under the Town of Colma Municipal Code.

Introduction

This report presents an analysis of the potential traffic impacts that would be associated with development of a proposed Cadillac Dealership at 775 Serramonte Boulevard in the Town of Colma. The traffic study was completed in accordance with the criteria established by the Town of Colma and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide Town staff and policy makers with data they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the Town's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

Project Profile

The project as proposed would result in the development of a 31,547 square foot Cadillac automobile dealership at 775 Serramonte Boulevard. The automobile dealership would include a showroom, a carwash and service bays for vehicle repairs. The dealership would include 17 service bays and up to 50 employees spread over two shifts per day. The former use was a Babies R Us store which sold supplies, clothing, furniture and toys for infants and small children. The specialty retail store has been closed for more than a year.

The location of the project site is shown in Figure 1.

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Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership

Figure 1 – Study Area and Existing Lane Configurations

W-Trans

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections:

1. Serramonte Boulevard/I-280 South Ramps
2. Serramonte Boulevard/I-280 North Ramps
3. Serramonte Boulevard/Junipero Serra Boulevard
4. Serramonte Boulevard/Serra Center Driveway
5. El Camino Real/Serramonte Boulevard

Operating conditions during the weekday a.m. and p.m. peak periods as well as the weekend midday peak period were evaluated to capture the highest volumes on the local transportation network during the work week. The morning peak period occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute. The p.m. peak period occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. The weekend midday peak period occurs between 12:00 noon and 2:00 p.m. and reflects peak activity for automobile sales.

Study Intersections

Serramonte Boulevard/I-280 South Ramps is a signalized tee intersection with protected left-turn phasing and a channelized right turn for the southbound off-ramp approach. There are no pedestrian or bicycle facilities at this intersection.

Serramonte Boulevard/I-280 North Ramps is a signalized tee intersection with protected left-turn phasing on the eastbound approach. There are no pedestrian or bicycle facilities at this intersection.

Serramonte Boulevard/Junipero Serra Boulevard is a signalized four-legged intersection with protected left-turn phasing on all four approaches. There are pedestrian crossings on the east and south legs with pedestrian refuge islands with pedestrian push buttons. There are Class II bike facilities on the northbound and southbound approaches.

Serramonte Boulevard/Serra Center Driveway is an all-way stop-controlled tee intersection. Pedestrian crossings are present on the north and east legs of the intersection. No bicycle facilities are present at this intersection.

El Camino Real/Serramonte Boulevard is a signalized four-legged intersection with protected left-turn phasing on the northbound and southbound approaches. The eastbound and westbound approaches operate with split phasing. There are crosswalks with pedestrian signal heads on all four approaches. This intersection has no bicycle facilities.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Study Roadways

Serramonte Boulevard is a four-lane east-west oriented arterial with 11-foot travel lanes; it has a raised median from the I-280 South ramp to Collins Avenue. There are many driveways between Junipero Serra Boulevard and Hillside Avenue; however, there is not a center two-way left turn lane so drivers wishing to make a left turn into any of these driveways must slow or stop in the travel lane to wait for an adequate gap in oncoming traffic. The posted speed limit along Serramonte Boulevard is 30 miles per hour (mph).

Junipero Serra Boulevard is a four to five lane north-south oriented arterial with 11-foot travel lanes. A raised median is present along the roadway and the posted speed limit is 40 mph.

El Camino Real is a six-lane north-south oriented regional connector with 10-foot travel lanes. A raised median is present along the study segment accompanied by left-turn storage pockets where driveways exist. The posted speed limit is 40 mph.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is February 1, 2014 through January 31, 2019.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2016 Collision Data on California State Highways*, California Department of Transportation (Caltrans). All of the study intersections experienced below-average collision rates for the period evaluated. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2014-2019)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Serramonte Blvd/I-280 South Ramps	8	0.13	0.19
2. Serramonte Blvd/I-280 North Ramps	10	0.17	0.19
3. Serramonte Blvd/Junipero Serra Blvd	5	0.07	0.24
4. Serramonte Blvd/Serra Center Dwy	-*	N/A	0.08
5. El Camino Real/Serramonte Blvd	2	0.03	0.24

Note: c/mve = collisions per million vehicles entering; * = no collisions were recorded during the study period at this intersection

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian countdown heads, curb ramps, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks, crosswalks, pedestrian countdown heads, and curb ramps provide access for pedestrians in the vicinity of the Serramonte Boulevard and Collins Avenue Master Plan project area; however, sidewalk gaps, obstacles, and barriers can be found along some of the roadways within the study area. Existing gaps and obstacles along the roadways impact convenient and continuous access for pedestrians. The lack of infrastructure or presence of obstacles present safety concerns in locations where appropriate pedestrian infrastructure should be present.

- **Serramonte Boulevard –** Crosswalks are present on the east and south legs of the intersection at Junipero Serra Boulevard to allow pedestrians to bypass the freeway ramp intersections as well as on the south and west legs of the intersection at Serra Center Driveway and on all four approaches at the intersection of Serramonte Boulevard/El Camino Real and Serramonte Boulevard/Hillside Boulevard.

- **Junipero Serra Boulevard** – Continuous sidewalks are provided along Junipero Serra Boulevard within the study area, with the exception of the west side of the roadway north of Serramonte Boulevard where pedestrians are prohibited near the freeway ramp intersections. Lighting along the roadway is provided by overhead streetlights.

- **El Camino Real** – Continuous sidewalks are provided on El Camino Real within the study area. Curb ramps and marked crosswalks are present at the intersection with Serramonte Boulevard. However, truncated domes are only present on curb ramps at the northeast and southeast corners of the intersection. Lighting along the roadway is provided by overhead lighting.

It is noted that the *Serramonte Boulevard and Collins Avenue Master Plan* proposes several pedestrian improvements in the area including:

- Detectable warning ADA pavers;
- High-contrast striping;
- Sharks teeth markings (advanced yield lines);
- Shortened pedestrian crossing distances;
- Sidewalk gap closures;
- High visibility pedestrian crossing signs;
- Standard width sidewalks to fill in existing gaps;
- Additional mid-block crossing opportunities;
- Rapid rectangular flashing beacons (RRFB) at mid-block crossings;
- Improved wayfinding and monument signage;
- Specialty pavement treatments;
- High/low signature light fixtures;
- Signature pedestrian-scale light poles and fixtures;
- Signature seating elements; and
- Trees, shrubs, perennials, and grasses to beautify the pedestrian space.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

There are no bicycle facilities on Serramonte Boulevard between Gellert Boulevard and El Camino Real. Bicyclists must ride in the roadway and/or on sidewalks. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Colma General Plan*.

Table 2 – Bicycle Facility Summary				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
Serramonte Blvd	II	0.23	Callan Blvd	Serramonte Center
Junipero Serra Blvd	II	0.56	Town Limits	Town Limits
Planned				
El Camino Real	I	1.15	F St	Town Limits
Mission St/El Camino Real	III	1.00	Town Limits	Town Limits

Source: *Colma General Plan*, Town of Colma, 1999

Transit Facilities

The Colma BART Station is located approximately one mile north of the Serramonte Boulevard and Collins Avenue Master Plan project area. Commuter rail service is provided via BART throughout Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara Counties. Service is provided seven days a week between the hours of 4:00 a.m. and 1:00 a.m. and operates on headways of 15 to 60 minutes depending on the day of the week.

The San Mateo County Transit District (SamTrans) provides fixed route bus service in the Town of Colma. SamTrans Local Route 112 provides service between the Colma Bay Area Rapid Transit (BART) Station and the Linda Mar Shopping Center in the City of Pacifica. Within the Town of Colma, Route 112 stops at the intersection of Serramonte Boulevard/Junipero Serra Boulevard, west of the Chipotle drive-through entrance. Route 112 operates Monday through Friday on approximately 60-minute headways between 6:30 a.m. and 8:00 p.m. Saturday and Sunday service operates on approximately 60-minute headways between 8:30 a.m. and 6:30 p.m.

SamTrans Local Route 120 provides service between the Colma and Daly City BART Stations. The route stops at the intersection of Serramonte Boulevard/Junipero Serra Boulevard. Route 120 operates Monday through Friday on approximately 15-minute headways between 5:00 a.m. and 12:00 a.m. Saturday service operates on approximately 60-minute headways between 6:00 a.m. and 12:00 a.m. Sunday service operates on approximately 30-minute headways between 6:00 a.m. and 11:00 p.m.

SamTrans Local Route 122 provides service between the South San Francisco BART Station and the Stonestown Shopping Center. The route stops at the intersection of Serramonte Boulevard/Junipero Serra Boulevard. Route 122 operates Monday through Friday on approximately 30-minute headways between 5:00 a.m. and 11:30 p.m. Saturday and Sunday service operate on approximately 30-minute headways between 8:00 a.m. and 11:30 p.m.

SamTrans Route ECR provides service between the Palo Alto Transit Center and the Daly City BART Station. The route stops at the intersection of Serramonte Boulevard/El Camino Real. Route ECR operates Monday through Friday on approximately 15-minute headways between 4:00 a.m. and 2:00 a.m. Saturday and Sunday service operate on approximately 20- to 30-minute headways between 4:30 a.m. and 2:00 a.m.

Two bicycles can be carried on most SamTrans buses. Bike rack space is on a first come, first served basis. Additional bicycles are allowed on SamTrans buses at the discretion of the driver with a limit of two bicycles inside the bus.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SamTrans Paratransit is designed to serve the needs of individuals with disabilities within the Town of Colma.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and is then related to a Level of Service.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the Town of Colma.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Intersection Level of Service Criteria

LOS	All-Way Stop-Controlled	Signalized
A	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual*, Transportation Research Board, 2000

Traffic Operation Standards

The Town of Colma established a Level of Service (LOS) Standard of LOS C in the *Colma General Plan*. Additionally, the General Plan states that LOS E and F are tolerated during peak periods.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday a.m. and p.m. and weekend midday peak periods. This condition does not include project-generated traffic volumes. Under existing volumes all study intersections operate at LOS D or better with the exception of the all-way stop controlled intersection of Serramonte Boulevard/Serra Center Driveway, which operates at LOS E during the weekday p.m. peak period. A summary of the intersection level of service calculations is contained in Table 4, and copies of the Level of Service calculations are provided in Appendix B. The existing traffic volumes are shown in Figure 2.

Table 4 – Existing Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak		Weekend Midday Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. Serramonte Blvd/I-280 South Ramps	10.9	B	13.9	B	16.9	B
2. Serramonte Blvd/I-280 North Ramps	1.6	A	3.8	A	3.8	A
3. Serramonte Blvd/Junipero Serra Blvd	26.6	C	34.4	C	43.1	D
4. Serramonte Blvd/Serra Center Dwy	17.4	C	44.8	E	52.8	D
5. El Camino Real/Serramonte Blvd	27.2	C	36.2	D	35.4	D

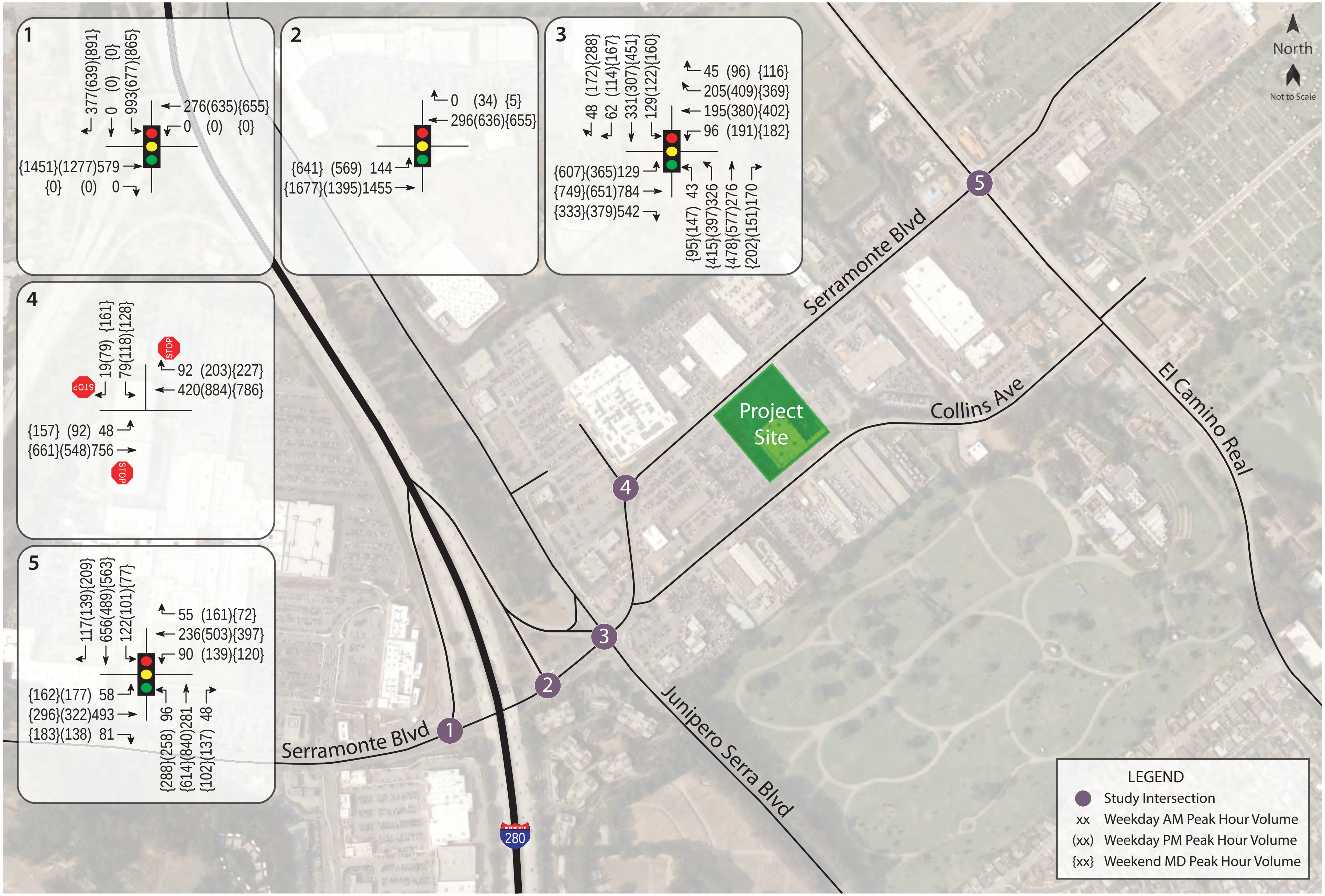
Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Future Conditions

Intersection turning movement volumes for the horizon year of 2040 were determined by applying a growth factor of one-percent per year to the turning movement volumes collected at the study intersections in 2017. The application of the growth factor was used as future roadway segment volumes were not readily available for all roadways in the study area.

The *Serramonte Boulevard and Collins Avenue Master Plan* recommendations include several changes to the existing roadway geometry, including but not limited to the following:

- Protected left-turn phasing and signal timing update at El Camino Real/Serramonte Boulevard;
- Installation of a traffic signal at the intersection of El Camino Real and Collins Avenue;
- Removal of the existing slip right-turn at Serramonte Boulevard/Collins Avenue;
- Installation of a traffic signal at the study intersection of Serramonte Boulevard/Serra Center driveway, including protected-permitted left-turn phasing on eastbound Serramonte Boulevard;
- Implementation of a road diet on Serramonte Boulevard between the Serra Center Driveway and El Camino Real to include one lane in each direction with a center two-way left-turn lane; and
- Reduction in the travel lane widths along Collins Avenue and an increase in parking capacity.



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Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership

Figure 2 – Existing Traffic Volumes

W-Trans

Under the anticipated Future volumes, and with the improvements identified above, the study intersections are expected to operate acceptably. It is noted that while LOS D demarcates the threshold of significance, the General Plan states that LOS E and F should be tolerated during peak periods. As such, all study intersections are expected to operate acceptably during peak periods. Operating conditions are summarized in Table 5 and Future volumes are shown in Figure 3.

Table 5 – Future Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak		Weekend Midday Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
1. Serramonte Blvd/I-280 South Ramps	13.1	B	17.3	B	26.3	C
2. Serramonte Blvd/I-280 North Ramps	1.6	A	4.1	A	4.5	A
3. Serramonte Blvd/Junipero Serra Blvd	33.5	C	47.0	D	66.7	E
4. Serramonte Blvd/Serra Center Dwy	5.4	A	9.5	A	17.6	B
5. El Camino Real/Serramonte Blvd	39.0	D	51.5	D	35.3	D

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Project Description

The project as proposed would result in the development of a 31,547 square foot Cadillac automobile dealership at 775 Serramonte Boulevard. The automobile dealership would include a showroom, a carwash and service bays for vehicle repairs, with 17 service bays and up to 55 employees spread between two shifts per day. The site as previously occupied by a Babies R Us which sold supplies, clothing, furniture and toys for infants and small children and has been closed for almost a year. The proposed project site plan is shown in Figure 4.

Trip Generation

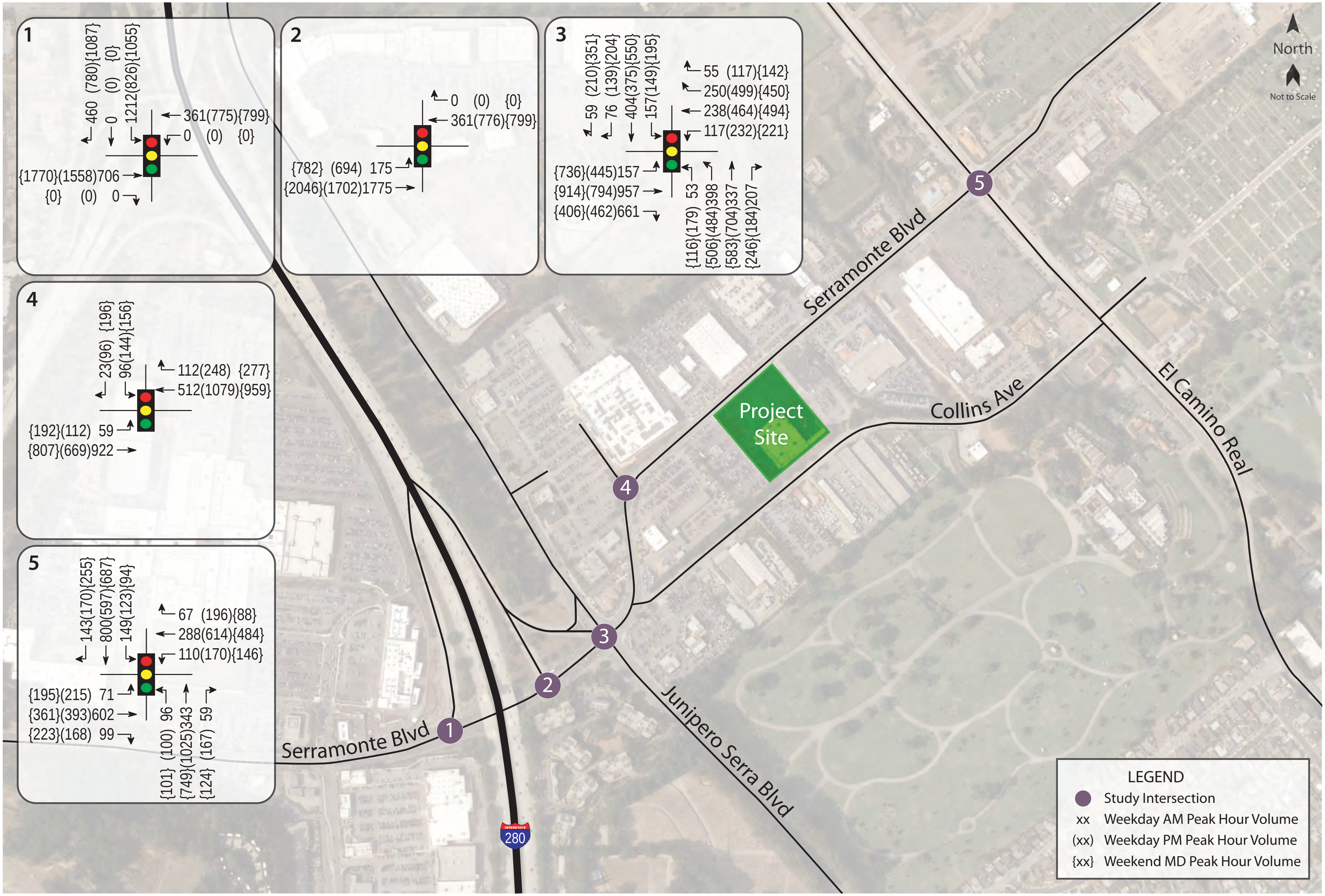
The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for an Automobile Dealership (Land Use #840), as this description most closely matches the proposed project. The independent variable of square footage was found to provide the highest trip generation results for weekday trips, whereas the number of employees results in the highest trip generation for weekday a.m. and p.m. peak commute hours.

