ACI Materials Recovery Facility and Transfer Facility Expansion Project

Initial Study – Mitigated Negative Declaration

prepared by

City of San Leandro
Community Development Department
835 East 14th Street
San Leandro, California 94577
Contact: Anjana Mepani, Senior Planner

prepared with the assistance of

Rincon Consultants, Inc.
449 15th Street, Suite 303
Oakland, California 94612

August 2017

Rincon Consultants, Inc.
Environmental Scientists Planners Engineers
www.rinconconsultants.com

City of San Leandro
Notice of Intent to Adopt a Mitigated Negative Declaration

Notice is hereby given that the City of San Leandro has completed an Initial Study and Mitigated Negative Declaration in accordance with the California Environmental Quality Act for the project described below.

Project Title: ACI Materials Recovery Facility (MRF) and Transfer Facility Expansion Project

Project Description: Alameda County Industries (ACI) is proposing operational changes at the MRF and Transfer Facility located at 610 Aladdin Avenue and at the Limited Volume Transfer Facility operations located at 601 Aladdin Avenue. These operational changes would require revisions to the MRF and Transfer Facility Solid Waste Facility Permit (SWFP No. 01-AA-0290) administered by the California Department of Resources and Recycling (CalRecycle), and to the Conditional Use Permits (CUP) administered by the City of San Leandro for both sites. The following is a summary of operational changes:

- Increase the combined MRF and Transfer Facility's permitted tonnage from 412 tons per day (tpd) to 620 tpd for the entire facility and remove any separate tonnage limitations for the individual categories of materials accepted;
- Allow for temporary exceedances of inbound tonnage above 620 tpd by up to 10 percent for a maximum of 20 days per year (62 tpd for up to 20 days);
- Extend the waste acceptance, transfer, and processing hours to 24 hours per day, 7 days per week;
- Accept food waste/organics and other materials from third-party waste haulers and jurisdictions for transfer and/or pre-processing, including municipal solid waste (MSW) from ACI's other franchise jurisdictions;
- Increase the material storage requirement to 48 hours, consistent with state minimum standards; and,
- Modify the Limited Volume Transfer Facility operations to expand the bulky item sorting operations at 601 Aladdin Avenue.

In addition, the project proposal includes construction of a 21,800-square-foot building over the current Transfer Facility. All transfer operations (unloading, storage, and load-out) would be contained in the new building, allowing for approximately 600 tons of covered storage capacity. The existing maintenance shop on the 610 Aladdin Avenue parcel would be relocated to the 601 Aladdin Avenue parcel, or to another fully permitted industrial facility, in order to accommodate the new Transfer Facility building.

The project site is not on a list compiled pursuant to Government Code section 65962.5. The proposed project is not considered a project of statewide, regional or area wide significance. The proposed project will not affect highways or other facilities under the jurisdiction of the State Department of Transportation.

Project Location: The project site consists of two Assessor's parcels directly across from each other on a cul-de-sac at the end of Aladdin Avenue. The first parcel encompasses 2.82 acres and is located at 610 Aladdin Avenue (APN 77B-800-15) at the southeastern corner of the Aladdin Avenue cul-de-sac. The second parcel encompasses 6.35 acres and is located at 601 Aladdin Avenue (APN 77A-650-2-10) on the northeastern corner of the Aladdin Avenue cul-de-sac.

Finding: On the basis of the Initial Study, the Community Development Department of the City of San Leandro has determined that with the incorporation of the mitigation measures proposed in the Initial Study, the proposed project would not have a significant adverse effect on the environment.

Public Hearing: The proposed project and the IS-MND will be considered by the City of San Leandro Board of Zoning Adjustments on Thursday, October 5, 2017 at 7:00 p.m. in the City Council Chambers at San Leandro City Hall (835 East 14th Street, San Leandro). Any interested party or agent may appear and be heard. Comments regarding the proposed project or IS-MND may be forwarded to the City of San Leandro at or prior to the Public Hearing. Anyone instituting a legal challenge to the Public Hearing item noted above may be limited to addressing only those issues raised at the Public Hearing described in this Notice, or in written correspondence delivered to the City of San Leandro at or prior to the Public Hearing.

Public Comment Period: The Initial Study - Mitigated Negative Declaration (IS-MND) is available for public review and comment. The public review period for this project continues from the date of this Notice until the public hearing to be held on Thursday, October 5, 2017. Your comments on the IS-MND are welcome. If you wish to comment on the IS-MND, please send any written comments with your name and/or the name of your agency contact person (if applicable), to the following address or email address by the public hearing to be held on Thursday, October 5, 2017:

Anjana Mepani, Senior Planner
City of San Leandro
835 East 14th Street
San Leandro, CA 94577
Email: AMepani@sanleandro.org

Document Availability: A copy of the IS-MND can be reviewed at the City of San Leandro's Permit Center during regular business hours, located at 835 East 14th Street, San Leandro, CA 94577 and online at http://sanleandro.org/depts/cd/plan/polplanstudiesceqa/default.asp.

A. Mepani

Anjana Mepani, Senior Planner Date of Notice: August 31, 2017

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Table of Contents

Tables

Figures

Appendices

Initial Study

1. Project Title

Alameda County Industries (ACI) Materials Recovery Facility (MRF) and Transfer Facility Expansion Project

2. Lead Agency Name, Address and Contact

City of San Leandro
Community Development Department
835 East 14th Street
San Leandro, California 94577
Contact: Anjana Mepani, Senior Planner, (510) 577-3348

3. Project Sponsor's Name, Address, and Contact

Alameda County Industries, Inc.
610 Aladdin Avenue
San Leandro, California 94577
Contact: Jillian Hogan, Environmental Compliance Manager, (510) 346-8148

4. Project Location

The project site consists of two Assessor's parcels in the City of San Leandro in Alameda County, California. The parcels are directly across from each other on a cul-de-sac at the end of Aladdin Avenue. Figure 1 shows the regional location and Figure 2 shows the specific parcel locations. The first parcel encompasses 2.82 acres and is located at 610 Aladdin Avenue (APN 77B-800-15) at the southeastern corner of the Aladdin Avenue cul-de-sac. This parcel is owned and operated by ACI. The second parcel encompasses 6.35 acres and is located at 601 Aladdin Avenue (APN 77A-650-2-10) on the northeastern corner of the Aladdin Avenue cul-de-sac. The project, as referenced throughout the remainder of this Initial Study, includes both of these parcels in their entirety unless explicitly referenced separately.

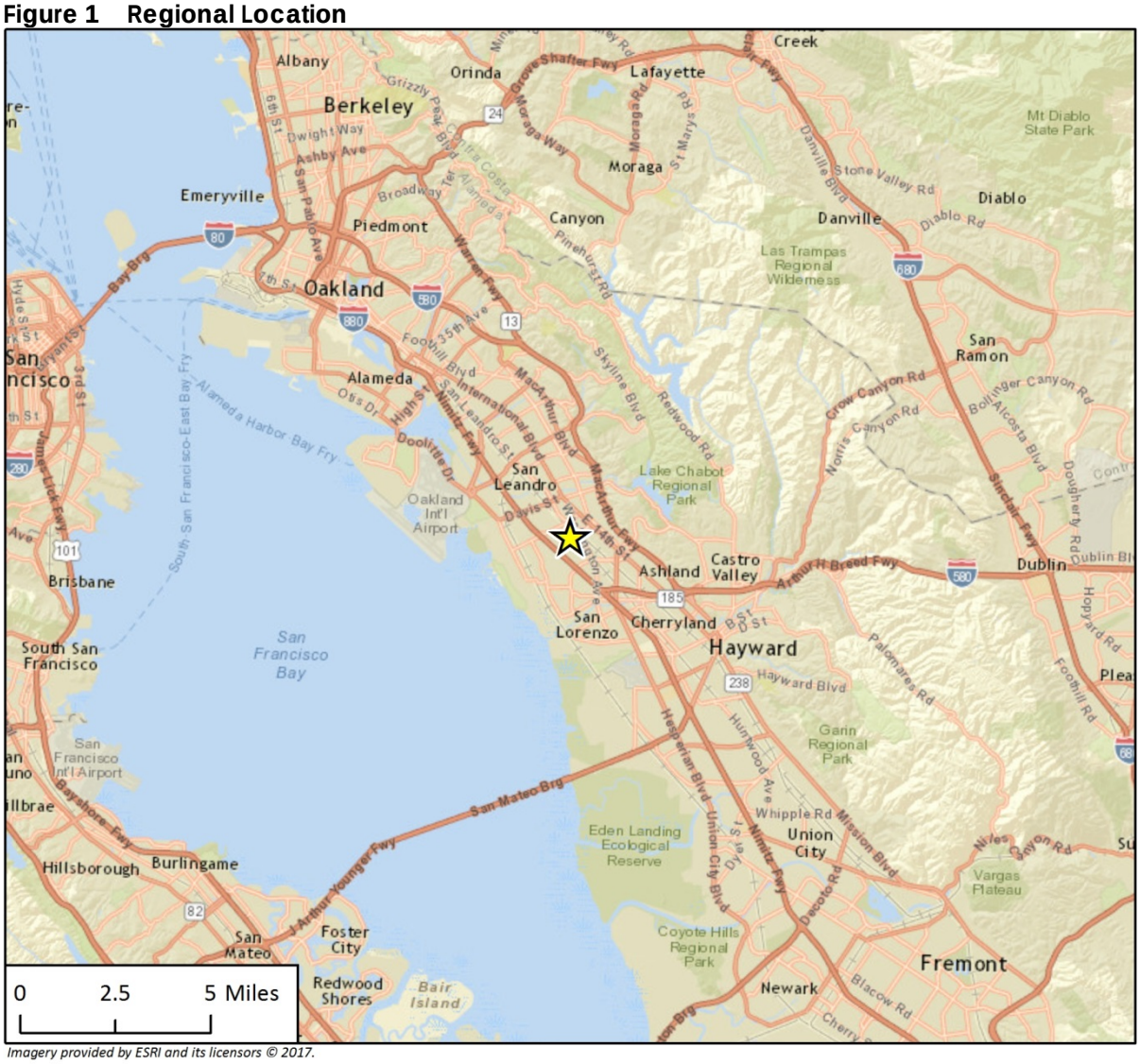
5. General Plan Designation

The 6.35-acre parcel at 601 Aladdin Avenue has a Land Use designation of Public/Institutional and the 2.82-acre parcel at 610 Aladdin Avenue has a Land Use designation of Light Industrial.