Based on application of the rates associated with these variables to the different scenarios as indicated, the proposed project is expected to generate an average of 877 trips per day, including 50 weekday a.m. peak hour trips, 56 weekday p.m. peak hour trips, and 127 trips during the weekend midday peak hour. These results are summarized in Table 6.

Table 6 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour			PM Peak Hour			Weekend Midday Peak Hour		
		Rate	Trips	Rate	Trips	In/Out	Rate	Trips	In/Out	Rate	Trips	In/Out
Automobile Dealership	31.55 ksf	27.84	877							4.02	127	64/63
	55 emp			0.91	50	35/15	1.02	56	25/31			

Note: ksf = thousand square feet; emp = employees



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Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership

Figure 3 – Future Traffic Volumes

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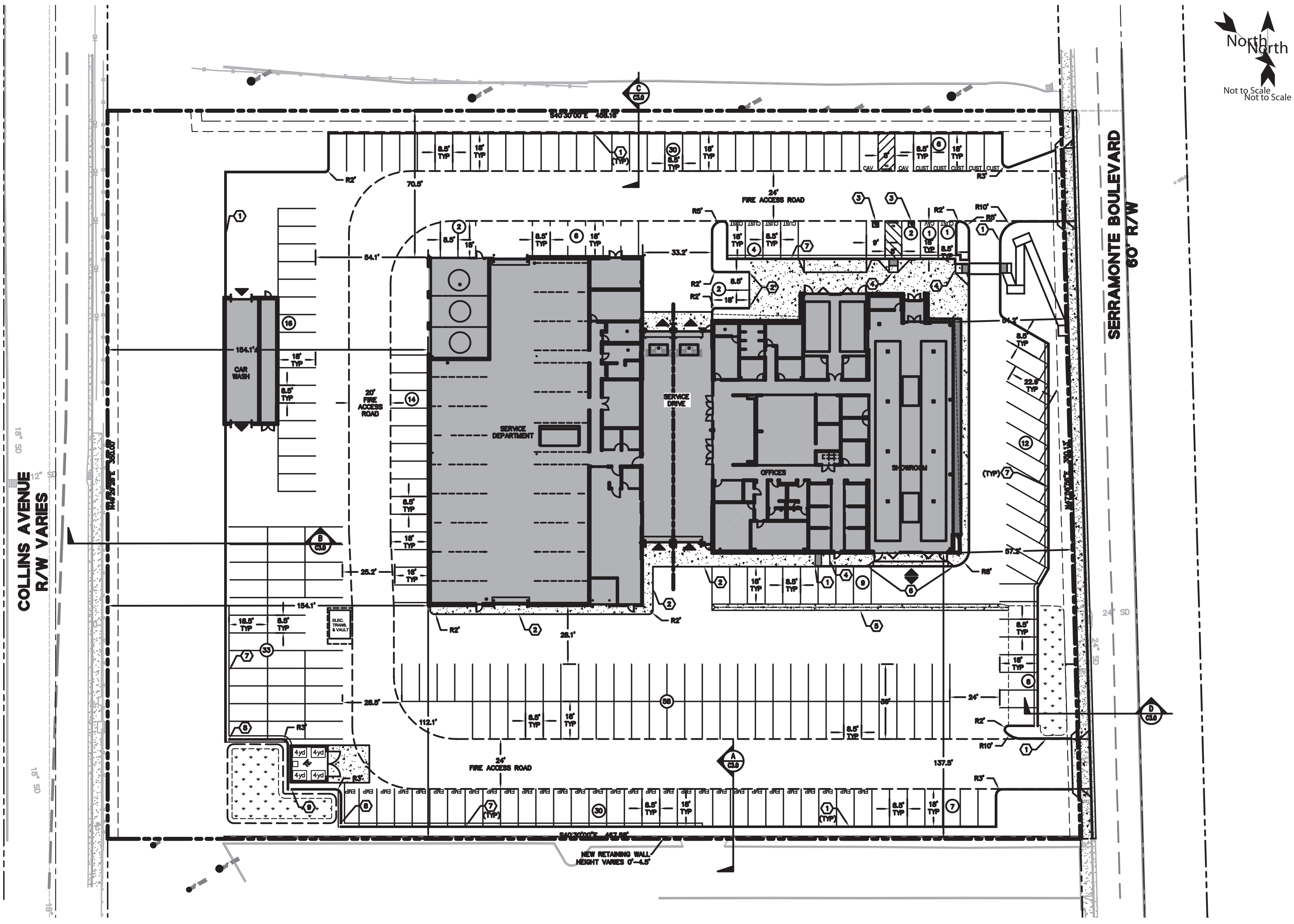

Source: BKF Engineers 04/2020

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Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership

Figure 4 – Site Plan

Trip Distribution

The pattern used to allocate new project trips to the street network was determined from information provided by the applicant and based on engineering judgment the assumptions shown in Table 7 were developed and applied.

Table 7 – Trip Distribution Assumptions					
Route	**Percent**	**Daily Trips**	**AM Trips**	**PM Trips**	**Weekend Midday Trips**
Serramonte Blvd west of I-280	5%	45	3	3	6
I-280 north of Serramonte Blvd	20%	175	9	11	26
I-280 south of Serramonte Blvd	20%	175	10	11	26
Junipero Serra Blvd north of Serramonte Blvd	20%	175	9	11	26
Junipero Serra Blvd south of Serramonte Blvd	20%	175	10	11	25
El Camino Real south of Serramonte Blvd	5%	44	3	3	6
El Camino Real north of Serramonte Blvd	5%	44	3	3	6
Serramonte Blvd east of El Camino Real	5%	44	3	3	6
Total	**100%**	**877**	**50**	**56**	**127**

Vehicle Miles Traveled (VMT)

Senate Bill (SB) 743 established a change in the metric to be applied to determining traffic impacts associated with development projects. Rather than the delay-based criteria associated with a Level of Service analysis, the change in Vehicle Miles Traveled (VMT) as a result of a project will be the basis for determining California Environmental Quality Act (CEQA) impacts with respect to transportation and traffic.

VMT significance thresholds for retail projects are based on total VMT. A retail project resulting in an increase to the region's total VMT may reflect a significant impact. Research has shown local-serving retail uses, typically those under 50,000 square feet in size, tend to *shift* where vehicle trips occur rather than generate wholly new trips (and corresponding vehicle miles traveled). This premise is supported by the California Office of Planning and Research (OPR) in its publication *Technical Advisory on Evaluation Transportation Impacts in CEQA*, December 2018, as well as draft VMT threshold guidance established by C/CAG. Because the proposed project is less than 50,000 square feet and would be expected to shift *where* people purchase or service a vehicle rather than increase the number of vehicles being sold or serviced in the Bay Area, it is reasonable to presume that total VMT associated with customer activity would not increase. The presence of Cadillac dealerships in other Bay Area communities including Burlingame, Santa Clara, Fremont, Dublin, Walnut Creek, and Vallejo also reinforces the conclusion that most customers to the Colma dealership are likely to travel from nearby communities (with shorter trip lengths).

While the proposed project can be characterized as a retail use, it would employ approximately 55 employees and may warrant consideration of the VMT associated with employee trips. OPR and C/CAG guidance for employment-based travel uses a metric of home-based VMT per employee. A proposed project exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact. OPR encourages the use of screening maps to establish geographic areas that achieve the 15 percent below regional average thresholds, allowing jurisdictions to "screen" projects in those areas from quantitative VMT analysis since impacts can be presumed to be less than significant. C/CAG prepared a draft screening map in 2018 that shows the project site to be within a screened area where VMT per employee is more than 15 percent below the regional average.

It is therefore reasonable to conclude that the project will have a less-than-significant VMT impact associated with employee travel. A copy of the VMT screening map is included in Appendix C.

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to operate acceptably with exception of the Serramonte Boulevard/Serra Center Driveway, which is expected to operate at LOS F during the weekday p.m. and weekend midday peak hours. These results are summarized in Table 8. Existing plus Project traffic volumes are shown in Figure 5.

Table 8 – Existing and Existing Plus Project Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak		Weekend Midday Peak	
	Existing	Existing + Project	Existing	Existing + Project	Existing	Existing + Project
1. Serramonte Blvd/I-280 South Ramps	10.9/B	10.9/B	13.9/B	13.0/B	16.9/B	17.1/B
2. Serramonte Blvd/I-280 North Ramps	1.6/A	1.6/A	3.8/A	3.8/A	3.8/A	3.8/A
3. Serramonte Blvd/Junipero Serra Blvd	26.6/C	26.9/C	34.4/C	34.9/C	43.1/D	44.4/D
4. Serramonte Blvd/Serra Center Dwy	17.4/C	19.0/C	44.8/E	50.2/F	52.8/D	68.5/F
5. El Camino Real/Serramonte Blvd	27.2/C	27.4/C	36.2/D	36.4/D	35.4/D	35.9/D

Notes: Results presented as Delay/LOS; Delay is measured in average seconds per vehicle; LOS = Level of Service

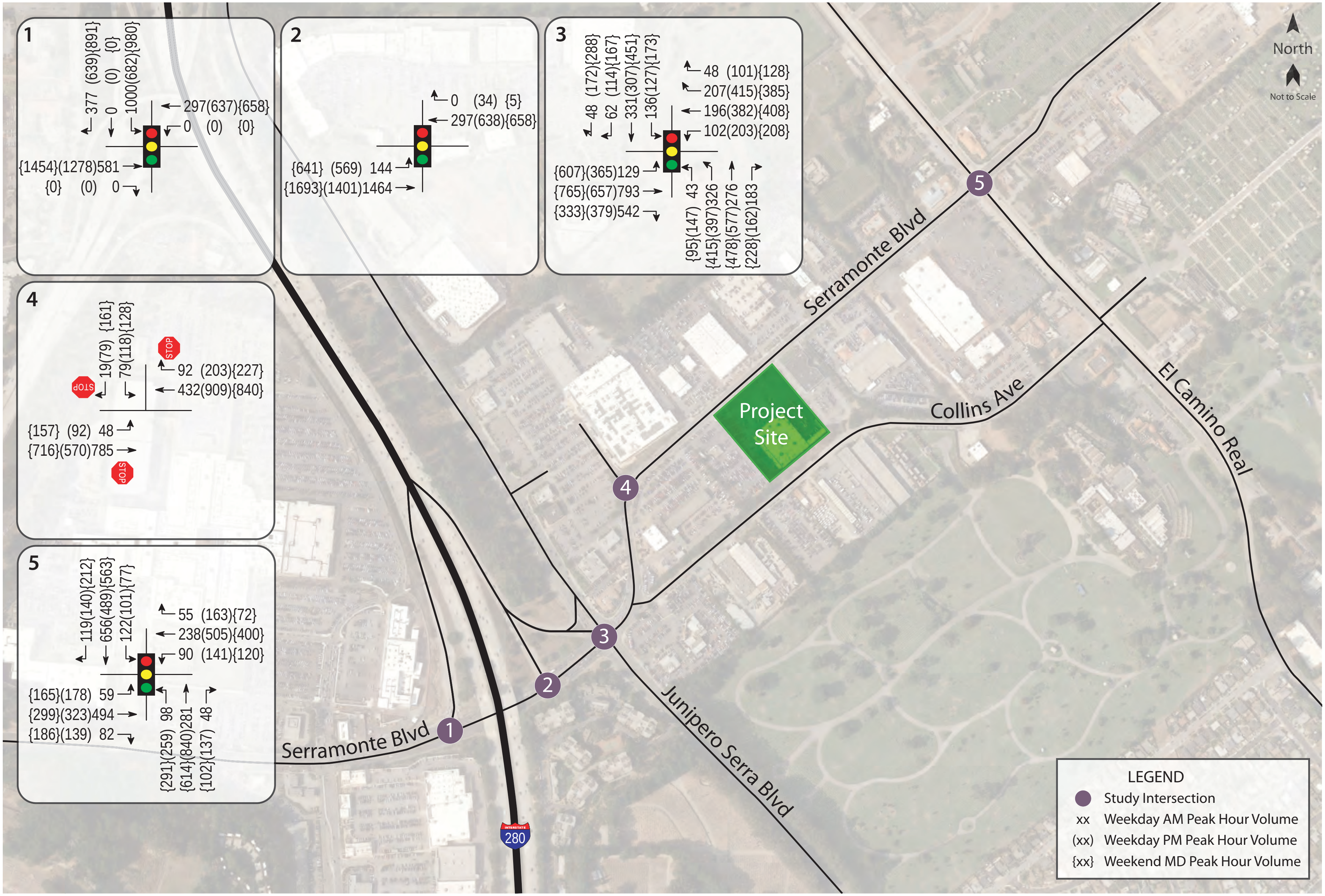
It should be noted that with the addition of project-related traffic volumes, average delay at the intersection of Serramonte Blvd/I-280 South Ramps decreases during the p.m. peak hour. While this is counter-intuitive, this condition occurs when a project adds trips to movements that are currently underutilized or have delays that are below the intersection average, resulting in a better balance between approaches and lower overall average delay. The project adds traffic predominantly to the through movement, which has an average delay that is lower than the average for the intersection as a whole, resulting in a slight reduction in the overall average delay. The conclusion could incorrectly be drawn that the project actually improves operation based on this data alone; however, it is more appropriate to conclude that the project trips are expected to make use of excess capacity, so drivers will experience little, if any, change in conditions as a result of the project.

Finding – The addition of project generated trips would result in the deterioration of the operation at the Serramonte Boulevard/Serra Center Driveway from LOS E to LOS F during the weekday p.m. peak hour, and from LOS D to LOS F during the weekend midday peak hour.

Recommendations – The intersection of Serramonte Boulevard/Serra Center Driveway is programmed to undergo signalization as recommended in the *Serramonte Boulevard and Collins Avenue Master Plan*. The project should pay its fair share contribution toward the addition of a traffic signal at this location.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes, and with the planned improvements, the study intersections are expected to operate acceptably. Future plus Project traffic volumes are shown in Figure 6. The Future plus Project operating conditions are summarized in Table 9.



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Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership

Figure 5 – Existing plus Project Traffic Volumes

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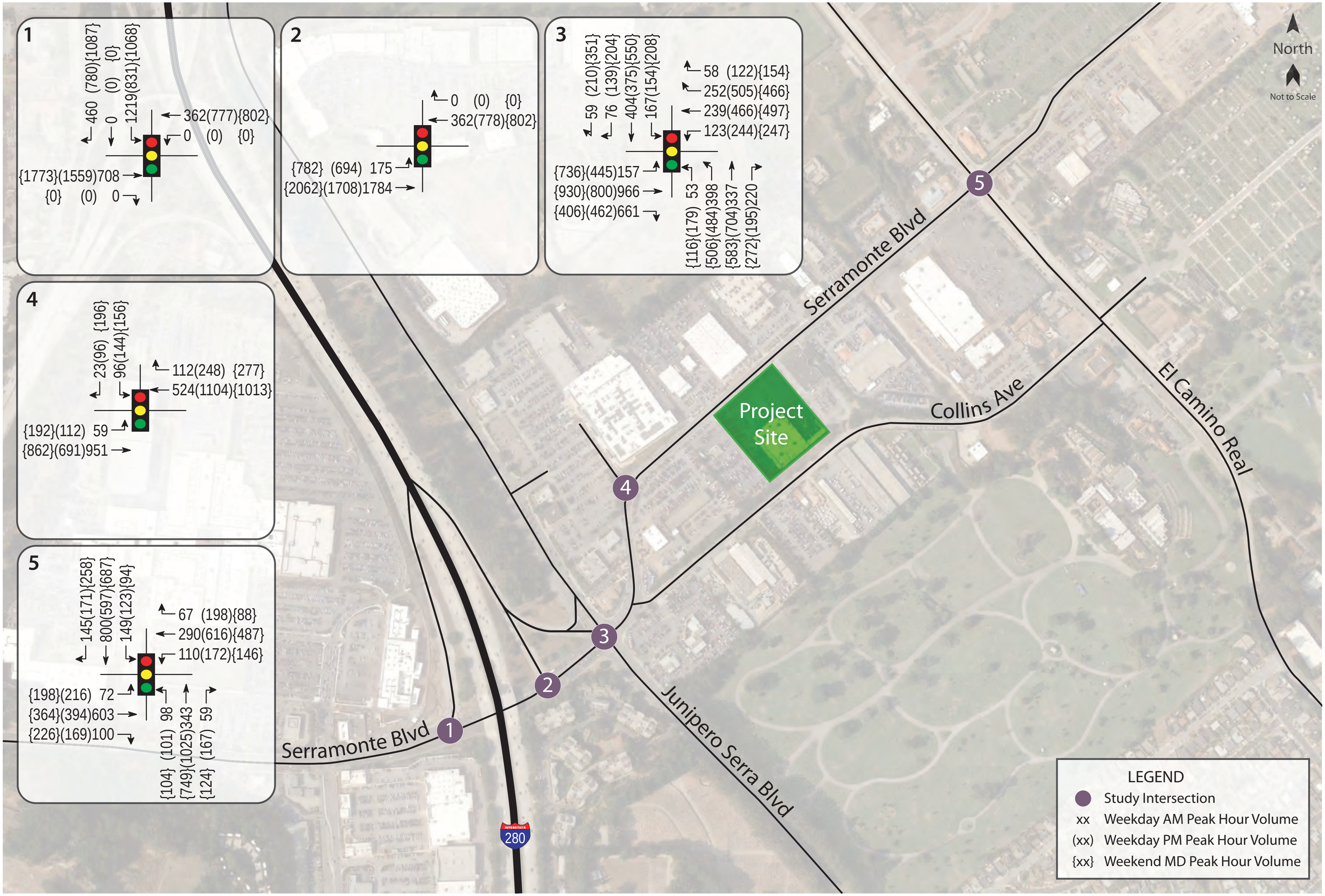

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Traffic Study for the 775 Serramonte Boulevard Cadillac Dealership

Figure 6 – Future plus Project Traffic Volumes

W-Trans

Table 9 – Future and Future Plus Project Peak Hour Intersection Levels of Service						
Study Intersection	**AM Peak**		**PM Peak**		**Weekend Midday Peak**	
	Future	**Future + Project**	**Future**	**Future + Project**	**Future**	**Future + Project**
1. Serramonte Blvd/I-280 South Ramps	13.1/B	13.1/B	17.3/B	17.5/B	26.3/C	27.0/C
2. Serramonte Blvd/I-280 North Ramps	1.6/A	1.6/A	4.1/A	4.1/A	4.5/A	4.5/A
3. Serramonte Blvd/Junipero Serra Blvd	33.5/C	33.9/C	47.0/D	48.0/D	66.7/E	69.2/E
4. Serramonte Blvd/Serra Center Dwy	5.4/A	5.4/A	9.5/A	9.6/A	17.6/B	20.5/C
5. El Camino Real/Serramonte Blvd	39.0/D	39.2/D	51.5/D	52.0/D	35.3/D	37.1/D

Notes: Results presented as Delay/LOS; Delay is measured in average seconds per vehicle; LOS = Level of Service

Finding – The study intersections would continue operating acceptably with project traffic added to future volumes, except Serramonte Boulevard/Junipero Serra where LOS E operation during the weekend midday peak period would continue to be experienced. No improvements are recommended as LOS E and F are considered acceptable during peak periods.