6. Zoning

Both 601 and 610 Aladdin Avenue are in the Industrial General District (IG) zone.

Figure 1 Regional Location



Imagery provided by ESRI and its licensors © 2017.

Project Location

N

Fig 1 Regional Location

Figure 2 Project Location

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7. Project Background and Existing Setting

ACI provides residential, commercial, and industrial collection services for recyclables, organics, and garbage. ACI is the franchised waste-hauling company for the cities of Alameda and San Leandro, excluding the Oro Loma Sanitary District (ACI 2017). Due to county and state-level regulatory changes, expanding waste collection and diversion programs, and technology advances, ACI is anticipating growth in the recyclable materials waste stream. The purpose of the project is to accommodate anticipated growth and improve efficiency at ACI facilities.

The following discussion includes the setting, operations, and surrounding land uses at each of the two parcels that comprise the project site. Photos of the project site are shown in Figure 3 and Figure 4. A map showing the location and orientation of the photos is included in Figure 5.

610 Aladdin Avenue - MRF/Transfer Facility Parcel

The 610 Aladdin Avenue parcel has been in operation since 1995 and contains the MRF, Transfer Facility, and maintenance facility as well as administrative offices and equipment and vehicle storage. The parcel is bounded by Union Pacific Railroad (UPRR) right-of-way and tracks to the east, warehouse and industrial uses to the south and west, and Aladdin Avenue to the north. The nearest residences to this parcel are located approximately 1,100 feet to the northeast of the property line beyond the adjacent UPRR tracks and Bay Area Rapid Transit (BART) lines.

Currently, vehicles containing municipal solid waste (MSW), recyclable materials, green waste and food material (including co-collected loads), or mixed construction and demolition (C&D) debris, enter the facility from Aladdin Avenue and stop to weigh the load on one of the two scales onsite. Once weights have been recorded, trucks with recyclable materials deliver materials to the tipping room floor of the MRF where they are processed. For trucks carrying MSW, organics, and C&D debris, the trucks proceed to an 8,700-square-foot loading area that accommodates six semi-type trailers that are specially equipped to handle MSW, organics, and mixed C&D. The loading area is constructed of concrete and located approximately five feet below existing grade. The collection vehicle backs into one of the stalls where a transfer trailer awaits the load. The materials are unloaded directly into the transfer trailer without touching the ground. A front-end wheeled loader or similar type of equipment may be used to stabilize and compact materials to optimize weight distribution and payload in the transfer trailer. Any spillage that occurs is cleaned up immediately by the attendant.

Once full, loaded transfer trailers weigh out on the truck scale and proceed offsite to the landfill or appropriate recycling or processing facility. The mixed C&D material is delivered to a certified C&D recycling facility, and the green waste and food material are sent to permitted organics and food material processing facilities. After the drivers have unloaded their collection vehicles, they exit the facility to Aladdin Avenue to continue on their collection routes or to access the fueling and parking area located across the street at 601 Aladdin Avenue.

601 Aladdin Avenue - Limited Volume Transfer Facility Operations Parcel

The parcel containing the Limited Volume Transfer Facility operations (601 Aladdin Avenue) includes a warehouse that is used for various equipment storage and sorting operations. The parcel is bounded by Aladdin Avenue to the south, UPRR right-of-way and tracks to the east, and warehouse and industrial uses to the north and west.

Figure 3 Site Photos – Photos 1 and 2

Photo 1: View of ACI Services Office Building.

Photo 2: Equipment and bulky items storage.

Figure 4 Site Photos – Photos 3 and 4

Photo 3: Direct Transfer Facility. Proposed area for Transfer Station Addition.

Photo 4: Materials Recovery Facility (MRF) - Processing Building.

Figure 5 Photo Location Map

Imagery provided by Google and its licensors © 2017.

The site has historically been zoned for industrial uses and once housed an Emery Express freight depot and distribution facility. The nearest residences to the 601 Aladdin Avenue parcel are located approximately 900 feet to the northeast of the property line beyond the adjacent UPRR and BART tracks.

Current operations at the facility include vehicle and truck parking, a compressed natural gas (CNG) fueling station for ACI's private fleet, administrative offices, and warehousing and storage of containers and recycled materials. ACI is currently utilizing 3.64 acres of the property for these uses.

Description of Project

The project involves operational changes at the MRF and Transfer Facility located at 610 Aladdin Avenue and at the Limited Volume Transfer Facility operations located at 601 Aladdin Avenue. These operational changes would require revisions to the MRF and Transfer Facility Solid Waste Facility Permit (SWFP No. 01-AA-0290) administered by the California Department of Resources and Recycling (CalRecycle), and to the Conditional Use Permits (CUP) administered by the City of San Leandro for both sites.

The proposed site plan is shown in Figure 6 and additional plan sheets are attached as Appendix A. The proposed operational changes are summarized below by parcel and then followed with detailed descriptions of each change:

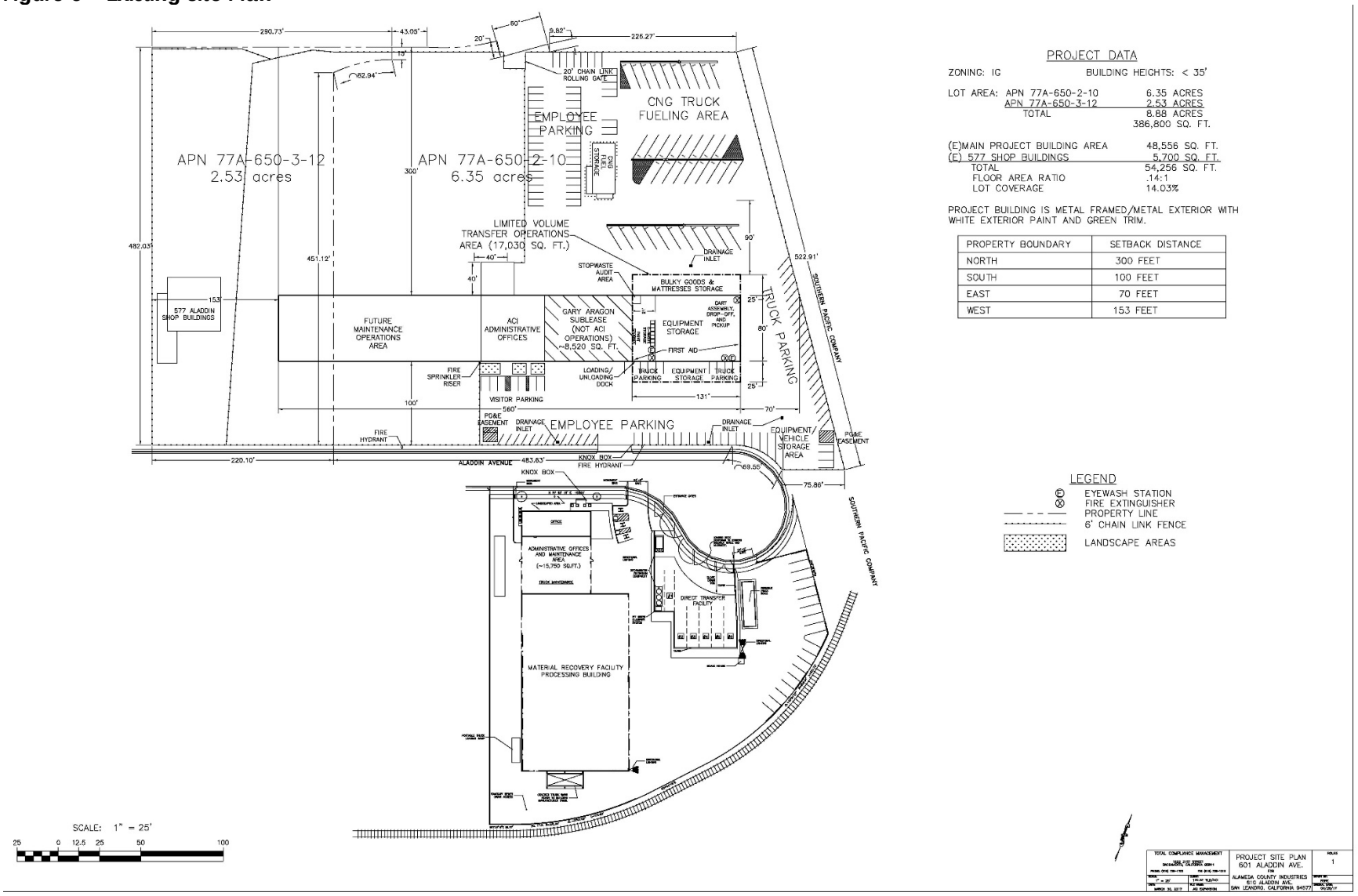
MRF and Transfer Facility Parcel (610 Aladdin Avenue)

- Increase the combined MRF and Transfer Facility's permitted tonnage from 412 tons per day (tpd) to 620 tpd for the entire facility and remove any separate tonnage limitations for the individual categories of materials accepted (e.g., the Transfer Facility's current maximum limit of 280 tpd would be eliminated)
- Allow for temporary exceedances of inbound tonnage above 620 tpd by up to 10 percent for a maximum of 20 days per year (62 tpd for up to 20 days).
- Extend the waste acceptance, transfer, and processing hours to 24 hours per day, 7 days per week
- Accept food waste/organics and other materials from third-party waste haulers and jurisdictions for transfer and/or pre-processing, including MSW from ACI's other franchise jurisdictions;
- Modify and cover the entire transfer operation
- Retrofit the existing MRF building to include second floor offices, break room, and restroom facilities (building permit has been issued); and
- Increase the material storage requirement to 48 hours, consistent with state minimum standards

Limited Volume Transfer Facility Operations Parcel (601 Aladdin Avenue)

- Relocate the existing maintenance shop at 610 Aladdin Avenue. The exact location of the relocation is unknown at this time. The maintenance facility could be moved to the 601 Aladdin Avenue parcel or to another facility nearby. If the maintenance facility is moved to an off-site location, the new location would be inside a fully-permitted, indoor industrial facility.
- Modify the Limited Volume Transfer Facility operations to expand the bulky item sorting operations at 601 Aladdin Avenue

Figure 6 Existing Site Plan



PROJECT DATA

ZONING: IG BUILDING HEIGHTS: < 35'

LOT AREA:	APN 77A-650-2-10	6.35 ACRES
	APN 77A-650-3-12	2.53 ACRES
	TOTAL	8.88 ACRES
		386,800 SQ. FT.
(E)MAIN PROJECT BUILDING AREA		48,556 SQ. FT.
(E) 577 SHOP BUILDINGS		5,700 SQ. FT.
TOTAL		54,256 SQ. FT.
FLOOR AREA RATIO		.14:1
LOT COVERAGE		14.03%

PROJECT BUILDING IS METAL FRAMED/METAL EXTERIOR WITH WHITE EXTERIOR PAINT AND GREEN TRIM.

PROPERTY BOUNDARY	SETBACK DISTANCE
NORTH	300 FEET
SOUTH	100 FEET
EAST	70 FEET
WEST	153 FEET

LEGEND

- EYEWASH STATION
- FIRE EXTINGUISHER
- PROPERTY LINE
- 6' CHAIN LINK FENCE
- LANDSCAPE AREAS

TOTAL COMPLIANCE MANAGEMENT

PROJECT SITE PLAN
601 ALADDIN AVE.
FOR
ALAMEDA COUNTY INDUSTRIES
610 ALADDIN AVE.
SAN LEANDRO, CALIFORNIA 94577

SHEET 1

Permitted Tonnage Increase

ACI is requesting modifications to the site's Solid Waste Facility Permit and CUPs, in order to increase the permitted tonnage of materials accepted at the facility for transfer and processing. Table 1 shows the current and proposed permitted tonnage and capacities.

Table 1 Permitted Tonnage and Capacities

	Current Permit (tpd)	Proposed Permit (tpd)	Current Capacity (tpd)	Capacity from Proposed Operations (tpd)
Transfer Facility	280	–	462	600
Materials Recovery Facility	132	–	340	340
Total	412	620[1]	802	940

tpd = tons per day

[1] ACI is requesting an increased capacity to 620 tpd. The breakdown between the facilities is not yet determined.

Currently, the Transfer Facility is permitted to receive a maximum of 280 tpd of wastes including green waste, food material (including residential and commercial co-collected organics), mixed C&D debris, and MSW. With the addition of recyclable materials, the MRF and Transfer Facilities combined are permitted to accept a maximum of 412 tpd. The project would increase the permitted maximum tonnage to 620 tpd for the entire facility with no separate tonnage limitations for the individual categories of materials accepted, allowing for increased operational efficiencies to handle dynamic and changing waste streams.

The current operational capacity of the MRF is 340 tpd in a 17 hour work day and the capacity at the Transfer Facility is 462 tpd in a 13-hour workday for a facility-wide total of 802 tpd. The MRF and Transfer Facility currently have the capacity to accommodate these changes without building expansions, however ACI is also proposing to fully enclose the transfer operations, which would increase operational capacity and improve operational efficiencies. These efficiencies include, but are not limited to, improved traffic flow, reduced sanitary and stormwater discharges, additional material storage, and safer transfer operations.

Extend Waste Acceptance, Transfer, and Processing Hours

The permitted waste acceptance and transfer hours for the Transfer Facility are currently 5:00 am to 6:00 pm Monday through Friday, and the permitted acceptance and processing hours are currently 5:00 am to 10:00 pm Monday through Saturday for the MRF. Equipment maintenance is currently allowed 24 hours per day, 7 days per week. The proposed project would change the waste acceptance, transfer, and processing hours to 24 hours per day, seven days per week to allow for flexibility and off-peak transportation and operations.

Acceptance and Pre-Processing of Food Waste and Organics

ACI currently accepts food waste and organics at the Transfer Facility from the cities of Alameda and San Leandro. Food waste consists of source-separated food material collected from commercial establishments that has been produced as a result of food production or food preparation operations that meets the definition found in Title 14, Section 17852(a)(20).

The proposed project would expand the acceptance of these materials to include pre-processing operations at the facility and to accept food waste/organics from third-party waste haulers from

Alameda County, surrounding areas, and the service areas of ACI affiliate companies. Potential third-party haulers that would deliver to the facility would all be within the Bay Area, originating in Alameda County, Santa Clara County, Marin County, and/or San Mateo County.

Currently, food material is transferred directly into transfer trailers, typically with green waste or co-collected organics, for delivery to a permitted processing facility. Co-collected organics are residentially and commercially generated food material co-collected with green material, and these materials are loaded directly into a transfer truck by a collection vehicle at the Transfer Facility. The acceptance of these materials from third-party haulers would not require a change in the Transfer Facility's tonnage or vehicle limits and would provide anticipated compliance with future organics and food waste regulations from the local and state level. By pre-processing food waste and organics onsite, ACI would have the option to install and operate equipment that prepares the material for further processing and would increase the volume of food waste diverted from landfill disposal.

Modification of Transfer Facility

The proposed project would involve construction of a 21,800-square-foot building over the current Transfer Facility (See Figure 7). The building would extend east from the existing MRF building, creating an additional covered operations area. All transfer operations (unloading, storage, and load-out) would be contained in the new building, allowing for approximately 600 tons of covered storage capacity for MSW, organics, C&D debris, bulky items (annual pickup program), and recyclable materials (as necessary when MRF operations are shut down for maintenance). The 600 tons of capacity is lower than the proposed permitted capacity, current overall capacity, and proposed overall capacity (see Table 1).

Collection vehicles would continue to weigh in on the inbound scale and drive to the building to unload materials onto the tipping floor. Once all materials are emptied from the collection truck, the driver would exit the building and weigh out, if necessary. Inside the building, an articulated loader would relocate the materials to the staging areas for eventual loading into the transfer trailer. Each transfer truck and trailer would be loaded while on a scale, maximizing payload and operational efficiencies. A subsurface truck ramp would be constructed to allow direct loading into the transfer trucks from the tipping floor. Empty transfer trucks would drive forward down to the bottom of the ramp and wait to be loaded. Once loaded, the trucks would continue forward up the ramp to Aladdin Avenue.

MRF Second Floor Retrofit

A second floor is proposed to be added in the existing MRF building that would include administrative offices and an employee break area with restrooms and lockers. The renovations would occur entirely inside the existing building footprint and would not require any modifications to the existing roofline. Two stairways would be installed to provide access to this second floor area on the east and west side of the MRF building.

Figure 7 Conceptual Design of Transfer Facility Addition

Increase Material Storage Requirement to 48 Hours

The maximum holding time for MSW stored at the MRF and Transfer Facility is currently eight hours, per the current CUP issued by the City of San Leandro. ACI is proposing to increase this storage time to a maximum of 48 hours, consistent with State Minimum Standards. Materials stored longer than eight hours would be stored indoors in the MRF or the proposed new Transfer Facility building. This change is being proposed to improve operational efficiency and to avoid scheduling transfer truck trips during peak traffic periods or during evenings/weekends.

Maintenance Shop Relocation

The MRF and Transfer Facility maintenance shop is currently located in the main building at 610 Aladdin Avenue. ACI is proposing to relocate this maintenance shop. The exact location of the relocation is unknown at this time. The maintenance facility could be moved to the 601 Aladdin Avenue parcel or to another facility nearby. If the maintenance facility is moved to an off-site location, the new location would be inside a fully-permitted, indoor industrial facility. Should the maintenance facility be relocated to the 601 Aladdin Avenue parcel, it would require between six and eight bays in the existing on-site warehouse. Regardless of where it is relocated to, it would generally include the same types of vehicle and equipment maintenance operations that presently occur at its current site. The relocation of the maintenance shop would require the removal and relocation of maintenance equipment. However, no construction associated with this relocation would occur.

Modify the Limited Volume Transfer Facility Operations

The existing bulky item sorting operations that occur in the warehouse at the 601 Aladdin Avenue site are proposed to be expanded to accommodate increases in bulky materials delivered to the site. However, these deliveries would not increase above CalRecycle's notification tier limits of 15 tpd or 60 cubic yards per day.