Proportional Share

Based on direction provided by the Town relative to the Serramonte Boulevard and Collins Avenue Master Plan project, funds are to be collected for the installation of a traffic signal at the intersection of Serramonte Boulevard/Serra Center Driveway. The estimated cost for signalization of the intersection based on the initial design plans is $600,000. The Town has developed an equitable share program where it collects fees from developers proportionate to the traffic generated by each development. This calculation was applied to determine the project's equitable share of the cost of the traffic signal installation.

Based on the trip distribution detailed above, the majority of the project's trips would be expected to travel through the intersection of Serramonte Boulevard/Serra Center Driveway. Using the existing and projected future turning movements for the intersection together with the estimated net new project trips, the project's proportional share for improvements to the intersection is 4.3 percent. It is recommended that the applicant contribute an equitable share of the costs to signalize the all-way stop-controlled intersection of Serramonte Boulevard/Serra Center Driveway, or $26,062 of the estimated $600,000 associated with this improvement. A copy of the spreadsheet indicating the fee calculation is provided in Appendix D.

Alternative Modes

Pedestrian Facilities

Given the proximity of existing automobile dealerships, Target, and other commercial businesses in the Serra Shopping Center near the site, it is reasonable to assume that some project patrons and employees will want to walk, bicycle, and/or use transit to reach the project site.

Project Site – Sidewalks exist along the project frontage and along the eastern edge of the parking area between Serramonte Boulevard and El Camino Real. No other pedestrian amenities are proposed.

Finding – Pedestrian facilities currently serving the project site are adequate.

Bicycle Facilities

Existing bicycle facilities, including bike lanes on Serramonte and Junipero Serra Boulevards, together with shared use of minor streets, provide adequate access for bicyclists.

Bicycle Storage

The site plans for the proposed project do not include bicycle storage as it is not required within the Town of Colma Municipal Code.

Finding – Bicycle facilities serving the project site are adequate.

Transit

Existing transit routes are adequate to accommodate project-generated transit trips. Existing stops are within an acceptable walking distance of the site.

Finding – Transit facilities serving the project site are adequate.

Access and Circulation

Site Access

Access to the project site would be provided by two existing full-access driveways on Serramonte Boulevard located approximately 545 and 745 feet east of the intersection at Serra Center Driveway. The western driveway is approximately 27 feet wide and the eastern driveway would be approximately 26 feet wide, both with the exit approach stop-controlled. Driveways of this width would be expected to provide ample space to allow two-way access and would also be sufficient for an emergency response vehicle to enter and exit the project site safely.

Sight Distance

Sight distance along Serramonte Boulevard at the project driveways was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for driveway approaches is based on stopping sight distance and uses the approach travel speed as the basis for determining the recommended sight distance. The stopping sight distance was field measured and, for the purposes of the sight distance review, a speed of 30 mph with a stopping sight distance of 200 feet was applied.

At the eastern driveway, sight distance to the east is about 430 feet and sight distance to the west is approximately 360 feet. At the western driveway sight distance to the east is approximately 200 feet and it is approximately 575 feet to the west.

There are shrubs east of the western project driveway between the sidewalk and the parking lot of the existing development. These shrubs appeared to be neglected as the property has been vacant for approximately a year. While existing sight distance is adequate, the shrubs have the potential to encroach into sight distance triangles if not adequately maintained.

Finding – Based on field observations, sight distances along Serramonte Boulevard at the project driveways are adequate for the posted speed limit of 30 mph.

Recommendation – Any proposed signage or landscaping should be placed back from the road sufficiently to maintain adequate sight lines.

Parking

Parking Supply Required

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. The project site as proposed would provide a total of 241 standard parking spaces including 30 for employees and 10 for customers.

Town of Colma parking supply requirements are based on the Town of Colma Municipal Code, Section 5.03.290 Restrictions Applicable to "C" Zone. The municipal code requires auto dealerships to provide parking at a rate of one (1.0) spaces per 1,000 square feet of gross leasable area (GLA). Under the Town's code, 36 spaces would be required for the 31,547 square foot building. The proposed parking supply would satisfy the requirements set forth in the Municipal Code.

The proposed parking supply and Town requirements are shown in Table 10.

Table 10 – Parking Analysis Summary

Land Use	Units	Supply (spaces)	Town Requirements	
			Rate	Spaces Required
Automobile Dealership	31.55 ksf	241	1.0 for 1,000 GLA	36

Notes: ksf = 1,000 square feet; GLA = Gross Leasable Area

Finding – The proposed parking supply for the automobile dealership would satisfy the Town's Municipal Code.

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate an average of 877 trips per day, including 50 trips during the weekday a.m. peak hour and 56 during the p.m. peak hour, and 127 trips during the weekend midday peak hour.

- VMT as a result of the addition of project trips to the study area is expected to be less than the regional average.

- The study intersections operate acceptably under the applicable standards during all peak hours under Existing volumes and would be expected to continue doing so under Existing plus Project volumes.

- Under Future volumes and with planned improvements, including signalization of Serramonte Boulevard/Serra Center Driveway, the study intersections would be expected to operate acceptably under the applicable standards during all peak hours. Service levels would be unchanged under Future plus Project volumes.

- Sight distance from the project driveways is adequate based on the posted speed limit.

Recommendations

- Any signage or landscaping placed near the driveway should be set back sufficiently to maintain visibility of oncoming traffic.

- The applicant should contribute a total of $26,062 as a proportional share cost for the signalization of the intersection of Serramonte Boulevard/Serra Center Driveway.

Study Participants and References

Study Participants

Principal in Charge	Mark E. Spencer, TE
Assistant Planner	Andre Huff
Graphics/Editing/Formatting	Hannah Yung-Boxdell
Quality Control	Dalene J. Whitlock, PE, PTOE

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Calculations

775 Serramonte Boulevard Cadillac

Intersection # 1: Serramonte Boulevard & I-280 South Ramps

Date of Count: Friday, December 1, 2017

Number of Collisions: 8
Number of Injuries: 4
Number of Fatalities: 0
ADT: 33300
Start Date: February 1, 2014
End Date: January 31, 2019
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{8 \quad x \quad 1{,}000{,}000}{33{,}300 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.13 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.19 c/mve**	**0.4%**	**46.8%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 2: Serramonte Boulevard & I-280 North Ramps

Date of Count: Friday, December 1, 2017

Number of Collisions: 8
Number of Injuries: 4
Number of Fatalities: 0
ADT: 26300
Start Date: February 1, 2014
End Date: January 31, 2019
Number of Years: 5

Intersection Type: Tee
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{8 \quad x \quad 1{,}000{,}000}{26{,}300 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.17 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.19 c/mve**	**0.4%**	**46.8%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 3: Junipero Serra Boulevard & Serramonte Boulevard
Date of Count: Friday, December 1, 2017

Number of Collisions: 5
Number of Injuries: 1
Number of Fatalities: 0
ADT: 37400
Start Date: February 1, 2014
End Date: January 31, 2019
Number of Years: 5

Intersection Type: Multi-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{5 \quad x \quad 1{,}000{,}000}{37{,}400 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.07 c/mve**	**0.0%**	**20.0%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**44.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 4: Serramonte Boulevard & Serra Center Driveway
Date of Count: Friday, December 1, 2017

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 19200
Start Date: February 1, 2014
End Date: January 31, 2019
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{19{,}200 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.08 c/mve**	**1.0%**	**45.1%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 5: El Camino Real & Serramonte Boulevard

Date of Count: Friday, December 1, 2017

Number of Collisions: 2
Number of Injuries: 1
Number of Fatalities: 0
ADT: 34000
Start Date: February 1, 2014
End Date: January 31, 2019
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{2 \quad x \quad 1{,}000{,}000}{34{,}000 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.03 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**44.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 6: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22 c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 7: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad \text{x} \quad 1{,}000{,}000}{0 \quad \text{x} \quad 365 \quad \text{x} \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 8: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad \text{x} \quad 1{,}000{,}000}{0 \quad \text{x} \quad 365 \quad \text{x} \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 9: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1,000,000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 10: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1,000,000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 11: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

collision rate = $\frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$

collision rate = $\frac{0 \quad x \quad 1,000,000}{0 \quad x \quad 365 \quad x \quad 0}$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 12: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

collision rate = $\frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$

collision rate = $\frac{0 \quad x \quad 1,000,000}{0 \quad x \quad 365 \quad x \quad 0}$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 13: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 14: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 15: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1,000,000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 16: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1,000,000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 17: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 18: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Calculaions

775 Serramonte Boulevard Cadillac

Intersection # 19: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 20: &

Date of Count: Saturday, January 0, 1900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
ADT: 0
Start Date: January 0, 1900
End Date: January 0, 1900
Number of Years: 0

Intersection Type: 0
Control Type: 0
Area: 0

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{0 \quad x \quad 1{,}000{,}000}{0 \quad x \quad 365 \quad x \quad 0}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Intersection	**0.00**	**c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.22**	**c/mve**	**1.0%**	**34.6%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Appendix B

Intersection Level of Service Calculations

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HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	579	296	0	993	377
Future Volume (vph)	0	579	296	0	993	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	609	312	0	1045	397
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	609	312	0	1045	397
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		17.8	8.5		22.3	32.1
Effective Green, g (s)		17.8	8.5		22.3	32.1
Actuated g/C Ratio		0.37	0.18		0.46	0.66
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1301	893		1581	1848
v/s Ratio Prot		c0.17	0.06		c0.30	0.14
v/s Ratio Perm						
v/c Ratio		0.47	0.35		0.66	0.21
Uniform Delay, d1		11.7	17.5		10.1	3.2
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	0.2		1.0	0.1
Delay (s)		12.0	17.8		11.2	3.3
Level of Service		B	B		B	A
Approach Delay (s)		12.0	17.8		9.0	
Approach LOS		B	B		A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	2	142	1455	296	0	0	0
Future Volume (vph)	2	142	1455	296	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	1.00			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3539			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	149	1532	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	151	1532	312	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		5.9	36.4	22.9			
Effective Green, g (s)		5.9	36.4	22.9			
Actuated g/C Ratio		0.16	1.00	0.63			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		556	3539	2226			
v/s Ratio Prot		0.04	c0.43	0.09			
v/s Ratio Perm							
v/c Ratio		0.27	0.43	0.14			
Uniform Delay, d1		13.4	0.0	2.7			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.1	0.0			
Delay (s)		13.6	0.1	2.8			
Level of Service		B	A	A			
Approach Delay (s)			1.3	2.8		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	36.4	Sum of lost time (s)	7.6
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	129	784	542	96	195	205	45	4	39	326	276	170
Future Volume (vph)	129	784	542	96	195	205	45	4	39	326	276	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1556	1770	3205	1441				3433	3539	1557
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1556	1770	3205	1441				3433	3539	1557
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	136	825	571	101	205	216	47	4	41	343	291	179
RTOR Reduction (vph)	0	0	387	0	0	79	0	0	0	0	0	142
Lane Group Flow (vph)	136	825	184	101	322	67	0	0	0	388	291	37
Confl. Peds. (#/hr)			7									6
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Split	Split	Split	NA	Perm
Protected Phases	5	2		1	6			3	3	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	8.3	26.4	26.4	7.9	25.4	25.4				16.9	16.9	16.9
Effective Green, g (s)	8.3	26.4	26.4	7.9	25.4	25.4				16.9	16.9	16.9
Actuated g/C Ratio	0.10	0.32	0.32	0.10	0.31	0.31				0.21	0.21	0.21
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	348	1142	502	170	995	447				709	731	321
v/s Ratio Prot	0.04	c0.23		c0.06	0.10					c0.11	0.08	
v/s Ratio Perm			0.12			0.05						0.02
v/c Ratio	0.39	0.72	0.37	0.59	0.32	0.15				0.55	0.40	0.12
Uniform Delay, d1	34.4	24.5	21.3	35.4	21.6	20.4				29.0	28.1	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	0.3	1.9	0.2	3.7	0.1	0.1				0.5	0.1	0.1
Delay (s)	34.6	26.4	21.4	39.1	21.7	20.5				29.5	28.2	26.4
Level of Service	C	C	C	D	C	C				C	C	C
Approach Delay (s)		25.3			24.5						28.4	
Approach LOS		C			C						C	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	16.2
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	10	119	331	62	48
Future Volume (vph)	10	119	331	62	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.98		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3456		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3456		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	125	348	65	51
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	136	413	0	51
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		15.0	15.0		81.8
Effective Green, g (s)		15.0	15.0		81.8
Actuated g/C Ratio		0.18	0.18		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		324	633		1583
v/s Ratio Prot		0.08	c0.12		
v/s Ratio Perm					c0.03
v/c Ratio		0.42	0.65		0.03
Uniform Delay, d1		29.5	31.0		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.3	1.8		0.0
Delay (s)		29.9	32.8		0.0
Level of Service		C	C		A
Approach Delay (s)			29.4		
Approach LOS			C		

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis
4: Serramonte Blvd & Serra Center Driveway

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	48	756	420	92	79	19
Future Volume (vph)	48	756	420	92	79	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	51	796	442	97	83	20

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	316	531	295	244	103
Volume Left (vph)	51	0	0	0	83
Volume Right (vph)	0	0	0	97	20
Hadj (s)	0.11	0.03	0.03	-0.24	0.08
Departure Headway (s)	5.6	5.5	5.9	5.6	6.5
Degree Utilization, x	0.49	0.81	0.48	0.38	0.19
Capacity (veh/h)	623	640	595	622	525
Control Delay (s)	12.7	27.0	13.1	10.8	11.0
Approach Delay (s)	21.7		12.0		11.0
Approach LOS	C		B		B

Intersection Summary			
Delay	17.4		
Level of Service	C		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	58	493	81	1	89	236	55	1	95	281	48	8
Future Volume (vph)	58	493	81	1	89	236	55	1	95	281	48	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5				3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor		0.95				0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00				1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes		1.00				1.00	1.00		1.00	1.00	1.00	
Frt		0.98				1.00	0.85		1.00	1.00	0.85	
Flt Protected		1.00				0.99	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		3447				3491	1559		1770	5085	1558	
Flt Permitted		1.00				0.99	1.00		0.95	1.00	1.00	
Satd. Flow (perm)		3447				3491	1559		1770	5085	1558	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	519	85	1	94	248	58	1	100	296	51	8
RTOR Reduction (vph)	0	12	0	0	0	0	47	0	0	0	37	0
Lane Group Flow (vph)	0	653	0	0	0	343	11	0	101	296	14	0
Confl. Peds. (#/hr)			11				5				5	
Turn Type	Split	NA		Split	Split	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	8	8		7	7	7		1	1	6		5
Permitted Phases							7				6	
Actuated Green, G (s)		20.5				14.3	14.3		7.9	21.4	21.4	
Effective Green, g (s)		20.5				14.3	14.3		7.9	21.4	21.4	
Actuated g/C Ratio		0.26				0.18	0.18		0.10	0.27	0.27	
Clearance Time (s)		3.5				3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)		2.0				2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)		897				634	283		177	1382	423	
v/s Ratio Prot		c0.19				c0.10			0.06	0.06		
v/s Ratio Perm							0.01				0.01	
v/c Ratio		0.73				0.54	0.04		0.57	0.21	0.03	
Uniform Delay, d1		26.6				29.2	26.5		33.8	22.1	21.0	
Progression Factor		1.00				1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		2.5				0.5	0.0		2.7	0.1	0.0	
Delay (s)		29.1				29.7	26.5		36.5	22.3	21.1	
Level of Service		C				C	C		D	C	C	
Approach Delay (s)		29.1				29.3				25.3		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	114	656	117
Future Volume (vph)	114	656	117
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1558
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1558
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	120	691	123
RTOR Reduction (vph)	0	0	89
Lane Group Flow (vph)	128	691	34
Confl. Peds. (#/hr)			4
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	8.5	22.0	22.0
Effective Green, g (s)	8.5	22.0	22.0
Actuated g/C Ratio	0.11	0.28	0.28
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	191	1421	435
v/s Ratio Prot	c0.07	c0.14	
v/s Ratio Perm			0.02
v/c Ratio	0.67	0.49	0.08
Uniform Delay, d1	33.8	23.6	20.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.4	0.1
Delay (s)	40.8	24.0	21.0
Level of Service	D	C	C
Approach Delay (s)		25.9	
Approach LOS		C	

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBU	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	0	1277	635	0	102	677	639
Future Volume (vph)	0	1277	635	0	102	677	639
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6			3.7	3.7
Lane Util. Factor		0.95	0.91			0.97	0.88
Frt		1.00	1.00			1.00	0.85
Flt Protected		1.00	1.00			0.95	1.00
Satd. Flow (prot)		3539	5085			3433	2787
Flt Permitted		1.00	1.00			0.95	1.00
Satd. Flow (perm)		3539	5085			3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1344	668	0	107	713	673
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1344	668	0	0	820	673
Turn Type		NA	NA		Perm	Prot	custom
Protected Phases		2	6			4	4 5
Permitted Phases					4		
Actuated Green, G (s)		27.6	17.3			21.2	32.0
Effective Green, g (s)		27.6	17.3			21.2	32.0
Actuated g/C Ratio		0.48	0.30			0.37	0.56
Clearance Time (s)		4.6	4.6			3.7	
Vehicle Extension (s)		3.0	3.0			3.0	
Lane Grp Cap (vph)		1710	1540			1274	1561
v/s Ratio Prot		c0.38	0.13				0.24
v/s Ratio Perm						0.24	
v/c Ratio		0.79	0.43			0.64	0.43
Uniform Delay, d1		12.3	16.0			14.8	7.3
Progression Factor		1.00	1.00			1.00	1.00
Incremental Delay, d2		2.5	0.2			1.1	0.2
Delay (s)		14.7	16.2			16.0	7.5
Level of Service		B	B			B	A
Approach Delay (s)		14.7	16.2			12.1	
Approach LOS		B	B			B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	2	567	1395	636	34	0	0
Future Volume (vph)	2	567	1395	636	34	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	0.99			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3512			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3512			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	597	1468	669	36	0	0
RTOR Reduction (vph)	0	0	0	8	0	0	0
Lane Group Flow (vph)	0	599	1468	697	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		11.1	32.7	14.0			
Effective Green, g (s)		11.1	32.7	14.0			
Actuated g/C Ratio		0.34	1.00	0.43			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		1165	3539	1503			
v/s Ratio Prot		0.17	c0.41	0.20			
v/s Ratio Perm							
v/c Ratio		0.51	0.41	0.46			
Uniform Delay, d1		8.6	0.0	6.7			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.4	0.1	0.2			
Delay (s)		9.0	0.1	6.9			
Level of Service		A	A	A			
Approach Delay (s)			2.7	6.9		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	32.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	365	651	379	1	190	380	409	96	6	141	397	577
Future Volume (vph)	365	651	379	1	190	380	409	96	6	141	397	577
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0		3.0	4.6	4.6				4.0	4.0
Lane Util. Factor	0.97	0.95	1.00		1.00	0.91	0.91				0.97	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.94	0.85				1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00				0.95	1.00
Satd. Flow (prot)	3433	3539	1559		1770	3199	1441				3433	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00				0.95	1.00
Satd. Flow (perm)	3433	3539	1559		1770	3199	1441				3433	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	384	685	399	1	200	400	431	101	6	148	418	607
RTOR Reduction (vph)	0	0	293	0	0	0	86	0	0	0	0	0
Lane Group Flow (vph)	384	685	106	0	201	641	205	0	0	0	572	607
Confl. Peds. (#/hr)			4									
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm		Split	Split	Split	NA
Protected Phases	5	2		1	1	6			3	3	3	3
Permitted Phases			2				6					
Actuated Green, G (s)	15.1	24.7	24.7		14.0	23.0	23.0				22.7	22.7
Effective Green, g (s)	15.1	24.7	24.7		14.0	23.0	23.0				22.7	22.7
Actuated g/C Ratio	0.16	0.26	0.26		0.15	0.25	0.25				0.24	0.24
Clearance Time (s)	3.0	4.0	4.0		3.0	4.6	4.6				4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0	2.0				2.0	2.0
Lane Grp Cap (vph)	555	935	412		265	787	354				834	860
v/s Ratio Prot	0.11	0.19			c0.11	c0.20					0.17	c0.17
v/s Ratio Perm			0.07				0.14					
v/c Ratio	0.69	0.73	0.26		0.76	0.81	0.58				0.69	0.71
Uniform Delay, d1	37.0	31.3	27.1		38.1	33.2	30.9				32.1	32.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Incremental Delay, d2	3.0	2.6	0.1		10.5	6.2	1.4				1.9	2.2
Delay (s)	40.0	33.9	27.2		48.6	39.3	32.4				34.0	34.5
Level of Service	D	C	C		D	D	C				C	C
Approach Delay (s)		33.7				39.2						33.5
Approach LOS		C				D						C

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	93.4	Sum of lost time (s)	16.2
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations						
Traffic Volume (vph)	151	8	114	307	114	172
Future Volume (vph)	151	8	114	307	114	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.6	4.6		4.0
Lane Util. Factor	1.00		1.00	0.95		1.00
Frpb, ped/bikes	0.98		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.85		1.00	0.96		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	1558		1770	3395		1583
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	1558		1770	3395		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	159	8	120	323	120	181
RTOR Reduction (vph)	91	0	0	0	0	0
Lane Group Flow (vph)	68	0	128	443	0	181
Confl. Peds. (#/hr)	5					
Turn Type	Perm	Split	Split	NA		Free
Protected Phases		4	4	4		
Permitted Phases	3					Free
Actuated Green, G (s)	22.7		16.4	16.4		93.4
Effective Green, g (s)	22.7		16.4	16.4		93.4
Actuated g/C Ratio	0.24		0.18	0.18		1.00
Clearance Time (s)	4.0		4.6	4.6		
Vehicle Extension (s)	2.0		2.0	2.0		
Lane Grp Cap (vph)	378		310	596		1583
v/s Ratio Prot			0.07	c0.13		
v/s Ratio Perm	0.04					c0.11
v/c Ratio	0.18		0.41	0.74		0.11
Uniform Delay, d1	28.0		34.2	36.5		0.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1		0.3	4.4		0.1
Delay (s)	28.1		34.5	40.9		0.1
Level of Service	C		C	D		A
Approach Delay (s)				30.0		
Approach LOS				C		

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis
4: Serramonte Blvd & Serra Center Driveway

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	92	548	884	203	118	79
Future Volume (vph)	92	548	884	203	118	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	97	577	931	214	124	83

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	289	385	621	524	207
Volume Left (vph)	97	0	0	0	124
Volume Right (vph)	0	0	0	214	83
Hadj (s)	0.20	0.03	0.03	-0.25	-0.09
Departure Headway (s)	6.9	6.7	6.3	6.0	6.7
Degree Utilization, x	0.56	0.72	1.09	0.88	0.38
Capacity (veh/h)	511	522	567	591	525
Control Delay (s)	17.0	24.0	87.9	36.6	13.8
Approach Delay (s)	21.0		64.4		13.8
Approach LOS	C		F		B

Intersection Summary			
Delay	44.8		
Level of Service	E		
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	1	176	322	138	139	503	161	4	254	840	137	5
Future Volume (vph)	1	176	322	138	139	503	161	4	254	840	137	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor			0.95			0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes			1.00			1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes			1.00			1.00	1.00		1.00	1.00	1.00	
Frt			0.97			1.00	0.85		1.00	1.00	0.85	
Flt Protected			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (prot)			3365			3501	1558		1770	5085	1557	
Flt Permitted			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (perm)			3365			3501	1558		1770	5085	1557	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	185	339	145	146	529	169	4	267	884	144	5
RTOR Reduction (vph)	0	0	26	0	0	0	132	0	0	0	99	0
Lane Group Flow (vph)	0	0	644	0	0	675	37	0	271	884	45	0
Confl. Peds. (#/hr)				7			5				5	
Turn Type	Split	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	8	8	8		7	7		1	1	6		5
Permitted Phases							7				6	
Actuated Green, G (s)			21.5			19.3	19.3		16.2	27.8	27.8	
Effective Green, g (s)			21.5			19.3	19.3		16.2	27.8	27.8	
Actuated g/C Ratio			0.24			0.22	0.22		0.18	0.31	0.31	
Clearance Time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)			2.0			2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)			814			760	338		322	1591	487	
v/s Ratio Prot			c0.19			c0.19			c0.15	c0.17		
v/s Ratio Perm							0.02				0.03	
v/c Ratio			0.79			0.89	0.11		0.84	0.56	0.09	
Uniform Delay, d1			31.5			33.7	27.9		35.1	25.4	21.6	
Progression Factor			1.00			1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2			4.9			11.9	0.1		17.1	0.5	0.1	
Delay (s)			36.5			45.6	27.9		52.1	25.9	21.7	
Level of Service			D			D	C		D	C	C	
Approach Delay (s)			36.5			42.1				30.9		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	96	489	139
Future Volume (vph)	96	489	139
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1563
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1563
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	101	515	146
RTOR Reduction (vph)	0	0	117
Lane Group Flow (vph)	106	515	29
Confl. Peds. (#/hr)			1
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	6.2	17.8	17.8
Effective Green, g (s)	6.2	17.8	17.8
Actuated g/C Ratio	0.07	0.20	0.20
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	123	1019	313
v/s Ratio Prot	0.06	0.10	
v/s Ratio Perm			0.02
v/c Ratio	0.86	0.51	0.09
Uniform Delay, d1	40.9	31.6	28.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	41.1	0.5	0.2
Delay (s)	82.0	32.1	29.1
Level of Service	F	C	C
Approach Delay (s)		38.4	
Approach LOS		D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBU	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	0	1451	655	0	102	865	891
Future Volume (vph)	0	1451	655	0	102	865	891
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6			3.7	3.7
Lane Util. Factor		0.95	0.91			0.97	0.88
Frt		1.00	1.00			1.00	0.85
Flt Protected		1.00	1.00			0.95	1.00
Satd. Flow (prot)		3539	5085			3433	2787
Flt Permitted		1.00	1.00			0.95	1.00
Satd. Flow (perm)		3539	5085			3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1527	689	0	107	911	938
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1527	689	0	0	1018	938
Turn Type		NA	NA		Perm	Prot	custom
Protected Phases		2	6			4	4 5
Permitted Phases					4		
Actuated Green, G (s)		31.4	19.3			22.4	35.0
Effective Green, g (s)		31.4	19.3			22.4	35.0
Actuated g/C Ratio		0.51	0.31			0.36	0.56
Clearance Time (s)		4.6	4.6			3.7	
Vehicle Extension (s)		3.0	3.0			3.0	
Lane Grp Cap (vph)		1789	1580			1238	1570
v/s Ratio Prot		c0.43	0.14				0.34
v/s Ratio Perm						0.30	
v/c Ratio		0.85	0.44			0.82	0.60
Uniform Delay, d1		13.4	17.1			18.0	8.9
Progression Factor		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.2	0.2			4.5	0.6
Delay (s)		17.5	17.3			22.6	9.5
Level of Service		B	B			C	A
Approach Delay (s)		17.5	17.3			16.3	
Approach LOS		B	B			B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	3	638	1677	655	5	0	0
Future Volume (vph)	3	638	1677	655	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	1.00			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3535			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3535			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	672	1765	689	5	0	0
RTOR Reduction (vph)	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	675	1765	693	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		11.9	34.7	15.2			
Effective Green, g (s)		11.9	34.7	15.2			
Actuated g/C Ratio		0.34	1.00	0.44			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		1177	3539	1548			
v/s Ratio Prot		0.20	c0.50	0.20			
v/s Ratio Perm							
v/c Ratio		0.57	0.50	0.45			
Uniform Delay, d1		9.3	0.0	6.8			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.2	0.2			
Delay (s)		10.0	0.2	7.0			
Level of Service		B	A	A			
Approach Delay (s)			2.9	7.0		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	34.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Junipero Serra Blvd & Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL
Lane Configurations												
Traffic Volume (vph)	4	603	749	333	1	181	405	369	116	12	83	415
Future Volume (vph)	4	603	749	333	1	181	405	369	116	12	83	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0		3.0	4.6	4.6				4.0
Lane Util. Factor		0.97	0.95	1.00		1.00	0.91	0.91				0.97
Frpb, ped/bikes		1.00	1.00	0.98		1.00	1.00	1.00				1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00				1.00
Frt		1.00	1.00	0.85		1.00	0.95	0.85				1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00				0.95
Satd. Flow (prot)		3433	3539	1554		1770	3216	1441				3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00				0.95
Satd. Flow (perm)		3433	3539	1554		1770	3216	1441				3433
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	635	788	351	1	191	426	388	122	13	87	437
RTOR Reduction (vph)	0	0	0	247	0	0	0	89	0	0	0	0
Lane Group Flow (vph)	0	639	788	104	0	192	647	200	0	0	0	537
Confl. Peds. (#/hr)				7								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm		Split	Split	Split
Protected Phases	5	5	2		1	1	6			3	3	3
Permitted Phases				2				6				
Actuated Green, G (s)		21.1	30.8	30.8		14.1	23.2	23.2				22.3
Effective Green, g (s)		21.1	30.8	30.8		14.1	23.2	23.2				22.3
Actuated g/C Ratio		0.20	0.30	0.30		0.14	0.22	0.22				0.21
Clearance Time (s)		3.0	4.0	4.0		3.0	4.6	4.6				4.0
Vehicle Extension (s)		2.0	2.0	2.0		2.0	2.0	2.0				2.0
Lane Grp Cap (vph)		697	1049	460		240	718	321				736
v/s Ratio Prot		c0.19	0.22			0.11	c0.20					c0.16
v/s Ratio Perm				0.07				0.14				
v/c Ratio		0.92	0.75	0.23		0.80	0.90	0.62				0.73
Uniform Delay, d1		40.5	33.1	27.6		43.5	39.2	36.4				38.0
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00				1.00
Incremental Delay, d2		16.5	2.7	0.1		16.3	14.2	2.7				3.1
Delay (s)		57.1	35.8	27.7		59.8	53.4	39.1				41.1
Level of Service		E	D	C		E	D	D				D
Approach Delay (s)			41.8				50.9					
Approach LOS			D				D					

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.9	Sum of lost time (s)	16.2
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Junipero Serra Blvd & Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	NBT	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations							
Traffic Volume (vph)	478	202	19	141	451	167	288
Future Volume (vph)	478	202	19	141	451	167	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.6	4.6		4.0
Lane Util. Factor	0.95	1.00		1.00	0.95		1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00
Frt	1.00	0.85		1.00	0.96		0.85
Flt Protected	1.00	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3539	1554		1770	3396		1583
Flt Permitted	1.00	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3539	1554		1770	3396		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	503	213	20	148	475	176	303
RTOR Reduction (vph)	0	123	0	0	0	0	0
Lane Group Flow (vph)	503	90	0	168	651	0	303
Confl. Peds. (#/hr)		7					
Turn Type	NA	Perm	Split	Split	NA		Free
Protected Phases	3		4	4	4		
Permitted Phases		3					Free
Actuated Green, G (s)	22.3	22.3		21.1	21.1		103.9
Effective Green, g (s)	22.3	22.3		21.1	21.1		103.9
Actuated g/C Ratio	0.21	0.21		0.20	0.20		1.00
Clearance Time (s)	4.0	4.0		4.6	4.6		
Vehicle Extension (s)	2.0	2.0		2.0	2.0		
Lane Grp Cap (vph)	759	333		359	689		1583
v/s Ratio Prot	0.14			0.09	c0.19		
v/s Ratio Perm		0.06					0.19
v/c Ratio	0.66	0.27		0.47	0.94		0.19
Uniform Delay, d1	37.4	34.0		36.5	40.8		0.0
Progression Factor	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.7	0.2		0.4	21.4		0.3
Delay (s)	39.1	34.2		36.8	62.3		0.3
Level of Service	D	C		D	E		A
Approach Delay (s)	39.1				41.7		
Approach LOS	D				D		

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis
4: Serramonte Blvd & Serra Center Driveway

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	157	661	786	227	128	161
Future Volume (vph)	157	661	786	227	128	161
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	165	696	827	239	135	169

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	397	464	551	515	304
Volume Left (vph)	165	0	0	0	135
Volume Right (vph)	0	0	0	239	169
Hadj (s)	0.24	0.03	0.03	-0.29	-0.21
Departure Headway (s)	7.3	7.1	7.1	6.7	6.7
Degree Utilization, x	0.81	0.92	1.08	0.96	0.57
Capacity (veh/h)	487	495	518	528	520
Control Delay (s)	33.2	47.6	88.7	54.7	18.1
Approach Delay (s)	41.0		72.3		18.1
Approach LOS	E		F		C

Intersection Summary			
Delay	52.8		
Level of Service	F		
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	2	160	296	183	120	397	72	5	283	614	102	4
Future Volume (vph)	2	160	296	183	120	397	72	5	283	614	102	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor			0.95			0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes			0.99			1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes			1.00			1.00	1.00		1.00	1.00	1.00	
Frt			0.96			1.00	0.85		1.00	1.00	0.85	
Flt Protected			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (prot)			3326			3499	1556		1770	5085	1553	
Flt Permitted			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (perm)			3326			3499	1556		1770	5085	1553	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	168	312	193	126	418	76	5	298	646	107	4
RTOR Reduction (vph)	0	0	45	0	0	0	61	0	0	0	70	0
Lane Group Flow (vph)	0	0	630	0	0	544	15	0	303	646	37	0
Confl. Peds. (#/hr)				11			7				7	
Turn Type	Split	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	8	8	8		7	7		1	1	6		5
Permitted Phases							7				6	
Actuated Green, G (s)			21.5			18.5	18.5		17.5	31.5	31.5	
Effective Green, g (s)			21.5			18.5	18.5		17.5	31.5	31.5	
Actuated g/C Ratio			0.24			0.20	0.20		0.19	0.34	0.34	
Clearance Time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)			2.0			2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)			782			708	314		338	1752	535	
v/s Ratio Prot			c0.19			c0.16			c0.17	0.13		
v/s Ratio Perm							0.01				0.02	
v/c Ratio			0.81			0.77	0.05		0.90	0.37	0.07	
Uniform Delay, d1			33.0			34.4	29.4		36.1	22.5	20.1	
Progression Factor			1.00			1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2			5.7			4.5	0.0		24.3	0.2	0.1	
Delay (s)			38.7			39.0	29.4		60.4	22.7	20.2	
Level of Service			D			D	C		E	C	C	
Approach Delay (s)			38.7			37.8				33.2		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	73	563	209
Future Volume (vph)	73	563	209
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1559
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1559
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	77	593	220
RTOR Reduction (vph)	0	0	172
Lane Group Flow (vph)	81	593	48
Confl. Peds. (#/hr)			3
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	5.9	19.9	19.9
Effective Green, g (s)	5.9	19.9	19.9
Actuated g/C Ratio	0.06	0.22	0.22
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	114	1107	339
v/s Ratio Prot	0.05	c0.12	
v/s Ratio Perm			0.03
v/c Ratio	0.71	0.54	0.14
Uniform Delay, d1	41.9	31.7	28.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	15.9	0.6	0.3
Delay (s)	57.8	32.3	29.1
Level of Service	E	C	C
Approach Delay (s)		33.8	
Approach LOS		C	

Intersection Summary

1: Serramonte Blvd & I-280 SB Off-Ramp

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	706	361	0	1212	460
Future Volume (vph)	0	706	361	0	1212	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	743	380	0	1276	484
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	743	380	0	1276	484
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		18.8	9.4		22.3	32.2
Effective Green, g (s)		18.8	9.4		22.3	32.2
Actuated g/C Ratio		0.38	0.19		0.45	0.65
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1346	967		1549	1816
v/s Ratio Prot		c0.21	0.07		c0.37	0.17
v/s Ratio Perm						
v/c Ratio		0.55	0.39		0.82	0.27
Uniform Delay, d1		12.0	17.5		11.8	3.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.5	0.3		3.7	0.1
Delay (s)		12.5	17.8		15.5	3.7
Level of Service		B	B		B	A
Approach Delay (s)		12.5	17.8		12.3	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	49.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

2: Serramonte Blvd & I-280 NB On-Ramp

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	2	173	1775	361	0	0	0
Future Volume (vph)	2	173	1775	361	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	1.00			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3539			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	182	1868	380	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	184	1868	380	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		6.3	35.4	21.5			
Effective Green, g (s)		6.3	35.4	21.5			
Actuated g/C Ratio		0.18	1.00	0.61			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		610	3539	2149			
v/s Ratio Prot		0.05	c0.53	0.11			
v/s Ratio Perm							
v/c Ratio		0.30	0.53	0.18			
Uniform Delay, d1		12.6	0.0	3.1			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.2	0.0			
Delay (s)		12.9	0.2	3.1			
Level of Service		B	A	A			
Approach Delay (s)			1.3	3.1		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	35.4	Sum of lost time (s)	7.6
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	157	957	661	117	238	250	55	5	48	398	337	207
Future Volume (vph)	157	957	661	117	238	250	55	5	48	398	337	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1555	1770	3206	1441				3433	3539	1556
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1555	1770	3206	1441				3433	3539	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	165	1007	696	123	251	263	58	5	51	419	355	218
RTOR Reduction (vph)	0	0	367	0	0	75	0	0	0	0	0	173
Lane Group Flow (vph)	165	1007	329	123	393	104	0	0	0	475	355	45
Confl. Peds. (#/hr)			7									6
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Split	Split	Split	NA	Perm
Protected Phases	5	2		1	6			3	3	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	9.2	31.7	31.7	10.9	32.8	32.8				19.6	19.6	19.6
Effective Green, g (s)	9.2	31.7	31.7	10.9	32.8	32.8				19.6	19.6	19.6
Actuated g/C Ratio	0.10	0.33	0.33	0.11	0.34	0.34				0.21	0.21	0.21
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	331	1175	516	202	1102	495				705	727	319
v/s Ratio Prot	0.05	c0.28		c0.07	0.12					c0.14	0.10	
v/s Ratio Perm			0.21			0.07						0.03
v/c Ratio	0.50	0.86	0.64	0.61	0.36	0.21				0.67	0.49	0.14
Uniform Delay, d1	40.9	29.7	27.0	40.2	23.4	22.1				35.0	33.5	31.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	0.4	6.1	1.9	3.5	0.1	0.1				2.0	0.2	0.1
Delay (s)	41.3	35.9	28.9	43.8	23.5	22.2				37.0	33.7	31.1
Level of Service	D	D	C	D	C	C				D	C	C
Approach Delay (s)		33.8			26.7						34.6	
Approach LOS		C			C						C	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	16.2
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	12	145	404	76	59
Future Volume (vph)	12	145	404	76	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.98		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3455		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3455		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	153	425	80	62
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	166	505	0	62
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		17.6	17.6		95.4
Effective Green, g (s)		17.6	17.6		95.4
Actuated g/C Ratio		0.18	0.18		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		326	637		1583
v/s Ratio Prot		0.09	c0.15		
v/s Ratio Perm					c0.04
v/c Ratio		0.51	0.79		0.04
Uniform Delay, d1		35.0	37.2		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.5	6.3		0.0
Delay (s)		35.5	43.4		0.0
Level of Service		D	D		A
Approach Delay (s)			38.0		
Approach LOS			D		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Serramonte Blvd & Project Driveway 3