Construction

During construction of the Transfer Facility building, existing equipment, concrete, or asphalt materials would be removed from the proposed building's footprint to accommodate excavation of the building foundations and the subsurface truck ramp. A concrete slab would be poured that would form the floor and material receiving area for the Transfer Facility building, followed by installation of the building walls, roof, and necessary support infrastructure.

Excavation to accommodate the new Transfer Facility building would involve the export of approximately 415 cubic yards of earth material. Assuming hauling trucks can hold approximately 20 cubic yards of earth material, approximately 21 round-trip hauling trips would be required throughout the duration of grading. Construction material and equipment deliveries would occur from vehicles ranging from medium to large four- to eight-axle trucks and semi-tractor trailers. Truck deliveries are expected to occur over a period of several weeks and would not exceed 10 trucks per day. Heavy construction equipment would also operate on the site during the different phases of the building construction including excavation, pouring the foundation, building tilt up, and equipment installation. In addition, construction workers would drive their personal vehicles to the site. The construction period would be limited to three months with the primary construction activity consisting of the building assembly.

8. Required City of San Leandro Approvals

The project would require the adoption of this Initial Study-Mitigated Negative Declaration and the approval of a Conditional Use Permit Modification and Site Plan Review by the City of San Leandro. A building permit and a grading permit would also be required from the City to construct the Transfer Facility building.

9. Other Public Agencies Whose Approval is Required

The City of San Leandro is the lead agency with responsibility for approving the project.

In addition, the project would require the approval of a Solid Waste Facilities Permit Revision by the Local Enforcement Agency (Alameda County Department of Health), with concurrence by CalRecycle.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Potentially Significant Unless Mitigation Incorporated" as indicated by the checklist on the following pages.

□	Aesthetics	□	Agriculture and Forest Resources	□	Air Quality
■	Biological Resources	■	Cultural Resources	■	Geology and Soils
□	Greenhouse Gas Emissions	□	Hazards and Hazardous Materials	□	Hydrology/Water Quality
□	Land Use/Planning	□	Mineral Resources	□	Noise
□	Population/Housing	□	Public Services	□	Recreation
□	Transportation/Traffic	■	Tribal Cultural Resources	□	Utilities/Service Systems
■	Mandatory Findings of Significance				

Determination

Based on 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 to 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 potential 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	August 31, 2017 Date
Anjana Mepani Printed Name	Senior Planner Title

Environmental Checklist[1]

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have substantial adverse effect on a scenic vista?	☐	☐	☐	■
b. Have substantial damage to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings along a state scenic highway?	☐	☐	☐	■
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	■
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

Existing Setting

The project site is located at the end of a cul-de-sac in a developed industrial area surrounded by other industrial and commercial facilities, including a manufacturing facility, a lighting distribution company, and a furniture retailer. Views of the project site from surrounding areas are limited as the project site is almost entirely surrounded by other industrial and commercial buildings. No scenic views are available through the project site. The project site is not visible from residences located across the UPRR and BART tracks to the north, over 900 feet away. Public views are limited to those from Aladdin Avenue adjacent to the site. The project site includes industrial facilities, office space, equipment storage, and parking. There are no scenic resources on the project site.

Impact Analysis

a. Would the project have a substantial adverse effect on a scenic vista?

The City's 2035 General Plan Historic Preservation and Community Design Element (adopted September 2016) Figure 8-2 identifies community design features such as significant views, major gateways, and key gateways streets. However, none of the significant view areas or major or key gateways are located on or near the project site. The proposed project would not interrupt any

[1] A draft Initial Study/Mitigated Negative Declaration was prepared for the proposed project by Douglas Environmental in January 2017. This document is partially based on some of the information and analysis presented in that report.

significant views or other scenic vistas. The project would construct a 21,800-square-foot Transfer Facility building next to the existing material recovery facility. The Transfer Facility would be constructed at similar height and appearance to the existing uses onsite. As the project is not in an area of significant views or gateways, there would be no impact.

NO IMPACT

b. Would the project have substantial damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings in a state scenic highway?

The closest designated state scenic highway is a portion of Interstate (I)-580 at the northern edge of the city (Department of Transportation 2011). The project site is not visible from I-580. There are no scenic resources, such as scenic trees or rock outcroppings, on the project site. The proposed project would not damage any scenic resources and would not be visible from a scenic highway. No impact would occur.

NO IMPACT

c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The project is located in a developed, industrially zoned part of San Leandro. The proposed operational changes at the facility and the construction of the approximately 21,800-square-foot Transfer Facility building would be located on already disturbed, paved areas of the existing lots. The operational changes would have no effect on the site's visual character. The constructed Transfer Facility building would be consistent with the surrounding visual character and would be constructed at similar height to the adjacent MRF building. The Transfer Facility building would also be located at the end of an industrial cul-de-sac, which is primarily accessed by industrial users located on the cul-de-sac. The project would not substantially degrade the existing visual character or quality of the site and its surroundings and no impact would occur.

NO IMPACT

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Existing sources of light on the project site include building security lighting, lighting for evening and early morning operations, and lighting from headlights on vehicles entering and exiting the site. Existing sources of glare include onsite equipment and vehicles and reflective building materials. The project site is an industrial area with generally moderate to high levels of lighting.

The proposed project would introduce new sources of lighting in the form of building-mounted lighting on the new Transfer Facility building. However, this source of new light would be similar to existing sources of lighting on the site and its surroundings and would be consistent with other uses in the area. In addition, the new transfer building would be equipped with light-emitting diode (LED) lighting inside and out, and all electrical designs would be compliant with California Green Building Standards (CalGreen) and Title 24 Codes. CalGreen Section 5.106.8 regulates light pollution by establishing maximum Backlight, Uplight, and Glare (BUG) ratings for light fixtures.

The proposed project would involve an increase in operating hours up to 24 hour per day. Therefore, night lighting would occur throughout evening and nighttime hours as needed, an increase beyond current conditions. However, there are no adjacent or nearby light-sensitive receptors that would be directly affected by any nighttime lighting. Given the industrial nature of

the neighborhood and the dense urban development of the East Bay Area as a whole, the addition of some nighttime lighting at the site would not substantially impact night skies. Lighting impacts would be less than significant.

Potential sources of glare associated with the project involve building materials associated with the Transfer Facility. However, these sources of glare would be similar to existing sources of glare on the site and its surroundings and would be consistent with other uses in the area. Further, the proposed project would be required to adhere to the glare standards in the City's Zoning Code Section 4-1670.D, which requires highly reflective glass not cover more than 20 percent of a building's surface visible from a street. Therefore, impacts related to glare would be less than significant.

Although there would be an increase in light and glare sources beyond the current conditions, there are no adjacent light-sensitive receptors that would be directly affected by the new Transfer Facility or the potential 24-hour use of the facilities. The project would not create a substantial new source of light that would adversely affect nighttime views in the area and would not create substantial new sources of glare. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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2 Agriculture 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, Farmland of Statewide Importance (Farmland), as shown on 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?	☐	☐	☐	■

a. Would the project convert Prime Farmland, Unique Farmland, 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. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

c. Would the project 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. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

e. Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

San Leandro is a highly urbanized city in Alameda County. The San Leandro General Plan, General Plan land use map, and zoning maps do not identify any agriculture or forestry resources in the city (City of San Leandro 2016b). Per the Farmland Mapping and Monitoring Program of the California Resources Agency, there are no identified prime or unique farmlands, forestry resources, or forestland in the city (California Resources Agency 2012). The project site is currently developed with existing industrial operations, and would have no impact on agriculture, forestland, or forestry resources.

NO IMPACT

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. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	■	☐
c. 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	■	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	■	☐

Existing Setting

The project site is in the San Francisco Bay Area Air Basin (the Basin), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The local air quality management agency is required to monitor air pollutant levels to ensure that applicable air quality standards are met and, if they are not met, to develop strategies to meet the standards.

The Basin is in nonattainment for the federal and state standards for ozone, as well as state standards for particulate matter (PM_{10} and $PM_{2.5}$) and the federal standard for 24-hour $PM_{2.5}$ (BAAQMD 2014). As a result, local jurisdictions in the Basin are required to implement strategies to reduce pollutant levels to recognized acceptable standards or avoid or mitigate new development Projects that would contribute to air pollution.

The 2017 Clean Air Plan (2017 Plan) is the most recently approved regional air quality management plan, adopted in April 2017 by the BAAQMD. This plan provides an integrated, multi-pollutant strategy to improve air quality, protect public health, and protect the climate. The 2017 Plan is designed to provide a control strategy to reduce ozone, particulate matter, air toxics, and greenhouse gases (GHG) in a single, integrated plan. The 2017 Plan relies on population and employment forecasts from the Association of Bay Area Governments (ABAG) to inform its management strategies (BAAQMD 2017a).

The City of San Leandro has a Climate Action Plan (CAP) that includes goals related to improving air quality and promoting sustainable growth and operations (City of San Leandro 2009). Additional information about the City's CAP and an evaluation of the proposed project's consistency with the CAP are provided in Section 7, *Greenhouse Gas Emissions.*

Air Emissions Thresholds

BAAQMD recommends that lead agencies determine appropriate air quality and GHG thresholds of significance based on substantial evidence in the record. As the lead agency for this project, the City of San Leandro has determined the thresholds contained in BAAQMD's May 2017 *CEQA Air Quality Guidelines* are the appropriate thresholds.

Table 2 presents the BAAQMD's May 2017 significance thresholds for construction and operational-related criteria air pollutants and precursor emissions. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. For the purposes of this analysis, the project would result in a significant impact if emissions would exceed any of the thresholds shown in

Table 2.

Table 2 BAAQMD Significance Thresholds

	Construction-Related Thresholds	Operation-Related Thresholds	
Pollutant/ Precursor	Average Daily Emissions (pounds per day)	Average Daily Emissions (pounds per day)	Maximum Annual Emissions (tons per year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less.

Source: Table 2-1, BAAQMD 2017b.

The BAAQMD recommends CO "hotspot" analysis for a project if the addition of project traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. According to the Traffic Impact Study (Appendix C), no intersections would handle more than 44,000 vehicles per hour due to project-related traffic. Therefore, the project would not result in a CO "hotspot" and no intersection-specific CO modeling is required.

Impact Analysis

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The BAAQMD has adopted several air quality policies to reduce air emissions in the Basin. In April 2017, the BAAQMD adopted its final 2017 Clean Air Plan (BAAQMD 2017a). Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population growth. A

project would conflict with or obstruct implementation of the 2017 Clean Air Plan if it would result in substantial new regional emissions not foreseen in the air quality planning process. The 2017 Clean Air Plan assumes that development associated with general plans, specific plans, residential projects, and public facilities will be constructed in accordance with population growth projections identified by the BAAQMD. In effect, if a project is proposed in a city with a general plan that is consistent with the Clean Air Plan (i.e., it does not require a general plan amendment), then the project would be consistent with the Clean Air Plan.

The proposed project does not involve residential uses and would not directly increase population. The project would not increase the number of ACI employees (see Section 13, *Population and Housing*). The project is consistent with the site's existing industrial land use and would not require a general plan amendment. The current ACI facilities do not have any stationary industrial sources that require BAAQMD permits. The proposed project would not add any stationary sources subject to BAAQMD permit approval. Because the project would not substantially increase population or employment and would be consistent with the General Plan, air pollution emissions associated with the project are consistent with the assumptions in the 2017 Clean Air Plan and the project would not conflict with or obstruct implementation of the Plan. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

c. Would the project 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 (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

d. Would the project expose sensitive receptors to substantial pollutant concentrations?

The project includes the construction of a new Transfer Facility building on the 610 Aladdin Avenue which would result in temporary construction emissions. Construction activities such as the operation of construction vehicles and equipment over unpaved areas, grading, trenching, and disturbance of stockpiled soils have the potential to generate fugitive dust (PM_{10}) through the exposure of soil to wind erosion and dust entrainment. In addition, exhaust emissions associated with heavy construction equipment would potentially degrade regional air quality.

During construction of the Transfer Facility building, any existing equipment, concrete or asphalt materials would be removed from the proposed building's footprint to accommodate excavation of the building foundations and the subsurface truck ramp. A concrete slab would be poured that would form the floor and material receiving area for the Transfer Facility building, followed by installation of the building walls, roof and necessary support infrastructure. During construction, material and equipment deliveries would occur from vehicles ranging from medium to large 4- to 8-axle trucks and semi-tractor trailers. Construction truck deliveries would occur over a period of several weeks and would include up to 10 trucks per day. Heavy construction equipment would also operate on the site during the different phases of the building construction including excavation, pouring the foundation, building tilt up, and equipment installation. In addition, construction workers would drive their personal vehicles to the site. Although these vehicles would generate emissions, the construction period would be limited to three months with the primary construction activity consisting of the building assembly.

Long-term emissions associated with operational changes would include emissions from the increased processing at the MRF and from the addition of 94 new vehicle trips per day to and from the project site (Table 5, Section 16, *Transportation*).

The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. If all of the screening criteria are met by a project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. For projects that are infill, such as the proposed project, emissions would be less than the greenfield-type project on which the screening criteria are based (BAAQMD 2017b).

The BAAQMD's construction-related screening levels for general light industry are 259,000 square feet of new buildings, an 11-acre construction footprint, or 540 new employees. For operational emissions, the minimum screening levels are 541,000 square feet of new buildings, a 72-acre construction footprint, or 1,249 new employees (BAAQMD 2017b). The proposed project involves construction of a 21,800-square-foot new building and operational changes on a 9.17 acre site. The project would not increase the number of employees (see Section 13, *Population and Housing).* Therefore, the project would be below the construction and operational screening level criteria. According to BAAQMD, if all of the screening criteria are met by a proposed project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. Since the screening criteria are met, then the project would not exceed any BAAQMD air pollutant thresholds. The project would not violate an air quality standard or contribute to an existing or projected air quality violation (question b).

As noted above, the Basin is currently nonattainment for the federal and state standards for ozone, as well as state standards for particulate matter ($PM_{2.5}$ and PM_{10}) and the federal standard for 24-hour $PM_{2.5.}$ According to BAAQMD, if a project meets the screening criteria, the proposed project would result in a less-than-significant cumulative impact to air quality from criteria air pollutant and precursor emissions. Since the project is below the operational screening level thresholds, impacts with respect to question (c) would be less than significant. In addition, the proposed project includes operational efficiencies to improve waste materials diversion from the landfill. These efficiencies include, but are not limited to, improved traffic flow, reduced sanitary and storm water discharges, additional material storage, and safer transfer operations. This would potentially reduce regional emissions by reducing future solid waste streams sent to landfills, thereby reducing truck trips and reducing emissions from decomposing materials at landfills. Impacts would be less than significant.

The BAAQMD considers a sensitive receptor to be any facility or land use that includes members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. If a project is likely to be a place where people live, play, or convalesce, it should be considered a receptor. It should also be considered a receptor if sensitive individuals are likely to spend a significant amount of time there. Examples of sensitive receptors include residences, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities (BAAQMD 2017b). The project site is located in an industrial area and is not adjacent to sensitive receptors. The nearest residences to the 601 Aladdin Avenue parcel are located approximately 900 feet to the northeast of the property line beyond the adjacent UPRR and BART tracks. The nearest residences to the 610 Aladdin Avenue parcel are located approximately 1,100 feet to the northeast of the property line. The proposed project involves enclosing the existing

waste transfer operations and reducing the storage of bailed materials outside. By enclosing the waste transfer operations, the project would reduce fugitive dust and other particulates from escaping into the atmosphere. As described above the proposed project would not generate emissions that exceed BAAQMD significance thresholds therefore nearby receptors would not be exposed to substantial pollutant concentrations. Impacts related to question (d) would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project create objectionable odors affecting a substantial number of people?

The BAAQMD *CEQA Air Quality Guidelines* state that the analysis of potential odor impacts should be conducted for both of the following situations: 1) sources of odorous emissions locating near existing receptors, and 2) receptors locating near existing odor sources (BAAQMD 2017b). As stated previously, the closest sensitive receptors to the Transfer Facility (610 Aladdin Avenue parcel) are located 1,100 feet away. According to the BAAQMD, transfer stations that are located within one mile of sensitive receptors should assess potential odor impacts. Therefore, since sensitive receptors are located within one mile of the Transfer Facility, the following discusses potential odor impacts associated with the project.

The green waste and food waste transfer operations at the site have the potential to generate odors. Organic materials begin to release odors during the decomposition process and some organic materials may have begun the decomposition process before collection. According to BAAQMD, odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache) (BAAQMD 2017b).

The Transfer Facility currently accepts food waste and organics from the ACI franchise operations in the cities of Alameda and San Leandro. Currently, food material accepted at the site is transferred directly into transfer trailers with green waste, or co-collected organics, for delivery to a permitted processing facility. Co-collected organics are residentially and commercially generated food material co-collected with green material, and these materials are loaded directly into a transfer truck by a collection vehicle at the Transfer Facility. Food waste consists of source-separated food material collected from commercial establishments that has been produced as a result of food production or food preparation operations that meets the definition found in Title 14, Section 17852(a)(20).

The proposed project would involve expanding the acceptance of these materials to include third-party waste haulers and to include pre-processing operations at the facility. Therefore, additional haulers could deliver food waste to the site. In addition, the food waste would be pre-processed at the site in order to increase the volume of food waste diverted from landfill disposal. Increasing the volume of food waste received and changing from the direct transfer of food waste into trucks to the pre-processing of this material at the site may increase odors associated with site operations. The project also includes increasing the maximum holding time for MSW stored at the MRF and Transfer Facility from eight hours to 48 hours, consistent with State Minimum Standards. These State Minimum Standards have been established to ensure that the operation of waste transfer stations do not adversely affect public health and safety. Holding MSW on the site for longer periods would increase the time during which the material could decompose and create additional odors. Materials would be held inside sealed truck containers and/or inside the enclosed building.

California Code of Regulations (CCR) Title 14, Section 17863.4 (effective on April 4, 2003) requires an Odor Impact Minimization Plan (OIMP) for all compostable materials handling operations and facilities. ACI updated the facility's OIMP in July 2017 to take into account potential changes associated with the proposed project. According to the OIMP, the facility has not received an odor complain since 2001. The OIMP includes an odor monitoring protocol, an odor complaint response protocol, and design considerations and procedures to minimize odors. The OIMP requires the removal of malodorous loads immediately after the transfer trailer is full rather than allowing them to be stored overnight. This plan also requires all loads containing green waste, food waste and/or MSW to be covered before leaving the site.

Locating the food waste transfer and pre-processing operations inside the Transfer Facility building and continued implementation of the facility's OIMP would minimize odor generation associated with project implementation. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	■
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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?	☐	☐	☐	■

Existing Setting

The project site is located in a developed industrial area in incorporated San Leandro. The entire site is paved or covered with existing buildings with the exception of a dirt lot located along the western side of the 610 Alameda Avenue parcel. The dirt lot includes a very small area of ruderal vegetation along its southern border. Ornamental landscaping is present along the frontage of the 610 Aladdin Avenue site and in several small planters along the southern building perimeter at 601 Aladdin Avenue. Three landscaping trees are present along Aladdin Avenue at the 610 Aladdin Avenue parcel. Other landscaping trees are present at the end of the Aladdin Avenue cul-de-sac. Both parcels experience extensive human disturbance during operating hours including regular truck and equipment movement over much of the paved areas. Fencing along most of the perimeter for both parcels minimizes wildlife access. In addition, both sites are surrounded by developed industrial uses with little to no natural vegetation or species habitat.