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	922	512	112	96	23
Future Volume (vph)	59	922	512	112	96	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	0.99		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.97		0.97	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		3528	3426		1739	
Flt Permitted		0.89	1.00		0.96	
Satd. Flow (perm)		3132	3426		1739	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	62	971	539	118	101	24
RTOR Reduction (vph)	0	0	20	0	13	0
Lane Group Flow (vph)	0	1033	637	0	112	0
Confl. Peds. (#/hr)	3			9	9	3
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		30.2	30.2		8.1	
Effective Green, g (s)		30.2	30.2		8.1	
Actuated g/C Ratio		0.64	0.64		0.17	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.5	2.5		2.5	
Lane Grp Cap (vph)		1999	2187		297	
v/s Ratio Prot			0.19		c0.06	
v/s Ratio Perm		c0.33				
v/c Ratio		0.52	0.29		0.38	
Uniform Delay, d1		4.6	3.8		17.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.2	0.1		0.6	
Delay (s)		4.8	3.9		17.9	
Level of Service		A	A		B	
Approach Delay (s)		4.8	3.9		17.9	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	71	602	99	1	109	288	67	1	95	343	59	10
Future Volume (vph)	71	602	99	1	109	288	67	1	95	343	59	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5			3.5	3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00		1.00	0.91	1.00	
Frpb, ped/bikes	1.00	1.00			1.00	1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98			1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1770	1818			1770	1863	1557		1770	5085	1556	
Flt Permitted	0.95	1.00			0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770	1818			1770	1863	1557		1770	5085	1556	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	75	634	104	1	115	303	71	1	100	361	62	11
RTOR Reduction (vph)	0	5	0	0	0	0	39	0	0	0	47	0
Lane Group Flow (vph)	75	733	0	0	116	303	32	0	101	361	15	0
Confl. Peds. (#/hr)			11				5				5	
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	3	8		7	7	4		1	1	6		5
Permitted Phases							4				6	
Actuated Green, G (s)	7.0	44.4			8.1	45.5	45.5		8.4	24.8	24.8	
Effective Green, g (s)	7.0	44.4			8.1	45.5	45.5		8.4	24.8	24.8	
Actuated g/C Ratio	0.07	0.44			0.08	0.45	0.45		0.08	0.24	0.24	
Clearance Time (s)	3.5	3.5			3.5	3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)	122	796			141	836	699		146	1244	380	
v/s Ratio Prot	0.04	c0.40			c0.07	0.16			0.06	0.07		
v/s Ratio Perm							0.02				0.01	
v/c Ratio	0.61	0.92			0.82	0.36	0.05		0.69	0.29	0.04	
Uniform Delay, d1	45.8	26.8			45.9	18.4	15.7		45.2	31.1	29.2	
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	6.3	15.6			29.3	0.1	0.0		10.8	0.2	0.1	
Delay (s)	52.2	42.4			75.2	18.5	15.7		56.0	31.3	29.2	
Level of Service	D	D			E	B	B		E	C	C	
Approach Delay (s)		43.3				31.5				35.8		
Approach LOS		D				C				D		

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	139	800	143
Future Volume (vph)	139	800	143
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1556
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1556
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	146	842	151
RTOR Reduction (vph)	0	0	87
Lane Group Flow (vph)	157	842	64
Confl. Peds. (#/hr)			4
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	10.0	26.4	26.4
Effective Green, g (s)	10.0	26.4	26.4
Actuated g/C Ratio	0.10	0.26	0.26
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	174	1325	405
v/s Ratio Prot	c0.09	c0.17	
v/s Ratio Perm			0.04
v/c Ratio	0.90	0.64	0.16
Uniform Delay, d1	45.2	33.2	28.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	40.7	1.1	0.2
Delay (s)	85.9	34.3	29.1
Level of Service	F	C	C
Approach Delay (s)		40.7	
Approach LOS		D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1558	775	0	826	780
Future Volume (vph)	0	1558	775	0	826	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1640	816	0	869	821
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1640	816	0	869	821
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		32.5	21.3		22.2	33.9
Effective Green, g (s)		32.5	21.3		22.2	33.9
Actuated g/C Ratio		0.52	0.34		0.35	0.54
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1825	1719		1209	1499
v/s Ratio Prot		c0.46	0.16		c0.25	0.29
v/s Ratio Perm						
v/c Ratio		0.90	0.47		0.72	0.55
Uniform Delay, d1		13.8	16.4		17.7	9.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		6.3	0.2		2.1	0.4
Delay (s)		20.1	16.6		19.8	9.9
Level of Service		C	B		B	A
Approach Delay (s)		20.1	16.6		15.0	
Approach LOS		C	B		B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	692	1702	776	0	0	0
Future Volume (vph)	692	1702	776	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	728	1792	817	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	728	1792	817	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	12.4	33.3	13.3			
Effective Green, g (s)	12.4	33.3	13.3			
Actuated g/C Ratio	0.37	1.00	0.40			
Clearance Time (s)	3.5	4.4	4.1			
Vehicle Extension (s)	3.0	4.0	3.0			
Lane Grp Cap (vph)	1278	3539	1413			
v/s Ratio Prot	0.21	c0.51	0.23			
v/s Ratio Perm						
v/c Ratio	0.57	0.51	0.58			
Uniform Delay, d1	8.3	0.0	7.8			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.6	0.2	0.6			
Delay (s)	8.9	0.2	8.4			
Level of Service	A	A	A			
Approach Delay (s)		2.7	8.4		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	33.3	Sum of lost time (s)	7.6
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	445	794	462	232	464	499	117	7	172	484	704	184
Future Volume (vph)	445	794	462	232	464	499	117	7	172	484	704	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1558	1770	3199	1441				3433	3539	1557
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1558	1770	3199	1441				3433	3539	1557
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	468	836	486	244	488	525	123	7	181	509	741	194
RTOR Reduction (vph)	0	0	353	0	0	86	0	0	0	0	0	91
Lane Group Flow (vph)	468	836	133	244	782	268	0	0	0	697	741	103
Confl. Peds. (#/hr)			4									5
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Perm	Split	Split	NA	Perm
Protected Phases	5	2		1	6				3	3	3	
Permitted Phases			2			6		3				3
Actuated Green, G (s)	18.0	29.0	29.0	16.0	26.4	26.4				25.9	25.9	25.9
Effective Green, g (s)	18.0	29.0	29.0	16.0	26.4	26.4				25.9	25.9	25.9
Actuated g/C Ratio	0.17	0.27	0.27	0.15	0.25	0.25				0.24	0.24	0.24
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	583	969	426	267	797	359				839	865	380
v/s Ratio Prot	0.14	0.24		c0.14	c0.24					0.20	c0.21	
v/s Ratio Perm			0.09			0.19						0.07
v/c Ratio	0.80	0.86	0.31	0.91	0.98	0.75				0.83	0.86	0.27
Uniform Delay, d1	42.2	36.6	30.5	44.3	39.5	36.7				37.9	38.2	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	7.4	7.8	0.2	32.6	27.1	7.3				6.7	8.1	0.1
Delay (s)	49.7	44.3	30.7	76.8	66.6	43.9				44.6	46.3	32.5
Level of Service	D	D	C	E	E	D				D	D	C
Approach Delay (s)		42.0			62.6						43.9	
Approach LOS		D			E						D	

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	105.9	Sum of lost time (s)	16.2
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	10	139	375	139	210
Future Volume (vph)	10	139	375	139	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.96		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3396		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3396		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	146	395	146	221
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	157	541	0	221
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		19.4	19.4		105.9
Effective Green, g (s)		19.4	19.4		105.9
Actuated g/C Ratio		0.18	0.18		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		324	622		1583
v/s Ratio Prot		0.09	c0.16		
v/s Ratio Perm					c0.14
v/c Ratio		0.48	0.87		0.14
Uniform Delay, d1		38.8	42.0		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.4	12.0		0.2
Delay (s)		39.2	54.0		0.2
Level of Service		D	D		A
Approach Delay (s)			38.5		
Approach LOS			D		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Serramonte Blvd & Project Driveway 3

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	669	1079	248	144	96
Future Volume (vph)	112	669	1079	248	144	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	0.99		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.97		0.95	
Flt Protected		0.99	1.00		0.97	
Satd. Flow (prot)		3514	3415		1701	
Flt Permitted		0.61	1.00		0.97	
Satd. Flow (perm)		2156	3415		1701	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	704	1136	261	152	101
RTOR Reduction (vph)	0	0	19	0	27	0
Lane Group Flow (vph)	0	822	1378	0	226	0
Confl. Peds. (#/hr)	4			15	15	4
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		33.9	33.9		13.5	
Effective Green, g (s)		33.9	33.9		13.5	
Actuated g/C Ratio		0.60	0.60		0.24	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.5	2.5		2.5	
Lane Grp Cap (vph)		1295	2052		407	
v/s Ratio Prot			c0.40		c0.13	
v/s Ratio Perm		0.38				
v/c Ratio		0.63	0.67		0.55	
Uniform Delay, d1		7.3	7.5		18.8	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.9	0.8		1.3	
Delay (s)		8.2	8.3		20.1	
Level of Service		A	A		C	
Approach Delay (s)		8.2	8.3		20.1	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	215	393	168	170	614	196	5	95	1025	167	6	117
Future Volume (vph)	215	393	168	170	614	196	5	95	1025	167	6	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.91	1.00		1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98		1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt	1.00	0.96		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	1769		1770	1863	1557		1770	5085	1555		1770
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	1769		1770	1863	1557		1770	5085	1555		1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	226	414	177	179	646	206	5	100	1079	176	6	123
RTOR Reduction (vph)	0	14	0	0	0	131	0	0	0	112	0	0
Lane Group Flow (vph)	226	577	0	179	646	75	0	105	1079	64	0	129
Confl. Peds. (#/hr)			7			5				5		
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8		7	4		1	1	6		5	5
Permitted Phases						4				6		
Actuated Green, G (s)	12.4	36.7		9.9	34.2	34.2		10.5	31.6	31.6		10.8
Effective Green, g (s)	12.4	36.7		9.9	34.2	34.2		10.5	31.6	31.6		10.8
Actuated g/C Ratio	0.12	0.36		0.10	0.33	0.33		0.10	0.31	0.31		0.10
Clearance Time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	4.0	4.0		2.0
Lane Grp Cap (vph)	213	630		170	618	516		180	1560	477		185
v/s Ratio Prot	c0.13	0.33		0.10	c0.35			0.06	c0.21			c0.07
v/s Ratio Perm						0.05				0.04		
v/c Ratio	1.06	0.92		1.05	1.05	0.15		0.58	0.69	0.13		0.70
Uniform Delay, d1	45.3	31.7		46.5	34.4	24.1		44.2	31.4	25.8		44.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2	78.7	17.8		83.7	48.6	0.0		3.1	1.4	0.2		8.9
Delay (s)	124.0	49.5		130.3	83.0	24.2		47.2	32.9	26.0		53.4
Level of Service	F	D		F	F	C		D	C	C		D
Approach Delay (s)		70.1			79.5				33.1			
Approach LOS		E			E				C			

Intersection Summary			
HCM 2000 Control Delay	51.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	597	170
Future Volume (vph)	597	170
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1562
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1562
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	628	179
RTOR Reduction (vph)	0	124
Lane Group Flow (vph)	628	55
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	31.9	31.9
Effective Green, g (s)	31.9	31.9
Actuated g/C Ratio	0.31	0.31
Clearance Time (s)	4.0	4.0
Vehicle Extension (s)	4.0	4.0
Lane Grp Cap (vph)	1574	483
v/s Ratio Prot	0.12	
v/s Ratio Perm		0.04
v/c Ratio	0.40	0.11
Uniform Delay, d1	28.0	25.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	0.1
Delay (s)	28.2	25.6
Level of Service	C	C
Approach Delay (s)	31.2	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1770	799	0	1055	1087
Future Volume (vph)	0	1770	799	0	1055	1087
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1863	841	0	1111	1144
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1863	841	0	1111	1144
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		36.3	21.0		22.4	38.2
Effective Green, g (s)		36.3	21.0		22.4	38.2
Actuated g/C Ratio		0.54	0.31		0.33	0.57
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1917	1593		1147	1589
v/s Ratio Prot		c0.53	0.17		c0.32	0.41
v/s Ratio Perm						
v/c Ratio		0.97	0.53		0.97	0.72
Uniform Delay, d1		14.9	18.9		22.0	10.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		14.4	0.3		19.2	1.6
Delay (s)		29.3	19.2		41.2	12.1
Level of Service		C	B		D	B
Approach Delay (s)		29.3	19.2		26.4	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	119.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	778	2046	799	0	0	0
Future Volume (vph)	778	2046	799	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	819	2154	841	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	819	2154	841	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	14.3	39.1	17.2			
Effective Green, g (s)	14.3	39.1	17.2			
Actuated g/C Ratio	0.37	1.00	0.44			
Clearance Time (s)	3.5	4.4	4.1			
Vehicle Extension (s)	3.0	4.0	3.0			
Lane Grp Cap (vph)	1255	3539	1556			
v/s Ratio Prot	0.24	c0.61	0.24			
v/s Ratio Perm						
v/c Ratio	0.65	0.61	0.54			
Uniform Delay, d1	10.3	0.0	8.0			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	1.2	0.3	0.4			
Delay (s)	11.6	0.3	8.4			
Level of Service	B	A	A			
Approach Delay (s)		3.4	8.4		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	39.1	Sum of lost time (s)	7.6
Intersection Capacity Utilization	119.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Junipero Serra Blvd & Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	736	914	406	221	494	450	142	15	101	506	583	246
Future Volume (vph)	736	914	406	221	494	450	142	15	101	506	583	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	1770	3216	1441				3433	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	1770	3216	1441				3433	3539	1553
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	775	962	427	233	520	474	149	16	106	533	614	259
RTOR Reduction (vph)	0	0	243	0	0	87	0	0	0	0	0	118
Lane Group Flow (vph)	775	962	184	233	790	266	0	0	0	655	614	141
Confl. Peds. (#/hr)			7									7
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Perm	Split	Split	NA	Perm
Protected Phases	5	2		1	6				3	3	3	
Permitted Phases			2			6		3				3
Actuated Green, G (s)	23.0	36.1	36.1	15.0	27.5	27.5				21.4	21.4	21.4
Effective Green, g (s)	23.0	36.1	36.1	15.0	27.5	27.5				21.4	21.4	21.4
Actuated g/C Ratio	0.20	0.32	0.32	0.13	0.24	0.24				0.19	0.19	0.19
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	701	1135	498	236	786	352				653	673	295
v/s Ratio Prot	c0.23	0.27		0.13	c0.25					c0.19	0.17	
v/s Ratio Perm			0.12			0.18						0.09
v/c Ratio	1.11	0.85	0.37	0.99	1.01	0.76				1.00	0.91	0.48
Uniform Delay, d1	44.8	35.6	29.4	48.7	42.5	39.4				45.5	44.6	40.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	66.7	5.8	0.2	54.4	33.3	8.0				36.0	16.5	0.4
Delay (s)	111.4	41.4	29.6	103.0	75.8	47.4				81.5	61.1	41.0
Level of Service	F	D	C	F	E	D				F	E	D
Approach Delay (s)		64.2			73.1						66.4	
Approach LOS		E			E						E	

Intersection Summary			
HCM 2000 Control Delay	66.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	16.2
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Junipero Serra Blvd & Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	23	172	550	204	351
Future Volume (vph)	23	172	550	204	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.96		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3395		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3395		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	181	579	215	369
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	205	794	0	369
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		24.4	24.4		112.5
Effective Green, g (s)		24.4	24.4		112.5
Actuated g/C Ratio		0.22	0.22		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		383	736		1583
v/s Ratio Prot		0.12	c0.23		
v/s Ratio Perm					0.23
v/c Ratio		0.54	1.08		0.23
Uniform Delay, d1		39.0	44.0		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.7	56.5		0.3
Delay (s)		39.7	100.5		0.3
Level of Service		D	F		A
Approach Delay (s)			64.4		
Approach LOS			E		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Serramonte Blvd & Project Driveway 3

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	192	807	959	277	156	196
Future Volume (vph)	192	807	959	277	156	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	0.98		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.97		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		3504	3365		1665	
Flt Permitted		0.52	1.00		0.98	
Satd. Flow (perm)		1844	3365		1665	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	849	1009	292	164	206
RTOR Reduction (vph)	0	0	17	0	46	0
Lane Group Flow (vph)	0	1051	1284	0	324	0
Confl. Peds. (#/hr)	9			29	29	9
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		51.0	51.0		20.4	
Effective Green, g (s)		51.0	51.0		20.4	
Actuated g/C Ratio		0.63	0.63		0.25	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.5	2.5		2.5	
Lane Grp Cap (vph)		1169	2134		422	
v/s Ratio Prot			0.38		c0.19	
v/s Ratio Perm		c0.57				
v/c Ratio		1.11dl	0.60		0.77	
Uniform Delay, d1		12.5	8.7		27.8	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		9.3	0.4		7.9	
Delay (s)		21.9	9.1		35.7	
Level of Service		C	A		D	
Approach Delay (s)		21.9	9.1		35.7	
Approach LOS		C	A		D	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	195	361	223	146	484	88	6	95	749	124	5	89
Future Volume (vph)	195	361	223	146	484	88	6	95	749	124	5	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.91	1.00		1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98		1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt	1.00	0.94		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	1742		1770	1863	1555		1770	5085	1553		1770
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	1742		1770	1863	1555		1770	5085	1553		1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	205	380	235	154	509	93	6	100	788	131	5	94
RTOR Reduction (vph)	0	18	0	0	0	59	0	0	0	97	0	0
Lane Group Flow (vph)	205	597	0	154	509	34	0	106	788	34	0	99
Confl. Peds. (#/hr)			11			7				7		
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8		7	4		1	1	6		5	5
Permitted Phases						4				6		
Actuated Green, G (s)	12.5	37.0		10.1	34.6	34.6		8.6	24.6	24.6		8.0
Effective Green, g (s)	12.5	37.0		10.1	34.6	34.6		8.6	24.6	24.6		8.0
Actuated g/C Ratio	0.13	0.39		0.11	0.37	0.37		0.09	0.26	0.26		0.09
Clearance Time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	4.0	4.0		2.0
Lane Grp Cap (vph)	236	687		190	687	574		162	1335	407		151
v/s Ratio Prot	c0.12	c0.34		0.09	0.27			c0.06	c0.15			0.06
v/s Ratio Perm						0.02				0.02		
v/c Ratio	0.87	0.87		0.81	0.74	0.06		0.65	0.59	0.08		0.66
Uniform Delay, d1	39.8	26.1		40.9	25.7	19.1		41.1	30.2	26.1		41.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2	26.2	10.9		21.3	3.8	0.0		7.0	0.8	0.1		7.6
Delay (s)	65.9	37.1		62.2	29.4	19.1		48.2	31.0	26.2		49.1
Level of Service	E	D		E	C	B		D	C	C		D
Approach Delay (s)		44.3			34.8				32.1			
Approach LOS		D			C				C			

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	93.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	687	255
Future Volume (vph)	687	255
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1559
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1559
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	723	268
RTOR Reduction (vph)	0	178
Lane Group Flow (vph)	723	90
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	24.0	24.0
Effective Green, g (s)	24.0	24.0
Actuated g/C Ratio	0.26	0.26
Clearance Time (s)	4.0	4.0
Vehicle Extension (s)	4.0	4.0
Lane Grp Cap (vph)	1302	399
v/s Ratio Prot	0.14	
v/s Ratio Perm		0.06
v/c Ratio	0.56	0.23
Uniform Delay, d1	30.2	27.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.6	0.4
Delay (s)	30.9	27.9
Level of Service	C	C
Approach Delay (s)	31.8	
Approach LOS	C	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	581	297	0	1000	377
Future Volume (vph)	0	581	297	0	1000	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	612	313	0	1053	397
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	612	313	0	1053	397
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		17.8	8.5		22.3	32.1
Effective Green, g (s)		17.8	8.5		22.3	32.1
Actuated g/C Ratio		0.37	0.18		0.46	0.66
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1301	893		1581	1848
v/s Ratio Prot		c0.17	0.06		c0.31	0.14
v/s Ratio Perm						
v/c Ratio		0.47	0.35		0.67	0.21
Uniform Delay, d1		11.7	17.5		10.2	3.2
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	0.2		1.1	0.1
Delay (s)		12.0	17.8		11.2	3.3
Level of Service		B	B		B	A
Approach Delay (s)		12.0	17.8		9.0	
Approach LOS		B	B		A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	2	142	1464	297	0	0	0
Future Volume (vph)	2	142	1464	297	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	1.00			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3539			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	149	1541	313	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	151	1541	313	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		5.9	36.5	23.0			
Effective Green, g (s)		5.9	36.5	23.0			
Actuated g/C Ratio		0.16	1.00	0.63			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		554	3539	2230			
v/s Ratio Prot		0.04	c0.44	0.09			
v/s Ratio Perm							
v/c Ratio		0.27	0.44	0.14			
Uniform Delay, d1		13.4	0.0	2.7			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.1	0.0			
Delay (s)		13.7	0.1	2.8			
Level of Service		B	A	A			
Approach Delay (s)			1.3	2.8		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	36.5	Sum of lost time (s)	7.6
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	129	793	542	102	196	207	48	4	39	326	276	183
Future Volume (vph)	129	793	542	102	196	207	48	4	39	326	276	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1556	1770	3203	1441				3433	3539	1557
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1556	1770	3203	1441				3433	3539	1557
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	136	835	571	107	206	218	51	4	41	343	291	193
RTOR Reduction (vph)	0	0	386	0	0	78	0	0	0	0	0	153
Lane Group Flow (vph)	136	835	185	107	326	71	0	0	0	388	291	40
Confl. Peds. (#/hr)			7									6
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Split	Split	Split	NA	Perm
Protected Phases	5	2		1	6			3	3	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	8.3	26.7	26.7	8.2	26.0	26.0				17.0	17.0	17.0
Effective Green, g (s)	8.3	26.7	26.7	8.2	26.0	26.0				17.0	17.0	17.0
Actuated g/C Ratio	0.10	0.32	0.32	0.10	0.31	0.31				0.21	0.21	0.21
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	344	1143	502	175	1008	453				706	728	320
v/s Ratio Prot	0.04	c0.24		c0.06	0.10					c0.11	0.08	
v/s Ratio Perm			0.12			0.05						0.03
v/c Ratio	0.40	0.73	0.37	0.61	0.32	0.16				0.55	0.40	0.12
Uniform Delay, d1	34.8	24.8	21.5	35.7	21.6	20.4				29.4	28.4	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	0.3	2.1	0.2	4.4	0.1	0.1				0.5	0.1	0.1
Delay (s)	35.1	26.9	21.6	40.1	21.7	20.5				29.8	28.5	26.8
Level of Service	D	C	C	D	C	C				C	C	C
Approach Delay (s)		25.6			24.7						28.7	
Approach LOS		C			C						C	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	82.6	Sum of lost time (s)	16.2
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	10	126	331	62	48
Future Volume (vph)	10	126	331	62	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.98		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3456		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3456		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	133	348	65	51
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	144	413	0	51
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		15.1	15.1		82.6
Effective Green, g (s)		15.1	15.1		82.6
Actuated g/C Ratio		0.18	0.18		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		323	631		1583
v/s Ratio Prot		0.08	c0.12		
v/s Ratio Perm					c0.03
v/c Ratio		0.45	0.65		0.03
Uniform Delay, d1		30.0	31.3		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.4	1.9		0.0
Delay (s)		30.4	33.2		0.0
Level of Service		C	C		A
Approach Delay (s)			29.8		
Approach LOS			C		

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis
4: Serramonte Blvd & Serra Center Driveway

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	48	785	432	92	79	19
Future Volume (vph)	48	785	432	92	79	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	51	826	455	97	83	20

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	326	551	303	249	103
Volume Left (vph)	51	0	0	0	83
Volume Right (vph)	0	0	0	97	20
Hadj (s)	0.11	0.03	0.03	-0.24	0.08
Departure Headway (s)	5.6	5.6	5.9	5.7	6.6
Degree Utilization, x	0.51	0.85	0.50	0.39	0.19
Capacity (veh/h)	621	639	591	616	524
Control Delay (s)	13.2	30.6	13.5	11.1	11.1
Approach Delay (s)	24.1		12.4		11.1
Approach LOS	C		B		B

Intersection Summary			
Delay	19.0		
Level of Service	C		
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	59	494	82	1	89	238	55	1	97	281	48	8
Future Volume (vph)	59	494	82	1	89	238	55	1	97	281	48	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5				3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor		0.95				0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes		1.00				1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes		1.00				1.00	1.00		1.00	1.00	1.00	
Frt		0.98				1.00	0.85		1.00	1.00	0.85	
Flt Protected		1.00				0.99	1.00		0.95	1.00	1.00	
Satd. Flow (prot)		3446				3491	1559		1770	5085	1558	
Flt Permitted		1.00				0.99	1.00		0.95	1.00	1.00	
Satd. Flow (perm)		3446				3491	1559		1770	5085	1558	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	62	520	86	1	94	251	58	1	102	296	51	8
RTOR Reduction (vph)	0	12	0	0	0	0	47	0	0	0	37	0
Lane Group Flow (vph)	0	656	0	0	0	346	11	0	103	296	14	0
Confl. Peds. (#/hr)			11				5				5	
Turn Type	Split	NA		Split	Split	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	8	8		7	7	7		1	1	6		5
Permitted Phases							7				6	
Actuated Green, G (s)		20.6				14.4	14.4		8.0	21.4	21.4	
Effective Green, g (s)		20.6				14.4	14.4		8.0	21.4	21.4	
Actuated g/C Ratio		0.26				0.18	0.18		0.10	0.27	0.27	
Clearance Time (s)		3.5				3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)		2.0				2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)		898				636	284		179	1377	422	
v/s Ratio Prot		c0.19				c0.10			0.06	0.06		
v/s Ratio Perm							0.01				0.01	
v/c Ratio		0.73				0.54	0.04		0.58	0.21	0.03	
Uniform Delay, d1		26.7				29.3	26.6		33.9	22.3	21.2	
Progression Factor		1.00				1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2		2.7				0.5	0.0		2.8	0.1	0.0	
Delay (s)		29.3				29.8	26.6		36.6	22.4	21.2	
Level of Service		C				C	C		D	C	C	
Approach Delay (s)		29.3				29.4				25.5		
Approach LOS		C				C				C		

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	114	656	119
Future Volume (vph)	114	656	119
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1558
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1558
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	120	691	125
RTOR Reduction (vph)	0	0	90
Lane Group Flow (vph)	128	691	35
Confl. Peds. (#/hr)			4
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	8.6	22.0	22.0
Effective Green, g (s)	8.6	22.0	22.0
Actuated g/C Ratio	0.11	0.28	0.28
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	192	1416	433
v/s Ratio Prot	c0.07	c0.14	
v/s Ratio Perm			0.02
v/c Ratio	0.67	0.49	0.08
Uniform Delay, d1	33.8	23.8	21.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	6.6	0.4	0.1
Delay (s)	40.4	24.2	21.1
Level of Service	D	C	C
Approach Delay (s)		26.0	
Approach LOS		C	
Intersection Summary			

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1278	637	0	682	639
Future Volume (vph)	0	1278	637	0	682	639
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1345	671	0	718	673
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1345	671	0	718	673
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		28.2	17.9		19.4	30.2
Effective Green, g (s)		28.2	17.9		19.4	30.2
Actuated g/C Ratio		0.50	0.32		0.35	0.54
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1785	1628		1191	1505
v/s Ratio Prot		c0.38	0.13		c0.21	0.24
v/s Ratio Perm						
v/c Ratio		0.75	0.41		0.60	0.45
Uniform Delay, d1		11.1	14.9		15.1	7.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.8	0.2		0.9	0.2
Delay (s)		12.9	15.1		15.9	8.0
Level of Service		B	B		B	A
Approach Delay (s)		12.9	15.1		12.1	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	11.5
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	2	567	1401	638	34	0	0
Future Volume (vph)	2	567	1401	638	34	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	0.99			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3512			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3512			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	597	1475	672	36	0	0
RTOR Reduction (vph)	0	0	0	8	0	0	0
Lane Group Flow (vph)	0	599	1475	700	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		11.1	32.8	14.1			
Effective Green, g (s)		11.1	32.8	14.1			
Actuated g/C Ratio		0.34	1.00	0.43			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		1161	3539	1509			
v/s Ratio Prot		0.17	c0.42	0.20			
v/s Ratio Perm							
v/c Ratio		0.52	0.42	0.46			
Uniform Delay, d1		8.7	0.0	6.7			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.4	0.1	0.2			
Delay (s)		9.1	0.1	6.9			
Level of Service		A	A	A			
Approach Delay (s)			2.7	6.9		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	32.8	Sum of lost time (s)	7.6
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	365	657	379	1	202	382	415	101	6	141	397	577
Future Volume (vph)	365	657	379	1	202	382	415	101	6	141	397	577
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0		3.0	4.6	4.6				4.0	4.0
Lane Util. Factor	0.97	0.95	1.00		1.00	0.91	0.91				0.97	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.94	0.85				1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00				0.95	1.00
Satd. Flow (prot)	3433	3539	1559		1770	3196	1441				3433	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00				0.95	1.00
Satd. Flow (perm)	3433	3539	1559		1770	3196	1441				3433	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	384	692	399	1	213	402	437	106	6	148	418	607
RTOR Reduction (vph)	0	0	295	0	0	0	86	0	0	0	0	0
Lane Group Flow (vph)	384	692	104	0	214	651	208	0	0	0	572	607
Confl. Peds. (#/hr)			4									
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm		Split	Split	Split	NA
Protected Phases	5	2		1	1	6			3	3	3	3
Permitted Phases			2				6					
Actuated Green, G (s)	15.2	24.4	24.4		14.6	23.2	23.2				22.7	22.7
Effective Green, g (s)	15.2	24.4	24.4		14.6	23.2	23.2				22.7	22.7
Actuated g/C Ratio	0.16	0.26	0.26		0.16	0.25	0.25				0.24	0.24
Clearance Time (s)	3.0	4.0	4.0		3.0	4.6	4.6				4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0	2.0				2.0	2.0
Lane Grp Cap (vph)	556	920	405		275	790	356				830	856
v/s Ratio Prot	0.11	0.20			c0.12	c0.20					0.17	c0.17
v/s Ratio Perm			0.07				0.14					
v/c Ratio	0.69	0.75	0.26		0.78	0.82	0.58				0.69	0.71
Uniform Delay, d1	37.1	31.9	27.5		38.0	33.4	31.1				32.3	32.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Incremental Delay, d2	3.0	3.1	0.1		11.9	6.7	1.6				1.9	2.2
Delay (s)	40.1	35.0	27.6		49.9	40.0	32.6				34.3	34.7
Level of Service	D	D	C		D	D	C				C	C
Approach Delay (s)		34.3				40.0						33.7
Approach LOS		C				D						C

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	16.2
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations						
Traffic Volume (vph)	162	8	119	307	114	172
Future Volume (vph)	162	8	119	307	114	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.6	4.6		4.0
Lane Util. Factor	1.00		1.00	0.95		1.00
Frpb, ped/bikes	0.98		1.00	1.00		1.00
Flpb, ped/bikes	1.00		1.00	1.00		1.00
Frt	0.85		1.00	0.96		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	1558		1770	3395		1583
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	1558		1770	3395		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	171	8	125	323	120	181
RTOR Reduction (vph)	91	0	0	0	0	0
Lane Group Flow (vph)	80	0	133	443	0	181
Confl. Peds. (#/hr)	5					
Turn Type	Perm	Split	Split	NA		Free
Protected Phases		4	4	4		
Permitted Phases	3					Free
Actuated Green, G (s)	22.7		16.5	16.5		93.8
Effective Green, g (s)	22.7		16.5	16.5		93.8
Actuated g/C Ratio	0.24		0.18	0.18		1.00
Clearance Time (s)	4.0		4.6	4.6		
Vehicle Extension (s)	2.0		2.0	2.0		
Lane Grp Cap (vph)	377		311	597		1583
v/s Ratio Prot			0.08	c0.13		
v/s Ratio Perm	0.05					c0.11
v/c Ratio	0.21		0.43	0.74		0.11
Uniform Delay, d1	28.4		34.4	36.6		0.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1		0.3	4.3		0.1
Delay (s)	28.5		34.8	41.0		0.1
Level of Service	C		C	D		A
Approach Delay (s)				30.1		
Approach LOS				C		

Intersection Summary

4: Serramonte Blvd & Serra Center Driveway

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	92	570	909	203	118	79
Future Volume (vph)	92	570	909	203	118	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	97	600	957	214	124	83

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	297	400	638	533	207
Volume Left (vph)	97	0	0	0	124
Volume Right (vph)	0	0	0	214	83
Hadj (s)	0.20	0.03	0.03	-0.25	-0.09
Departure Headway (s)	6.9	6.8	6.4	6.1	6.7
Degree Utilization, x	0.57	0.75	1.13	0.90	0.39
Capacity (veh/h)	510	522	570	587	523
Control Delay (s)	17.5	26.2	100.9	40.0	13.9
Approach Delay (s)	22.5		73.1		13.9
Approach LOS	C		F		B

Intersection Summary			
Delay	50.2		
Level of Service	F		
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

5: El Camino Real & Serramonte Blvd

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	1	177	323	139	141	505	163	4	255	840	137	5
Future Volume (vph)	1	177	323	139	141	505	163	4	255	840	137	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor			0.95			0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes			1.00			1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes			1.00			1.00	1.00		1.00	1.00	1.00	
Frt			0.97			1.00	0.85		1.00	1.00	0.85	
Flt Protected			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (prot)			3365			3501	1558		1770	5085	1557	
Flt Permitted			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (perm)			3365			3501	1558		1770	5085	1557	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	186	340	146	148	532	172	4	268	884	144	5
RTOR Reduction (vph)	0	0	27	0	0	0	135	0	0	0	99	0
Lane Group Flow (vph)	0	0	646	0	0	680	37	0	272	884	45	0
Confl. Peds. (#/hr)				7			5				5	
Turn Type	Split	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	8	8	8		7	7		1	1	6		5
Permitted Phases							7				6	
Actuated Green, G (s)			21.5			19.3	19.3		16.3	27.8	27.8	
Effective Green, g (s)			21.5			19.3	19.3		16.3	27.8	27.8	
Actuated g/C Ratio			0.24			0.22	0.22		0.18	0.31	0.31	
Clearance Time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)			2.0			2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)			814			760	338		324	1591	487	
v/s Ratio Prot			c0.19			c0.19			c0.15	c0.17		
v/s Ratio Perm							0.02				0.03	
v/c Ratio			0.79			0.89	0.11		0.84	0.56	0.09	
Uniform Delay, d1			31.6			33.8	27.9		35.0	25.4	21.6	
Progression Factor			1.00			1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2			5.0			12.7	0.1		16.4	0.5	0.1	
Delay (s)			36.6			46.5	27.9		51.4	25.9	21.7	
Level of Service			D			D	C		D	C	C	
Approach Delay (s)			36.6			42.7				30.8		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	96	489	140
Future Volume (vph)	96	489	140
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1563
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1563
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	101	515	147
RTOR Reduction (vph)	0	0	118
Lane Group Flow (vph)	106	515	29
Confl. Peds. (#/hr)			1
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	6.2	17.7	17.7
Effective Green, g (s)	6.2	17.7	17.7
Actuated g/C Ratio	0.07	0.20	0.20
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	123	1013	311
v/s Ratio Prot	0.06	0.10	
v/s Ratio Perm			0.02
v/c Ratio	0.86	0.51	0.09
Uniform Delay, d1	40.9	31.7	29.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	41.1	0.5	0.2
Delay (s)	82.0	32.2	29.2
Level of Service	F	C	C
Approach Delay (s)		38.5	
Approach LOS		D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBU	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	0	1454	658	0	102	878	891
Future Volume (vph)	0	1454	658	0	102	878	891
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6			3.7	3.7
Lane Util. Factor		0.95	0.91			0.97	0.88
Frt		1.00	1.00			1.00	0.85
Flt Protected		1.00	1.00			0.95	1.00
Satd. Flow (prot)		3539	5085			3433	2787
Flt Permitted		1.00	1.00			0.95	1.00
Satd. Flow (perm)		3539	5085			3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1531	693	0	107	924	938
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1531	693	0	0	1031	938
Turn Type		NA	NA		Perm	Prot	custom
Protected Phases		2	6			4	4 5
Permitted Phases					4		
Actuated Green, G (s)		31.5	19.4			22.4	35.0
Effective Green, g (s)		31.5	19.4			22.4	35.0
Actuated g/C Ratio		0.51	0.31			0.36	0.56
Clearance Time (s)		4.6	4.6			3.7	
Vehicle Extension (s)		3.0	3.0			3.0	
Lane Grp Cap (vph)		1792	1585			1236	1568
v/s Ratio Prot		c0.43	0.14				0.34
v/s Ratio Perm						0.30	
v/c Ratio		0.85	0.44			0.83	0.60
Uniform Delay, d1		13.4	17.1			18.2	9.0
Progression Factor		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.2	0.2			5.0	0.6
Delay (s)		17.6	17.2			23.2	9.6
Level of Service		B	B			C	A
Approach Delay (s)		17.6	17.2			16.7	
Approach LOS		B	B			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	11.5
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	3	638	1693	658	5	0	0
Future Volume (vph)	3	638	1693	658	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	1.00			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3535			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3535			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	3	672	1782	693	5	0	0
RTOR Reduction (vph)	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	675	1782	697	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		11.9	34.8	15.3			
Effective Green, g (s)		11.9	34.8	15.3			
Actuated g/C Ratio		0.34	1.00	0.44			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		1173	3539	1554			
v/s Ratio Prot		0.20	c0.50	0.20			
v/s Ratio Perm							
v/c Ratio		0.58	0.50	0.45			
Uniform Delay, d1		9.4	0.0	6.8			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.7	0.2	0.2			
Delay (s)		10.1	0.2	7.0			
Level of Service		B	A	A			
Approach Delay (s)			2.9	7.0		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	34.8	Sum of lost time (s)	7.6
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL
Lane Configurations												
Traffic Volume (vph)	4	603	765	333	1	207	408	385	128	12	83	415
Future Volume (vph)	4	603	765	333	1	207	408	385	128	12	83	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0		3.0	4.6	4.6				4.0
Lane Util. Factor		0.97	0.95	1.00		1.00	0.91	0.91				0.97
Frpb, ped/bikes		1.00	1.00	0.98		1.00	1.00	1.00				1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00				1.00
Frt		1.00	1.00	0.85		1.00	0.95	0.85				1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00				0.95
Satd. Flow (prot)		3433	3539	1554		1770	3208	1441				3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00				0.95
Satd. Flow (perm)		3433	3539	1554		1770	3208	1441				3433
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	635	805	351	1	218	429	405	135	13	87	437
RTOR Reduction (vph)	0	0	0	250	0	0	0	88	0	0	0	0
Lane Group Flow (vph)	0	639	805	101	0	219	668	213	0	0	0	537
Confl. Peds. (#/hr)				7								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm		Split	Split	Split
Protected Phases	5	5	2		1	1	6			3	3	3
Permitted Phases				2				6				
Actuated Green, G (s)		21.1	30.0	30.0		15.1	23.4	23.4				22.3
Effective Green, g (s)		21.1	30.0	30.0		15.1	23.4	23.4				22.3
Actuated g/C Ratio		0.20	0.29	0.29		0.15	0.22	0.22				0.21
Clearance Time (s)		3.0	4.0	4.0		3.0	4.6	4.6				4.0
Vehicle Extension (s)		2.0	2.0	2.0		2.0	2.0	2.0				2.0
Lane Grp Cap (vph)		695	1019	447		256	721	323				735
v/s Ratio Prot		c0.19	0.23			0.12	c0.21					c0.16
v/s Ratio Perm				0.07				0.15				
v/c Ratio		0.92	0.79	0.23		0.86	0.93	0.66				0.73
Uniform Delay, d1		40.7	34.1	28.2		43.4	39.5	36.7				38.1
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00				1.00
Incremental Delay, d2		16.9	3.8	0.1		22.6	17.6	3.7				3.2
Delay (s)		57.6	38.0	28.3		66.0	57.1	40.4				41.3
Level of Service		E	D	C		E	E	D				D
Approach Delay (s)			43.1				54.5					
Approach LOS			D				D					