Impact Analysis

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

The project site does not contain habitat for any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations and would not adversely affect any species either directly or through habitat modifications (City of San Leandro 2016c). Mature landscaping trees are present on the 610 Aladdin Avenue parcel. These trees could contain bird nests and birds that are protected under the Migratory Bird Treaty Act (MBTA). Birds protected include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (feathers, plumes etc.), nests, and eggs. Trees may be removed or disturbed during construction. Therefore, impacts would be potentially significant and the following mitigation measure is required to protect nesting birds.

Mitigation Measures

The following mitigation measures would be required to avoid or reduce the project's potentially significant impacts to nesting birds and special status wildlife.

BIO-1 **Nesting Bird Surveys and Avoidance.** Construction of the Transfer Facility building, and any other site disturbing activities that would involve vegetation or tree removal, shall be prohibited during the general avian nesting season (February 1 – August 31), if feasible. If nesting season avoidance is not feasible, the applicant shall retain a qualified biologist, as approved by the City of San Leandro, to conduct a preconstruction nesting bird survey to determine the presence/absence, location, and activity status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by the MBTA and CFGC, nesting bird surveys shall be performed not more than 14 days prior to scheduled vegetation clearance and structure demolition. In the event that active nests are discovered, a suitable buffer (typically a minimum buffer of 50 feet for passerines and a minimum buffer of 250 feet for raptors) shall be established around such active nests and no construction shall be

allowed within the buffer areas until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest). No ground disturbing activities shall occur within this buffer until the qualified biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Nesting bird surveys are not required for construction activities occurring between August 31 and February 1.

Implementation of mitigation measure BIO-1 would ensure protection of nesting birds that may be present on the site during construction activities. These measures would reduce potentially significant impacts to special status specie to a less than significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The project site does not contain riparian habitat or sensitive natural communities as identified by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service (City of San Leandro 2016c). There would be no impact.

NO IMPACT

c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The project site does not contain federally protected wetlands, as defined by Section 404 of the Clean Water Act, and would not result in the direct removal, filling or hydrological interruption of any wetlands (U.S. Fish and Wildlife Service 2016).

NO IMPACT

d. Would the project 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?

The project site does not contain hydrologically connected waters that would support native resident or migratory fish. In addition, the project site is not located in a migratory wildlife corridor and most of the site is fenced, which currently limits wildlife movement. Because the project site does not including sensitive biological resources or movement corridors, its implementation would not interfere with the movement of 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. There would be no impact.

NO IMPACT

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project site does not contain any sensitive biological resources and the proposed project would not conflict with any local policies or ordinances protecting biological resources (City of San Leandro 2016c). There would be no impact.

NO IMPACT

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site is not located in 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 plan and there would be no impact.

NO IMPACT

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 as defined in §15064.5?	☐	☐	☐	■
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	■	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	■	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	■	☐	☐

Existing Setting

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. Under CEQA, public agencies must consider the effects of their actions on "historical resources." CEQA defines a "historical resource" as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP). Pursuant to Public Resources Code, Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of an historic resource (California Code of Regulations, Title 14, 15064.5).

The project site contains industrial buildings typical of the late twentieth century. The 610 Aladdin Avenue parcel includes offices, paved areas with equipment and truck storage, the Transfer Facility and the MRF. The 601 Alameda Avenue site contains a warehouse a CNG fuel station and parking. Both parcels are paved or covered with existing buildings with the exception of a dirt lot located along the western side of the 610 Alameda Avenue parcel. This dirt lot has historically been used for equipment storage and it has been extensively disturbed. No evidence of historic buildings, sites, structures or objects is present on the project site or in the project vicinity (Douglas Environmental 2017).

a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

The project site is not located in an area of known historical resources (City of San Leandro 2016c). The project site is developed with facilities related to ACI's waste collection and processing activities. As shown on Figure 3 and Figure 4, onsite buildings are typical industrial buildings with no architectural interest or known historical associations. No historic resources are present on the project site. The proposed project would not have an impact or result in a change of historical resources. There would be no impact.

NO IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?

c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

The proposed project would involve ground-disturbing activity in order to enclose the Transfer Facility operations. Although unlikely due to previous site grading and the relatively low depth of proposed excavation, during earthwork the subsurface materials would be uncovered and there is the possibility that archaeological and paleontological resources located in the soil could be unearthed. Excavation and ground-disturbing activities necessary to construct the Transfer Facility building on the 610 Aladdin Avenue parcel could potentially expose, damage, or destroy these previously undiscovered archaeological, or paleontological resources. Therefore, mitigation is required.

Mitigation Measures

The following mitigation measures shall be implemented prior to and during ground-disturbing activities associated with Transfer Facility construction activities on the 610 Aladdin Avenue parcel:

CR-1 **Archaeological Resources.** In the event that archaeological resources are discovered during construction, operations shall stop within 50 feet of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. The archaeologist shall make recommendations concerning appropriate measures that will be implemented to protect the resources, which may include but not be limited to, excavation and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. Cultural resources could consist of, but are not limited to, stone, bone, wood, or shell artifacts or features, including hearths. Any previously undiscovered resources found during construction within the project area should be recorded on appropriate Department of Parks and Recreation (DPR) 523 forms and evaluated for significance in terms of CEQA criteria.

CR-2 **Paleontological Resources**. In the event a fossil is discovered during construction for the proposed project, excavations within 50 feet of the find shall be temporarily halted or delayed until the discovery is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The project applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. If the find is determined to be significant and if

avoidance is not feasible, the paleontologist shall design and carry out a data recovery plan consistent with the Society of Vertebrate Paleontology standards.

With the implementation of mitigation measures CR-1 and CR-2, any potentially significant impacts caused by the project to archaeological, paleontological, and cultural resources would be reduced to less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

d. Disturb any human remains, including those interred outside of formal cemeteries?

Based on the prior disturbance of the site associated with construction of the existing industrial uses, no interred human remains are expected to be located on the site. However, the possibility exists that human remains are located under the project site and that excavation and ground-disturbing activities necessary to construct the Transfer Facility building on the 610 Aladdin Avenue parcel could potentially uncover, damage, or destroy previously undiscovered human remains. Based on the potential to disrupt and uncover human remains, impacts are potentially significant.

Mitigation Measure

The following mitigation measure shall be implemented during ground-disturbing activities associated with Transfer Facility construction activities on the 610 Aladdin Avenue parcel:

CR-3 **Human Remains**. In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines §15064.5; Health and Safety Code §7050.5; Public Resources Code §5097.94 and §5097.98 shall be followed. If during the course of project development human remains are accidentally discovered or recognized, the following steps shall be taken:

a. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98.

b. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance:

   - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission
   - The descendant identified fails to make a recommendation

- The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner

With the implementation of mitigation measure CR-3, any potentially significant impacts caused by the project to human remains would be reduced to less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

6 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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?	☐	☐	☐	■
2. Strong seismic ground shaking?	☐	■	☐	☐
3. Seismic-related ground failure, including liquefaction?	☐	■	☐	☐
4. Landslides?	☐	☐	☐	■
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c. Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	■	☐	☐
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	■	☐	☐
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?	☐	☐	☐	■

Existing Setting

Geology

The City of San Leandro is located within the United States Geological Survey's (USGS) San Leandro and Hayward Quadrangle 7.5-minute topographic map areas (USGS 1993, 2012). The area is typified by low topographic relief, with gentle slopes to the southwest in the direction of San Francisco Bay. By contrast, the San Leandro Hills that lie directly northeast of the city have more pronounced relief with elevations that locally approach 1,000 feet above mean sea level.

The shallow geology underlying some of the city consists of Holocene alluvium with fluvial deposits associated with distributary streams such as San Leandro and San Lorenzo Creeks (USGS 2000). These sediments are frequently composed of medium dense to dense, gravelly sand or sandy gravel that often grade upward to sandy or silty clay (San Leandro 2016c).

Soils

The soils in the city are dominated by very deep, poorly drained, fine-grained soils such as clays and silty clay loams, with lesser areas of deep, well-drained silty loam in the northeast part of the city and very deep, very poorly drained clays in the tidelands that flank the west edge of San Leandro near San Francisco Bay. The soils beneath the project site are identified as Clear Lake clay (drained) with slopes ranging from 0 to 2 percent (San Leandro 2016c).

Earthquakes

Earthquakes are the most pervasive safety hazard in San Leandro. The eastern portion of the City is crossed by the Hayward fault, which has created serious and widespread damage within the City in the past. The major earthquake hazards in San Leandro are ground shaking, ground failure and liquefaction. These hazards tend to be amplified on artificial fill and deep alluvial soils (San Leandro 2016c).

A 2008 study of earthquake probabilities by the US Geological Survey estimated that there is a 63 percent chance that a magnitude 6.7 of greater earthquake will strike the Bay Area in the next 30 years. A major earthquake could occur on the Hayward Fault, as well as the San Andreas Fault located 15 miles west of San Leandro. An earthquake of this magnitude could topple buildings, disrupt infrastructure, impact transportation systems, and trigger landslides throughout San Leandro Hills (San Leandro 2016c).