Intersection Summary			
HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	16.2
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations							
Traffic Volume (vph)	478	228	19	154	451	167	288
Future Volume (vph)	478	228	19	154	451	167	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.6	4.6		4.0
Lane Util. Factor	0.95	1.00		1.00	0.95		1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00
Frt	1.00	0.85		1.00	0.96		0.85
Flt Protected	1.00	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3539	1554		1770	3396		1583
Flt Permitted	1.00	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3539	1554		1770	3396		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	503	240	20	162	475	176	303
RTOR Reduction (vph)	0	139	0	0	0	0	0
Lane Group Flow (vph)	503	101	0	182	651	0	303
Confl. Peds. (#/hr)		7					
Turn Type	NA	Perm	Split	Split	NA		Free
Protected Phases	3		4	4	4		
Permitted Phases		3					Free
Actuated Green, G (s)	22.3	22.3		21.1	21.1		104.1
Effective Green, g (s)	22.3	22.3		21.1	21.1		104.1
Actuated g/C Ratio	0.21	0.21		0.20	0.20		1.00
Clearance Time (s)	4.0	4.0		4.6	4.6		
Vehicle Extension (s)	2.0	2.0		2.0	2.0		
Lane Grp Cap (vph)	758	332		358	688		1583
v/s Ratio Prot	0.14			0.10	c0.19		
v/s Ratio Perm		0.06					0.19
v/c Ratio	0.66	0.30		0.51	0.95		0.19
Uniform Delay, d1	37.5	34.4		36.9	40.9		0.0
Progression Factor	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.7	0.2		0.4	21.7		0.3
Delay (s)	39.2	34.6		37.3	62.6		0.3
Level of Service	D	C		D	E		A
Approach Delay (s)	39.2				41.9		
Approach LOS	D				D		

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis
4: Serramonte Blvd & Serra Center Driveway

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	157	716	840	227	128	161
Future Volume (vph)	157	716	840	227	128	161
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	165	754	884	239	135	169

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	416	503	589	534	304
Volume Left (vph)	165	0	0	0	135
Volume Right (vph)	0	0	0	239	169
Hadj (s)	0.23	0.03	0.03	-0.28	-0.21
Departure Headway (s)	7.3	7.1	7.2	6.8	6.8
Degree Utilization, x	0.85	1.00	1.17	1.01	0.57
Capacity (veh/h)	478	503	521	534	529
Control Delay (s)	38.1	65.1	119.8	67.3	18.3
Approach Delay (s)	52.9		94.9		18.3
Approach LOS	F		F		C

Intersection Summary			
Delay	68.5		
Level of Service	F		
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	2	163	299	186	120	400	72	5	286	614	102	4
Future Volume (vph)	2	163	299	186	120	400	72	5	286	614	102	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor			0.95			0.95	1.00		1.00	0.91	1.00	
Frpb, ped/bikes			0.99			1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes			1.00			1.00	1.00		1.00	1.00	1.00	
Frt			0.96			1.00	0.85		1.00	1.00	0.85	
Flt Protected			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (prot)			3325			3499	1556		1770	5085	1553	
Flt Permitted			0.99			0.99	1.00		0.95	1.00	1.00	
Satd. Flow (perm)			3325			3499	1556		1770	5085	1553	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	172	315	196	126	421	76	5	301	646	107	4
RTOR Reduction (vph)	0	0	45	0	0	0	61	0	0	0	70	0
Lane Group Flow (vph)	0	0	640	0	0	547	15	0	306	646	37	0
Confl. Peds. (#/hr)				11			7				7	
Turn Type	Split	Split	NA		Split	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	8	8	8		7	7		1	1	6		5
Permitted Phases							7				6	
Actuated Green, G (s)			21.8			18.6	18.6		17.6	31.6	31.6	
Effective Green, g (s)			21.8			18.6	18.6		17.6	31.6	31.6	
Actuated g/C Ratio			0.24			0.20	0.20		0.19	0.34	0.34	
Clearance Time (s)			3.5			3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)			2.0			2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)			788			708	314		338	1748	534	
v/s Ratio Prot			c0.19			c0.16			c0.17	0.13		
v/s Ratio Perm							0.01				0.02	
v/c Ratio			0.81			0.77	0.05		0.91	0.37	0.07	
Uniform Delay, d1			33.1			34.7	29.5		36.3	22.7	20.3	
Progression Factor			1.00			1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2			6.1			4.8	0.0		26.0	0.2	0.1	
Delay (s)			39.2			39.4	29.5		62.3	22.8	20.3	
Level of Service			D			D	C		E	C	C	
Approach Delay (s)			39.2			38.2				34.0		
Approach LOS			D			D				C		

Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	91.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	73	563	212
Future Volume (vph)	73	563	212
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1559
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1559
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	77	593	223
RTOR Reduction (vph)	0	0	175
Lane Group Flow (vph)	81	593	48
Confl. Peds. (#/hr)			3
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	5.9	19.9	19.9
Effective Green, g (s)	5.9	19.9	19.9
Actuated g/C Ratio	0.06	0.22	0.22
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	113	1101	337
v/s Ratio Prot	0.05	c0.12	
v/s Ratio Perm			0.03
v/c Ratio	0.72	0.54	0.14
Uniform Delay, d1	42.2	31.9	29.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	16.4	0.7	0.3
Delay (s)	58.6	32.6	29.4
Level of Service	E	C	C
Approach Delay (s)		34.1	
Approach LOS		C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	708	362	0	1219	460
Future Volume (vph)	0	708	362	0	1219	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	745	381	0	1283	484
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	745	381	0	1283	484
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		18.8	9.4		22.3	32.2
Effective Green, g (s)		18.8	9.4		22.3	32.2
Actuated g/C Ratio		0.38	0.19		0.45	0.65
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1346	967		1549	1816
v/s Ratio Prot		c0.21	0.07		c0.37	0.17
v/s Ratio Perm						
v/c Ratio		0.55	0.39		0.83	0.27
Uniform Delay, d1		12.0	17.5		11.9	3.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.5	0.3		3.8	0.1
Delay (s)		12.5	17.8		15.7	3.7
Level of Service		B	B		B	A
Approach Delay (s)		12.5	17.8		12.4	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	49.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (vph)	2	173	1784	362	0	0	0
Future Volume (vph)	2	173	1784	362	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	4.4	4.1			
Lane Util. Factor		0.97	0.95	0.95			
Frt		1.00	1.00	1.00			
Flt Protected		0.95	1.00	1.00			
Satd. Flow (prot)		3433	3539	3539			
Flt Permitted		0.95	1.00	1.00			
Satd. Flow (perm)		3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	182	1878	381	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	184	1878	381	0	0	0
Turn Type	Prot	Prot	NA	NA			
Protected Phases	5	5	2	6			
Permitted Phases							
Actuated Green, G (s)		6.3	35.4	21.5			
Effective Green, g (s)		6.3	35.4	21.5			
Actuated g/C Ratio		0.18	1.00	0.61			
Clearance Time (s)		3.5	4.4	4.1			
Vehicle Extension (s)		3.0	4.0	3.0			
Lane Grp Cap (vph)		610	3539	2149			
v/s Ratio Prot		0.05	c0.53	0.11			
v/s Ratio Perm							
v/c Ratio		0.30	0.53	0.18			
Uniform Delay, d1		12.6	0.0	3.1			
Progression Factor		1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.2	0.0			
Delay (s)		12.9	0.2	3.1			
Level of Service		B	A	A			
Approach Delay (s)			1.3	3.1		0.0	
Approach LOS			A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	35.4	Sum of lost time (s)	7.6
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	157	966	661	123	239	252	58	5	48	398	337	220
Future Volume (vph)	157	966	661	123	239	252	58	5	48	398	337	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1555	1770	3204	1441				3433	3539	1556
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1555	1770	3204	1441				3433	3539	1556
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	165	1017	696	129	252	265	61	5	51	419	355	232
RTOR Reduction (vph)	0	0	362	0	0	74	0	0	0	0	0	185
Lane Group Flow (vph)	165	1017	334	129	398	106	0	0	0	475	355	47
Confl. Peds. (#/hr)			7									6
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Split	Split	Split	NA	Perm
Protected Phases	5	2		1	6			3	3	3	3	
Permitted Phases			2			6						3
Actuated Green, G (s)	9.2	32.2	32.2	11.2	33.6	33.6				19.6	19.6	19.6
Effective Green, g (s)	9.2	32.2	32.2	11.2	33.6	33.6				19.6	19.6	19.6
Actuated g/C Ratio	0.10	0.33	0.33	0.12	0.35	0.35				0.20	0.20	0.20
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	328	1184	520	206	1119	503				699	721	317
v/s Ratio Prot	0.05	c0.29		c0.07	0.12					c0.14	0.10	
v/s Ratio Perm			0.21			0.07						0.03
v/c Ratio	0.50	0.86	0.64	0.63	0.36	0.21				0.68	0.49	0.15
Uniform Delay, d1	41.3	29.9	27.1	40.5	23.3	22.0				35.4	33.9	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	0.4	6.2	2.0	4.2	0.1	0.1				2.1	0.2	0.1
Delay (s)	41.8	36.0	29.2	44.7	23.3	22.1				37.5	34.1	31.5
Level of Service	D	D	C	D	C	C				D	C	C
Approach Delay (s)		34.0			26.9						35.0	
Approach LOS		C			C						D	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	16.2
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	12	152	404	76	59
Future Volume (vph)	12	152	404	76	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.98		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3455		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3455		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	13	160	425	80	62
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	173	505	0	62
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		17.6	17.6		96.2
Effective Green, g (s)		17.6	17.6		96.2
Actuated g/C Ratio		0.18	0.18		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		323	632		1583
v/s Ratio Prot		0.10	c0.15		
v/s Ratio Perm					c0.04
v/c Ratio		0.54	0.80		0.04
Uniform Delay, d1		35.6	37.6		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.9	6.5		0.0
Delay (s)		36.5	44.2		0.0
Level of Service		D	D		A
Approach Delay (s)			38.7		
Approach LOS			D		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Serramonte Blvd & Project Driveway 3

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	951	524	112	96	23
Future Volume (vph)	59	951	524	112	96	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	0.99		1.00	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.97		0.97	
Flt Protected		1.00	1.00		0.96	
Satd. Flow (prot)		3529	3428		1739	
Flt Permitted		0.89	1.00		0.96	
Satd. Flow (perm)		3133	3428		1739	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	62	1001	552	118	101	24
RTOR Reduction (vph)	0	0	19	0	13	0
Lane Group Flow (vph)	0	1063	651	0	112	0
Confl. Peds. (#/hr)	3			9	9	3
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		30.7	30.7		8.1	
Effective Green, g (s)		30.7	30.7		8.1	
Actuated g/C Ratio		0.64	0.64		0.17	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.5	2.5		2.5	
Lane Grp Cap (vph)		2012	2201		294	
v/s Ratio Prot			0.19		c0.06	
v/s Ratio Perm		c0.34				
v/c Ratio		0.53	0.30		0.38	
Uniform Delay, d1		4.6	3.8		17.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.2	0.1		0.6	
Delay (s)		4.8	3.8		18.2	
Level of Service		A	A		B	
Approach Delay (s)		4.8	3.8		18.2	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	72	603	100	1	109	290	67	1	97	343	59	10
Future Volume (vph)	72	603	100	1	109	290	67	1	97	343	59	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5			3.5	3.5	3.5		3.0	4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00		1.00	0.91	1.00	
Frpb, ped/bikes	1.00	1.00			1.00	1.00	0.98		1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98			1.00	1.00	0.85		1.00	1.00	0.85	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1770	1817			1770	1863	1557		1770	5085	1556	
Flt Permitted	0.95	1.00			0.95	1.00	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770	1817			1770	1863	1557		1770	5085	1556	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	635	105	1	115	305	71	1	102	361	62	11
RTOR Reduction (vph)	0	5	0	0	0	0	39	0	0	0	47	0
Lane Group Flow (vph)	76	735	0	0	116	305	32	0	103	361	15	0
Confl. Peds. (#/hr)			11				5				5	
Turn Type	Prot	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot
Protected Phases	3	8		7	7	4		1	1	6		5
Permitted Phases							4				6	
Actuated Green, G (s)	7.1	44.5			8.1	45.5	45.5		8.4	24.8	24.8	
Effective Green, g (s)	7.1	44.5			8.1	45.5	45.5		8.4	24.8	24.8	
Actuated g/C Ratio	0.07	0.44			0.08	0.45	0.45		0.08	0.24	0.24	
Clearance Time (s)	3.5	3.5			3.5	3.5	3.5		3.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0	4.0	4.0	
Lane Grp Cap (vph)	123	797			141	835	698		146	1243	380	
v/s Ratio Prot	0.04	c0.40			c0.07	0.16			0.06	0.07		
v/s Ratio Perm							0.02				0.01	
v/c Ratio	0.62	0.92			0.82	0.37	0.05		0.71	0.29	0.04	
Uniform Delay, d1	45.8	26.8			45.9	18.4	15.7		45.3	31.1	29.2	
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	6.3	15.8			29.3	0.1	0.0		11.9	0.2	0.1	
Delay (s)	52.2	42.6			75.2	18.5	15.7		57.2	31.3	29.3	
Level of Service	D	D			E	B	B		E	C	C	
Approach Delay (s)		43.5				31.5				36.2		
Approach LOS		D				C				D		

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	139	800	145
Future Volume (vph)	139	800	145
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1556
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1556
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	146	842	153
RTOR Reduction (vph)	0	0	89
Lane Group Flow (vph)	157	842	64
Confl. Peds. (#/hr)			4
Turn Type	Prot	NA	Perm
Protected Phases	5	2	
Permitted Phases			2
Actuated Green, G (s)	10.0	26.4	26.4
Effective Green, g (s)	10.0	26.4	26.4
Actuated g/C Ratio	0.10	0.26	0.26
Clearance Time (s)	3.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0	4.0
Lane Grp Cap (vph)	174	1323	405
v/s Ratio Prot	c0.09	c0.17	
v/s Ratio Perm			0.04
v/c Ratio	0.90	0.64	0.16
Uniform Delay, d1	45.2	33.2	28.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	40.7	1.1	0.3
Delay (s)	85.9	34.4	29.2
Level of Service	F	C	C
Approach Delay (s)		40.7	
Approach LOS		D	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1559	777	0	831	780
Future Volume (vph)	0	1559	777	0	831	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1641	818	0	875	821
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1641	818	0	875	821
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		32.5	21.3		22.3	34.0
Effective Green, g (s)		32.5	21.3		22.3	34.0
Actuated g/C Ratio		0.52	0.34		0.35	0.54
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1822	1716		1213	1501
v/s Ratio Prot		c0.46	0.16		c0.25	0.29
v/s Ratio Perm						
v/c Ratio		0.90	0.48		0.72	0.55
Uniform Delay, d1		13.8	16.5		17.7	9.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		6.6	0.2		2.1	0.4
Delay (s)		20.4	16.7		19.8	9.9
Level of Service		C	B		B	A
Approach Delay (s)		20.4	16.7		15.0	
Approach LOS		C	B		B	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	692	1708	778	0	0	0
Future Volume (vph)	692	1708	778	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	728	1798	819	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	728	1798	819	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	12.4	33.1	13.1			
Effective Green, g (s)	12.4	33.1	13.1			
Actuated g/C Ratio	0.37	1.00	0.40			
Clearance Time (s)	3.5	4.4	4.1			
Vehicle Extension (s)	3.0	4.0	3.0			
Lane Grp Cap (vph)	1286	3539	1400			
v/s Ratio Prot	0.21	c0.51	0.23			
v/s Ratio Perm						
v/c Ratio	0.57	0.51	0.58			
Uniform Delay, d1	8.2	0.0	7.9			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.6	0.2	0.6			
Delay (s)	8.8	0.2	8.5			
Level of Service	A	A	A			
Approach Delay (s)		2.6	8.5		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	33.1	Sum of lost time (s)	7.6
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	445	800	462	244	466	505	122	7	172	484	704	195
Future Volume (vph)	445	800	462	244	466	505	122	7	172	484	704	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1558	1770	3196	1441				3433	3539	1557
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1558	1770	3196	1441				3433	3539	1557
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	468	842	486	257	491	532	128	7	181	509	741	205
RTOR Reduction (vph)	0	0	350	0	0	85	0	0	0	0	0	91
Lane Group Flow (vph)	468	842	136	257	794	272	0	0	0	697	741	114
Confl. Peds. (#/hr)			4									5
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Perm	Split	Split	NA	Perm
Protected Phases	5	2		1	6				3	3	3	
Permitted Phases			2			6		3				3
Actuated Green, G (s)	18.0	29.1	29.1	16.2	26.7	26.7				25.9	25.9	25.9
Effective Green, g (s)	18.0	29.1	29.1	16.2	26.7	26.7				25.9	25.9	25.9
Actuated g/C Ratio	0.17	0.27	0.27	0.15	0.25	0.25				0.24	0.24	0.24
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	581	969	426	270	803	362				837	863	379
v/s Ratio Prot	0.14	0.24		c0.15	c0.25					0.20	c0.21	
v/s Ratio Perm			0.09			0.19						0.07
v/c Ratio	0.81	0.87	0.32	0.95	0.99	0.75				0.83	0.86	0.30
Uniform Delay, d1	42.4	36.7	30.7	44.6	39.6	36.7				38.1	38.4	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	7.6	8.1	0.2	41.3	28.6	7.6				6.8	8.2	0.2
Delay (s)	50.0	44.8	30.8	85.9	68.2	44.2				44.9	46.6	32.9
Level of Service	D	D	C	F	E	D				D	D	C
Approach Delay (s)		42.4			65.3						44.2	
Approach LOS		D			E						D	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	106.2	Sum of lost time (s)	16.2
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	10	144	375	139	210
Future Volume (vph)	10	144	375	139	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.96		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3396		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3396		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	152	395	146	221
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	163	541	0	221
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		19.4	19.4		106.2
Effective Green, g (s)		19.4	19.4		106.2
Actuated g/C Ratio		0.18	0.18		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		323	620		1583
v/s Ratio Prot		0.09	c0.16		
v/s Ratio Perm					c0.14
v/c Ratio		0.50	0.87		0.14
Uniform Delay, d1		39.1	42.2		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		0.5	12.5		0.2
Delay (s)		39.5	54.7		0.2
Level of Service		D	D		A
Approach Delay (s)			39.0		
Approach LOS			D		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Serramonte Blvd & Project Driveway 3