Liquefaction

Liquefaction is a phenomenon where loose, saturated, non-cohesive soils such as silts, sands, and gravels undergo a sudden loss of strength during earthquake shaking. Under certain circumstances, seismic ground shaking can temporarily transform an otherwise solid, granular material to a fluid state. Liquefaction is a serious hazard because buildings in areas that experience liquefaction may suddenly subside and suffer major structural damage. Liquefaction is most often triggered by seismic shaking, but it can also be caused by improper grading, landslides, or other factors. In dry soils, seismic shaking may cause soil to consolidate rather than flow, a process known as densification (San Leandro 2016c).

Landslides and Erosion

Landslides are relatively common in the East Bay Hills, particularly during high intensive bouts of rainfall. A majority of landslides occur naturally, however their impacts can be induced by excessive

grading, improper construction and poor drainage. The City enforces grading and erosion control ordinances to reduce erosion hazards such as landslides, siltation of streams, undermining of foundations, and loss of structures (San Leandro 2016c).

Ground Shaking

Ground shaking occurs as a result of energy released during faulting, which could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion (San Leandro 2016c).

Regulatory Setting

California Building Code (CBC). The CBC is Part 2 of Title 24 of the California Code of Regulations and is updated every three years. With the exception of certain enforcement provisions, the City of San Leandro adopted the CBC by reference pursuant to Title 7, Chapter 7-5, Article 1, Section 7-5-100 of the San Leandro Municipal Code (SLMC). Through the CBC, the State provides a minimum standard for building design and construction. Of particular relevance, Chapter 16 of the CBC contains specific requirements for structural (building) design, including seismic loads. Chapter 18 of the CBC includes requirements for soil testing, excavation and grading, and foundation design (San Leandro 2016c).

San Leandro Municipal Code. Chapter 7-12 of the SLMC (Grading, Excavations, and Fills) includes a grading ordinance that seeks to mitigate hazards associated with erosion and land stability. The ordinance establishes requirements for grading permits, including submittal and construction requirements. An erosion and sedimentation control plan must be submitted with a grading permit application, along with a drainage plan and pollution control plan (San Leandro 2016c).

Impact Analysis

a.1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

According to the California Department of Conservation, the project site is not located in an Alquist-Priolo Earthquake Fault Zone and there are no known faults crossing or projecting toward the site (California Geological Survey 2003). The closest such zone is along the Hayward Fault approximately 1.2 miles northeast of the project site. Therefore, ground rupture due to faulting is unlikely at the site and there is no impact.

NO IMPACT

a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

c. Would the project be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

The site is located in an area of relatively high seismic potential. The faults in the area are capable of generating large earthquakes that could produce strong to violent ground shaking at the project site. The active fault nearest the site is the Hayward fault, which is located approximately 1.2 miles to the northeast. The WGCEP has estimated that there is a 63 percent chance of a large earthquake (magnitude 7 or greater) in the Bay Area by the year 2036 (WGCEP 2008).

The project site is also in a liquefaction zone (California Geological Survey 2003). The factors known to influence liquefaction potential include grain size, relative density, groundwater conditions, effective confining pressures, and intensity and duration of ground shaking. Loose, saturated, near-surface, cohesionless soils exhibit the highest liquefaction potential, while dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. Liquefaction at the project site would likely result in settlement of the ground surface. Liquefaction could also result in excessive settlement of improperly designed foundations and possibly lateral spreading, which could damage the new Transfer Facility building.

Because the project includes the construction of a Transfer Facility building in a liquefaction zone and an area subject to ground shaking and that site personnel would access regularly, the collapse of the building during strong seismic ground shaking could result in loss, injury, or death. Impacts are potentially significant.

Mitigation Measures

The following mitigation measures shall be implemented prior to and during project construction of the Transfer Facility on the 610 Aladdin Avenue parcel:

GEO-1 **Geotechnical Considerations.** A geotechnical report shall be prepared for the construction of the proposed Transfer Facility building. The geotechnical study shall identify geotechnical recommendations for the construction of the Transfer Facility building, as required by the San Leandro Municipal Code Section 7-12. Seismic ground motion parameters shall be provided in the geotechnical recommendations in accordance with California Building Code requirements. Recommendations for both special foundations and other geotechnical engineering measures shall be implemented during design and construction. These measures may include but not be limited to the use of deep foundations engineering and removal or improvement of potentially liquefiable soils or expansive soils, if necessary. The building plans shall incorporate all design and construction criteria specified in the geotechnical recommendations. A registered civil engineer shall sign the improvement plans and approve them as conforming to their recommendations prior to issuance of building permits. The engineer shall also assume responsibility for inspection of the work and shall certify to the City, prior to acceptance of the work that the work performed is adequate and complies with specified recommendations. The engineer of record shall prepare letters and as built documents to document their observances during construction and to document that the work performed is in accordance with the project plans and specifications. As required by the City of San Leandro, all construction activities shall meet the California Building Code regulations for seismic safety (i.e. reinforcing perimeter and/or load bearing walls, bracing parapets, etc.).

The implementation of this mitigation measure would reduce this impact to less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The project site is located on a flat site and no steep slopes are located in the project vicinity. Therefore, there is no potential for landslides at the site and no impact would occur.

NO IMPACT

b. Would the project result in substantial soil erosion or the loss of topsoil?

Construction of the project would require earthwork activities during the construction of the Transfer Facility building and excavation of the subsurface truck ramp that could potentially allow surface runoff to convey onsite sediments and pollutants offsite. Because construction of the Transfer Facility would disturb less than one acre of land, it would not be required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ or 2009-0009-DWQ General Permit). However, in accordance with SLMC Section 7-12-230, the project applicant is required to prepare and implement an erosion and sedimentation control plan and a drainage plan. The plans would be required to include interim erosion and sedimentation control measures (such as containment structures or control devices) to be taken during wet seasons until permanent erosion and sedimentation control measures can adequately minimize erosion, excessive stormwater runoff, and sedimentation (containment structures, overhead coverage, control devices). As indicated in the Stormwater Pollution Prevention Plan (SWPPP) for the project, erosion is not an issue onsite since the site is entirely paved (Vestra 2015). Regardless, with implementation of these plans, substantial erosion or the loss of top soil would not occur. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?

Expansive soils, also known as shrink-swell soils, refer to the potential of soil to expand when wet and contract when dry. The project site includes existing developed uses that have not experienced impacts associated with soil shrinking or swelling. However, the new Transfer Facility building and associated subsurface truck ramp could be affected by expansive soils if they are located inside the building envelope. This impact is potentially significant.

According to SLMC Section 7-12-270, “no grading permit shall be issued for any site which is underlain by expansive soils unless the grading plan includes mitigation measures to prevent structural damages which may be caused by conditions due to expansive soils.” As described in Mitigation Measure GEO-1, a geotechnical study would be required to identify geotechnical recommendations for the construction of the Transfer Facility building, consistent with the requirements of SLMC Section 7-12-270, and the recommendations would be required to include measures that would minimize the effects of expansive soils on building foundations. Therefore, with implementation of Mitigation Measure GEO-1, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

e. Would the project 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?

The project would not include components that would require the use of septic tanks. The project site and facilities are already connected to the City of San Leandro's municipal sewer system. There would be no impact.

NO IMPACT

7 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 any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	■	☐

Existing Setting

Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC 2014), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (95 percent or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-twentieth century (IPCC 2014).

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Observations of CO_2 concentrations, globally averaged temperature, and sea level rise

are generally well within the range of the extent of the earlier IPCC projections. The recently observed increases in CH_4 and N_2O concentrations are smaller than those assumed in the scenarios in the previous assessments. Each IPCC assessment has used new projections of future climate change that have become more detailed as the models have become more advanced.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. CO_2 has a 100-year GWP of one. By contrast, CH_4 has a GWP of 25, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (IPCC 2007).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (CalEPA 2015). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

Impact Analysis

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

For the purposes of this analysis, the City of San Leandro has determined the GHG emissions thresholds contained in the BAAQMD's May 2017 *CEQA Air Quality Guidelines* are the appropriate thresholds to use. The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether the proposed project could result in potentially significant GHG emissions. If all of the screening criteria are met by a proposed project, then the lead agency or applicant would not need to perform a detailed GHG assessment of their project's GHG emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. For projects that are infill, such as the proposed project, emissions would be less than the greenfield type project that the screening criteria are based on (BAAQMD 2017b).

BAAQMD's lowest and therefore most conservative GHG-related screening level for industrial uses is 65,000 square feet of new buildings (BAAQMD 2017b). The project would include the construction of a new Transfer Facility building that is 21,800 square feet in size. Other operational changes associated with the proposed project would not result in substantial GHG emissions over existing operational uses. Accordingly, the construction and operation of the new Transfer Facility building

would not exceed the BAAQMD screening criteria threshold and the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

BAAQMD's approach to developing their screening criteria for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. If a project would generate GHG emissions above the screening criteria level, it would be considered to contribute substantially to a cumulative impact, and would be considered significant. Thus, if a project is less than BAAQMD's screening criteria for GHG, the project would not substantially conflict with existing California legislation adopted to reduce statewide GHG emissions.