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	691	1104	248	144	96
Future Volume (vph)	112	691	1104	248	144	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	0.99		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.97		0.95	
Flt Protected		0.99	1.00		0.97	
Satd. Flow (prot)		3514	3417		1701	
Flt Permitted		0.61	1.00		0.97	
Satd. Flow (perm)		2144	3417		1701	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	727	1162	261	152	101
RTOR Reduction (vph)	0	0	18	0	28	0
Lane Group Flow (vph)	0	845	1405	0	225	0
Confl. Peds. (#/hr)	4			15	15	4
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		35.4	35.4		13.7	
Effective Green, g (s)		35.4	35.4		13.7	
Actuated g/C Ratio		0.61	0.61		0.24	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.5	2.5		2.5	
Lane Grp Cap (vph)		1306	2081		401	
v/s Ratio Prot			c0.41		c0.13	
v/s Ratio Perm		0.39				
v/c Ratio		0.65	0.68		0.56	
Uniform Delay, d1		7.3	7.5		19.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		1.0	0.8		1.5	
Delay (s)		8.3	8.3		21.0	
Level of Service		A	A		C	
Approach Delay (s)		8.3	8.3		21.0	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	216	394	169	172	616	198	5	96	1025	167	6	117
Future Volume (vph)	216	394	169	172	616	198	5	96	1025	167	6	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.91	1.00		1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98		1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	1769		1770	1863	1557		1770	5085	1555		1770
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	1769		1770	1863	1557		1770	5085	1555		1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	227	415	178	181	648	208	5	101	1079	176	6	123
RTOR Reduction (vph)	0	14	0	0	0	132	0	0	0	112	0	0
Lane Group Flow (vph)	227	579	0	181	648	76	0	106	1079	64	0	129
Confl. Peds. (#/hr)			7			5				5		
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8		7	4		1	1	6		5	5
Permitted Phases						4				6		
Actuated Green, G (s)	12.4	36.7		9.9	34.2	34.2		10.6	31.6	31.6		10.8
Effective Green, g (s)	12.4	36.7		9.9	34.2	34.2		10.6	31.6	31.6		10.8
Actuated g/C Ratio	0.12	0.36		0.10	0.33	0.33		0.10	0.31	0.31		0.10
Clearance Time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	4.0	4.0		2.0
Lane Grp Cap (vph)	213	630		170	618	516		182	1560	477		185
v/s Ratio Prot	c0.13	0.33		0.10	c0.35			0.06	c0.21			c0.07
v/s Ratio Perm						0.05				0.04		
v/c Ratio	1.07	0.92		1.06	1.05	0.15		0.58	0.69	0.13		0.70
Uniform Delay, d1	45.3	31.7		46.5	34.4	24.2		44.1	31.4	25.8		44.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2	80.1	18.2		87.3	49.6	0.0		3.0	1.4	0.2		8.9
Delay (s)	125.4	50.0		133.8	84.0	24.2		47.1	32.9	26.0		53.4
Level of Service	F	D		F	F	C		D	C	C		D
Approach Delay (s)		70.9			80.7				33.1			
Approach LOS		E			F				C			

Intersection Summary			
HCM 2000 Control Delay	52.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	597	171
Future Volume (vph)	597	171
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1562
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1562
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	628	180
RTOR Reduction (vph)	0	124
Lane Group Flow (vph)	628	56
Confl. Peds. (#/hr)		1
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	31.8	31.8
Effective Green, g (s)	31.8	31.8
Actuated g/C Ratio	0.31	0.31
Clearance Time (s)	4.0	4.0
Vehicle Extension (s)	4.0	4.0
Lane Grp Cap (vph)	1569	482
v/s Ratio Prot	0.12	
v/s Ratio Perm		0.04
v/c Ratio	0.40	0.12
Uniform Delay, d1	28.1	25.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	0.1
Delay (s)	28.3	25.7
Level of Service	C	C
Approach Delay (s)	31.3	
Approach LOS	C	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Serramonte Blvd & I-280 SB Off-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1773	802	0	1068	1087
Future Volume (vph)	0	1773	802	0	1068	1087
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.91		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	5085		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	5085		3433	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1866	844	0	1124	1144
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1866	844	0	1124	1144
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		36.4	21.1		22.4	38.2
Effective Green, g (s)		36.4	21.1		22.4	38.2
Actuated g/C Ratio		0.54	0.31		0.33	0.57
Clearance Time (s)		4.6	4.6		3.7	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1919	1599		1146	1586
v/s Ratio Prot		c0.53	0.17		c0.33	0.41
v/s Ratio Perm						
v/c Ratio		0.97	0.53		0.98	0.72
Uniform Delay, d1		14.9	18.9		22.1	10.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		14.5	0.3		21.9	1.6
Delay (s)		29.4	19.2		44.1	12.2
Level of Service		C	B		D	B
Approach Delay (s)		29.4	19.2		28.0	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	778	2062	802	0	0	0
Future Volume (vph)	778	2062	802	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.4	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	819	2171	844	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	819	2171	844	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	14.3	39.1	17.2			
Effective Green, g (s)	14.3	39.1	17.2			
Actuated g/C Ratio	0.37	1.00	0.44			
Clearance Time (s)	3.5	4.4	4.1			
Vehicle Extension (s)	3.0	4.0	3.0			
Lane Grp Cap (vph)	1255	3539	1556			
v/s Ratio Prot	0.24	c0.61	0.24			
v/s Ratio Perm						
v/c Ratio	0.65	0.61	0.54			
Uniform Delay, d1	10.3	0.0	8.1			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	1.2	0.4	0.4			
Delay (s)	11.6	0.4	8.4			
Level of Service	B	A	A			
Approach Delay (s)		3.4	8.4		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	39.1	Sum of lost time (s)	7.6
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Junipero Serra Blvd & Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBU	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	736	930	406	247	497	466	154	15	101	506	583	272
Future Volume (vph)	736	930	406	247	497	466	154	15	101	506	583	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91				0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00				1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1553	1770	3211	1441				3433	3539	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1553	1770	3211	1441				3433	3539	1553
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	775	979	427	260	523	491	162	16	106	533	614	286
RTOR Reduction (vph)	0	0	238	0	0	87	0	0	0	0	0	130
Lane Group Flow (vph)	775	979	189	260	808	281	0	0	0	655	614	156
Confl. Peds. (#/hr)			7									7
Turn Type	Prot	NA	Perm	Prot	NA	Perm		Perm	Split	Split	NA	Perm
Protected Phases	5	2		1	6				3	3	3	
Permitted Phases			2			6		3				3
Actuated Green, G (s)	23.0	36.1	36.1	15.0	27.5	27.5				21.4	21.4	21.4
Effective Green, g (s)	23.0	36.1	36.1	15.0	27.5	27.5				21.4	21.4	21.4
Actuated g/C Ratio	0.20	0.32	0.32	0.13	0.24	0.24				0.19	0.19	0.19
Clearance Time (s)	3.0	4.0	4.0	3.0	4.6	4.6				4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0				2.0	2.0	2.0
Lane Grp Cap (vph)	701	1135	498	236	784	352				653	673	295
v/s Ratio Prot	c0.23	0.28		0.15	c0.25					c0.19	0.17	
v/s Ratio Perm			0.12			0.20						0.10
v/c Ratio	1.11	0.86	0.38	1.10	1.03	0.80				1.00	0.91	0.53
Uniform Delay, d1	44.8	35.9	29.5	48.8	42.5	39.9				45.5	44.6	41.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2	66.7	6.7	0.2	88.5	40.2	11.2				36.0	16.5	0.8
Delay (s)	111.4	42.6	29.7	137.2	82.7	51.1				81.5	61.1	41.8
Level of Service	F	D	C	F	F	D				F	E	D
Approach Delay (s)		64.5			84.5						66.1	
Approach LOS		E			F						E	

Intersection Summary			
HCM 2000 Control Delay	69.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	16.2
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Junipero Serra Blvd & Serramonte Blvd & I-280 NB On-Ramp

04/27/2020

Movement	SBU	SBL	SBT	SBR	SBR2
Lane Configurations					
Traffic Volume (vph)	23	185	550	204	351
Future Volume (vph)	23	185	550	204	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6		4.0
Lane Util. Factor		1.00	0.95		1.00
Frpb, ped/bikes		1.00	1.00		1.00
Flpb, ped/bikes		1.00	1.00		1.00
Frt		1.00	0.96		0.85
Flt Protected		0.95	1.00		1.00
Satd. Flow (prot)		1770	3395		1583
Flt Permitted		0.95	1.00		1.00
Satd. Flow (perm)		1770	3395		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	24	195	579	215	369
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	219	794	0	369
Confl. Peds. (#/hr)					
Turn Type	Split	Split	NA		Free
Protected Phases	4	4	4		
Permitted Phases					Free
Actuated Green, G (s)		24.4	24.4		112.5
Effective Green, g (s)		24.4	24.4		112.5
Actuated g/C Ratio		0.22	0.22		1.00
Clearance Time (s)		4.6	4.6		
Vehicle Extension (s)		2.0	2.0		
Lane Grp Cap (vph)		383	736		1583
v/s Ratio Prot		0.12	c0.23		
v/s Ratio Perm					0.23
v/c Ratio		0.57	1.08		0.23
Uniform Delay, d1		39.4	44.0		0.0
Progression Factor		1.00	1.00		1.00
Incremental Delay, d2		1.3	56.5		0.3
Delay (s)		40.7	100.5		0.3
Level of Service		D	F		A
Approach Delay (s)			64.3		
Approach LOS			E		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Serramonte Blvd & Project Driveway 3

04/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	192	862	1013	277	156	196
Future Volume (vph)	192	862	1013	277	156	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frpb, ped/bikes		1.00	0.98		0.99	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	0.97		0.92	
Flt Protected		0.99	1.00		0.98	
Satd. Flow (prot)		3506	3370		1665	
Flt Permitted		0.52	1.00		0.98	
Satd. Flow (perm)		1825	3370		1665	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	907	1066	292	164	206
RTOR Reduction (vph)	0	0	15	0	46	0
Lane Group Flow (vph)	0	1109	1343	0	324	0
Confl. Peds. (#/hr)	9			29	29	9
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		8	
Permitted Phases	2					
Actuated Green, G (s)		54.0	54.0		20.9	
Effective Green, g (s)		54.0	54.0		20.9	
Actuated g/C Ratio		0.64	0.64		0.25	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.5	2.5		2.5	
Lane Grp Cap (vph)		1174	2169		414	
v/s Ratio Prot			0.40		c0.19	
v/s Ratio Perm		c0.61				
v/c Ratio		1.18dl	0.62		0.78	
Uniform Delay, d1		13.6	8.9		29.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		14.8	0.5		9.0	
Delay (s)		28.4	9.3		38.4	
Level of Service		C	A		D	
Approach Delay (s)		28.4	9.3		38.4	
Approach LOS		C	A		D	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: El Camino Real & Serramonte Blvd

04/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	198	364	226	146	487	88	6	98	749	124	5	89
Future Volume (vph)	198	364	226	146	487	88	6	98	749	124	5	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	0.91	1.00		1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98		1.00	1.00	0.98		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Frt	1.00	0.94		1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	1770	1741		1770	1863	1555		1770	5085	1553		1770
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)	1770	1741		1770	1863	1555		1770	5085	1553		1770
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	208	383	238	154	513	93	6	103	788	131	5	94
RTOR Reduction (vph)	0	18	0	0	0	60	0	0	0	94	0	0
Lane Group Flow (vph)	208	603	0	154	513	33	0	109	788	37	0	99
Confl. Peds. (#/hr)			11			7				7		
Turn Type	Prot	NA		Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot
Protected Phases	3	8		7	4		1	1	6		5	5
Permitted Phases						4				6		
Actuated Green, G (s)	12.4	36.7		10.0	34.3	34.3		10.3	26.6	26.6		8.1
Effective Green, g (s)	12.4	36.7		10.0	34.3	34.3		10.3	26.6	26.6		8.1
Actuated g/C Ratio	0.13	0.38		0.10	0.36	0.36		0.11	0.28	0.28		0.08
Clearance Time (s)	3.5	3.5		3.5	3.5	3.5		3.0	4.0	4.0		3.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	4.0	4.0		2.0
Lane Grp Cap (vph)	230	669		185	669	559		191	1417	433		150
v/s Ratio Prot	c0.12	c0.35		0.09	0.28			0.06	c0.15			c0.06
v/s Ratio Perm						0.02				0.02		
v/c Ratio	0.90	0.90		0.83	0.77	0.06		0.57	0.56	0.08		0.66
Uniform Delay, d1	40.9	27.6		41.9	27.0	20.0		40.4	29.4	25.4		42.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2	33.9	15.0		25.2	4.7	0.0		2.5	0.6	0.1		8.1
Delay (s)	74.8	42.6		67.0	31.8	20.0		43.0	29.9	25.5		50.5
Level of Service	E	D		E	C	C		D	C	C		D
Approach Delay (s)		50.7			37.5				30.8			
Approach LOS		D			D				C			

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	687	258
Future Volume (vph)	687	258
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frpb, ped/bikes	1.00	0.98
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1559
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1559
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	723	272
RTOR Reduction (vph)	0	180
Lane Group Flow (vph)	723	92
Confl. Peds. (#/hr)		3
Turn Type	NA	Perm
Protected Phases	2	
Permitted Phases		2
Actuated Green, G (s)	24.4	24.4
Effective Green, g (s)	24.4	24.4
Actuated g/C Ratio	0.26	0.26
Clearance Time (s)	4.0	4.0
Vehicle Extension (s)	4.0	4.0
Lane Grp Cap (vph)	1300	398
v/s Ratio Prot	0.14	
v/s Ratio Perm		0.06
v/c Ratio	0.56	0.23
Uniform Delay, d1	30.8	28.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.6	0.4
Delay (s)	31.4	28.5
Level of Service	C	C
Approach Delay (s)	32.4	
Approach LOS	C	

Intersection Summary

Appendix C

DRAFT VMT Screening Map

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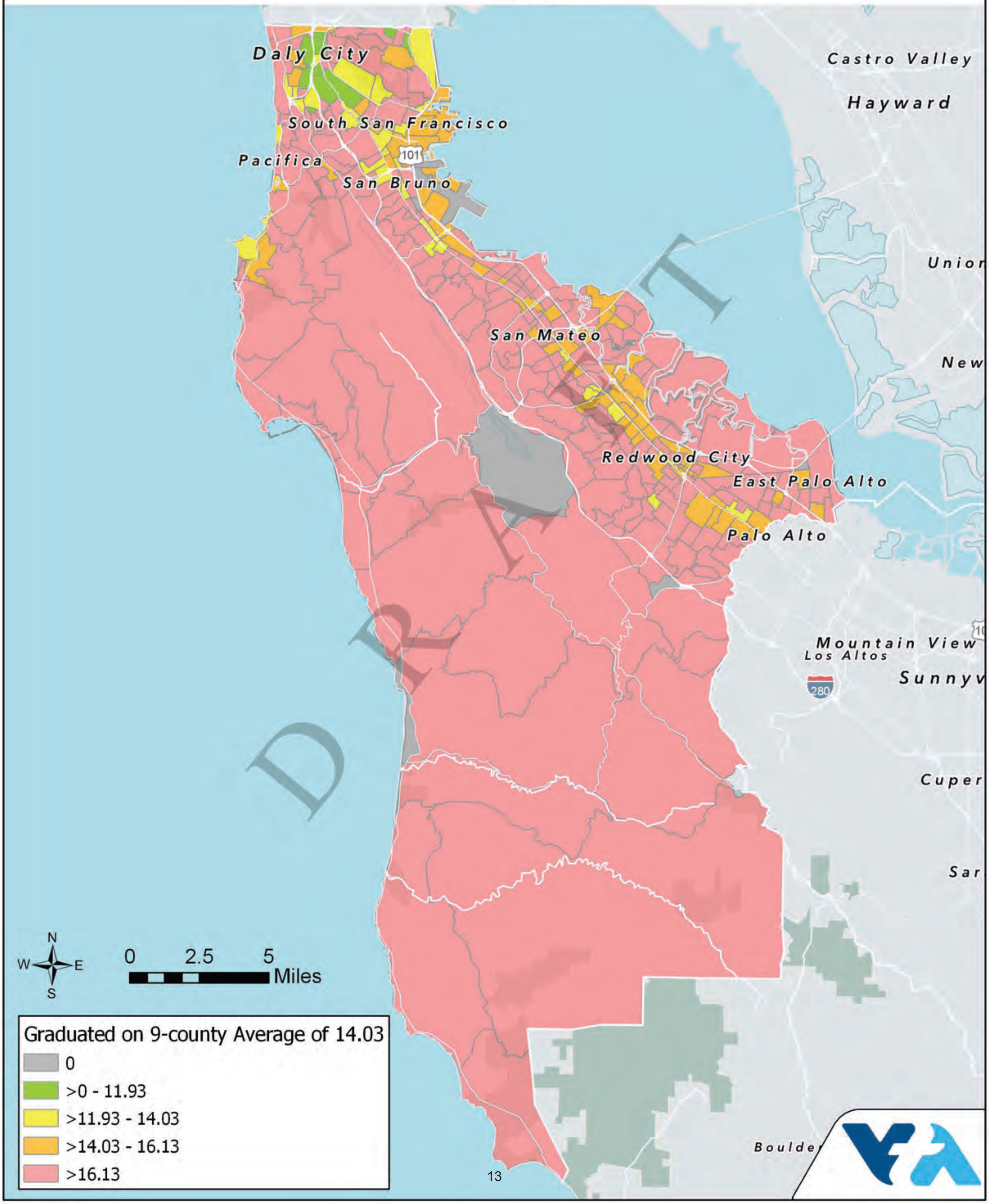
Employment VMT Per Employee

PRELIMINARY DRAFT – SUBJECT TO CHANGE

June 12, 2018



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Appendix D

Proportional Share Calculation Worksheet

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Equitable Share Calculations
775 Serramonte Boulevard - Cadillac Dealership

Net New Project Trips (T)	**AM**	**PM**	**Weekend Midday**
	41	-1	9

Total Volume Entering the Intersection of
Serramonte Boulevard/Serra Center Driveway

Scenario	AM	PM	Weekend Midday
Existing	1414	1924	2120
Future Year	1765	2395	2696

Description of Project Improvement:

The improvement would involve converting an existing all-way stop controlled intersection to a signalized intersection.

Calculation of Project Share

P = T / (TB - TE)
where:
P = Equitable Share
T = Project trips during the affected peak hour
TB = Build-out volumes
TE = Existing volumes

T	41	-1	9
TB	1765	2395	2696
TE	1414	1924	2120
P	11.7%	-0.2%	1.6%

Average
4.3%

Total Estimated Cost of Improvements	$600,000

Equitable Share Contribution	**$26,062**

Equitable Share (per Caltrans "Guide for the Preparation of Traffic Impact Studies")

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