In addition, the City of San Leandro has a Climate Action Plan (CAP) that discusses goals in reduction of air quality pollutants and promoting sustainable growth (City of San Leandro 2009). One goal from the CAP is to promote waste reduction and material re-use in the community (Goal 5.3). Another goal from the CAP is to increase recycling, compositing, and material re-use related to municipal operations (Goal 6.3). The proposed project involves increasing capacity and efficiency at a recycling and waste transfer facility in order to reduce the amount of waste sent to the landfill. Therefore, the project is consistent with the applicable goals and policies in the CAP. Impacts associated with conflicting with any applicable plan, policy, or regulation of an agency adopted for reducing the emissions of GHG would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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8 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 0.25 mile of an existing or proposed school?	☐	☐	■	☐
d. Be located on a site that is included on a list of hazardous material 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 in 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 for people residing or working in the project area?	☐	☐	☐	■
f. For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area?	☐	☐	☐	■
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	■

Existing Setting

According to the California Department of Toxic Substances Control (DTSC) EnviroStor database, the 601 Aladdin Avenue parcel was previously contaminated by diesel fuel and waste oil during past vehicle storage, refueling, and maintenance (DTSC 2016). This contamination was detected in 1989 during a site investigation. The potential contaminants of concern detected during the investigation included tetrachloroethylene (PCE) and trichloroethylene (TCE). These contaminants were presumed to derive from leaking underground fuel storage tanks. Four underground diesel storage tanks and one waste oil tank were removed in 1995. These activities were conducted under the oversight of the City of San Leandro Fire Department. Subsequent sampling in 1999 indicated the contamination levels were decreasing. On March 13, 2002, DTSC issued a letter stating that no further clean up action is necessary (Appendix B). The 610 Aladdin Avenue parcel was not listed on the DTSC EnviroStor database.

Impact Analysis

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

During project construction, potentially hazardous liquid materials such as oil, diesel fuel, gasoline, and hydraulic fluid could be used at the site in construction equipment. If spilled, these substances could pose a risk to the environment and to human health.

The use, handling, and storage of hazardous materials are regulated by both the Federal Occupational Safety and Health Administration (OSHA) and the California Occupational Safety and Health Administration (Cal-OSHA). Cal-OSHA is responsible for developing and enforcing workplace safety regulations. Both federal and state laws include special provisions/training in safe methods for handling any type of hazardous substance. These regulations ensure that potential hazards associated with construction and operational activities do not create a significant hazard to the public.

The facility has a Hazardous Materials Business Plan (HMBP) in place. The HMBP depicts the inventory of hazardous materials used in the operation (types, quantities, and locations), such as vehicle fuel, lubricants, and solvents used for maintenance of collection and processing equipment and it includes provisions for disposing of hazardous materials that may be accidentally brought to the facility. The HMBP includes requirements for storage/containment, notification, and contingency measures in the event of a spill, fire, or other incident.

The facility does not accept hazardous wastes including liquid wastes, paint containers, aerosol cans, and friable asbestos. However, some hazardous waste can be included in the waste stream

delivered to the facility. To ensure the acceptance of hazardous materials is minimized, a Hazardous Waste Exclusion Program is currently in place at the facility. This Hazardous Waste Exclusion Program states:

> "ACI will not intentionally accept hazardous wastes or special wastes and implements a Loadcheck Protocol at all times. Should unauthorized hazardous wastes be discovered during the transfer and/or sorting process, control measures as necessary to protect public health, safety and the environment will be implemented by ACI, such as elimination or control of dusts, fumes, mists, vapors or gases shall be taken prior to isolation or removal from the operation or Facility. Liquid wastes and sludge are not accepted at the ACI Facility."

The ACI Facility Loadchecking Protocol consists of the following:

- The curbside collected MSW and green waste will have already been initially screened by the collection driver before the load arrives at the site. Remaining unacceptable materials are detected during the unloading and transfer process at the DTF and on the recyclables sortline in the MRF.
- Only non-hazardous wastes are accepted at the site. Typical unacceptable materials include liquid wastes, paint containers, and friable asbestos, which if discovered, will be stored along with ABOP (aerosols, batteries, oils and paint) within portable, self-contained, metal kiosks, designed for the receipt and storage of residential household batteries, used oil, and used oil filters collected at the curb as well as used oil absorbent and other fully-closed drums pending shipment offsite for recycling and/or disposal. The HHW/ABOP storage kiosks may be occasionally relocated around the facility to meet site needs for safe and efficient operations.
- All loads are visually checked as they are transferred and unloaded.
- The greatest likelihood of hidden hazardous waste, special wastes, or other prohibited wastes being in the waste stream occurs in the debris boxes and annuals bins or bags. The loads are visually screened for unacceptable materials by employees during transfer and/or processing operations. Unacceptable materials are extracted from the waste and stored in the HHW/ABOP storage kiosks, where it is properly disposed of by a licensed contractor. As each debris box is numbered, the unacceptable waste can be traced back to its origin, if necessary. ACI experiences a very low incidence of unacceptable waste being mixed in the debris boxes and through the annuals program. ACI provides all customers with a written list of acceptable and unacceptable materials when containers are delivered.
- Hazardous wastes, special wastes, or other prohibited wastes may be discovered and segregated during the unloading of recyclable materials in the MRF and when materials are being unloaded in the DTF. Employees are properly trained to handle and correctly store HHW, ABOP, and other wastes not recyclable. Hazardous wastes are stored in the storage kiosks and are collected within with the acceptable timeframe as required by material type by a licensed hazardous waste contractor.

The routine transport, use, and disposal of hazardous materials are regulated by existing federal, state, and local regulations and these regulations would be required to be followed during site construction and operations. Also, the facility does not accept hazardous wastes and has a Hazardous Waste Exclusion Program to minimize the inclusion of such waste in the waste stream. All third-party waste haulers are required to undergo the same protocols listed in the program. This

Hazardous Waste Exclusion Program would continue with implementation of the proposed project. Taking into account compliance with existing regulations, the continued restriction on the acceptance of hazardous waste, and the continued implementation of the Hazardous Waste Exclusion Program, the project would not create a significant hazard to the public or the environmental through the routine transport, use, or disposal of hazardous materials and this impact would be considered less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project 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?

Similar to the analysis of question a) above, any handling, transporting, use, or disposal of hazardous or potentially hazardous materials would be required to comply with all applicable federal, state, and local agencies and regulations. Both short-term construction and long-term operation of the project would be required to adhere to the policies and programs set forth by applicable regulatory agencies. This compliance would minimize the potential for the accidental release of hazardous materials into the environment. Therefore, the project would not be expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions. This impact would be considered less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

There are no schools within 0.25 mile of the 610 Aladdin Avenue parcel, which is where the waste transferring and processing activities occur. The northeastern corner of the 601 Aladdin Avenue parcel is located approximately 1,200 feet, or just under one-quarter mile, from the Principled Academy, a preschool through eighth-grade private school. The portion of the 610 Aladdin Avenue parcel within 0.25 mile of the school is used for materials storage, clean natural gas refueling stations, and employee parking. These conditions are already present and would not change with the proposed project. The proposed project does not involve any operational changes or construction in this portion of the site. Fuel storage is subject to applicable federal, state, and local regulations that ensure no release of hazardous materials. In addition, as described under subsections (a) and (b), procedures are in place to ensure that hazardous waste materials are not brought to the project site and to ensure that no hazardous materials or waste exposure occurs. On-site operations are subject to applicable federal, state, and local regulations to minimize the release of hazardous materials into the environment. Therefore, through adherence to ACI's hazardous materials plans as well as applicable regulations, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on a site included on a list of hazardous material 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?

According to the DTSC's EnviroStor website, the 601 Aladdin Avenue parcel was previously contaminated by diesel fuel and waste oil during past vehicle storage, refueling, and maintenance (DTSC 2016). However, as discussed in the Existing Setting above, the source of this contamination, four underground diesel storage tanks and one waste oil tank, were removed in 1995. As of March

13, 2002, no further clean up action has been necessary due to the declining contaminant concentrations in groundwater and because all potential sources were removed from the site. Therefore, although the 601 Aladdin Avenue site was included on a list of contaminated sites, ground-disturbance associated with implementation of the proposed project would not create a significant hazard to the public or the environment. The contamination source has been removed and the contaminant concentrations have declined sufficiently to preclude the need for any further clean up actions (see Appendix B for a copy of the "no further action" letter). In addition, the proposed project pertains to industrial operations in an industrial area. No residences or other sensitive land uses are proposed on site or are located adjacent to the project site that would be exposed to any existing contamination. This impact is less than significant.

LESS THAN SIGNIFICANT IMPACT

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 for people residing or working in the project area?

f. For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area?

The nearest airport to the site is the Oakland International Airport, which is located three miles to the west. Although the project site is located inside the Oakland International Airport Influence Area, the project site is not located inside any of the eight Safety Compatibility Zones (Oakland International Airport 2010).The project would not subject persons working at the site, and there would be no impact from potential air traffic safety risks.

NO IMPACT

g. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The proposed project involves facility improvements at the existing ACI facilities located on two separate parcels at the end of the Aladdin Avenue cul-de-sac. All work would occur in the two subject parcels. No work is proposed in roadway rights-of-way. The project does not include components that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Based on its location at the end of a cul-de-sac, the evacuation of the site would not physically interfere with the emergency evacuation of other properties in the local area. Two access points are provided on the 610 Aladdin Avenue parcel for emergency vehicle access or evacuation. The 601 Aladdin Avenue parcel has a single driveway access but much of the property fronts directly onto Aladdin Avenue. In an emergency, additional access could be easily provided by cutting through the chain link fence that separates the road from the parcel. No impact would occur.

NO IMPACT

h. Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project site is located in a developed industrial area that is surrounded by industrial uses and no adjacent wildlands or densely vegetated areas are located in the area that would represent a significant fire hazard. Fire protection is provided to the site by the Alameda County Fire Department. Municipal fire hydrants are located on the north side of Aladdin Avenue including one

located directly adjacent to the driveway entrance into the 601 Aladdin Avenue parcel and one located directly west of this same parcel. Also, operation of the facility currently includes specific health and safety procedures that are intended to minimize the potential for fires and accidents, and these procedures would continue to be implemented with project implementation. The facility also maintains onsite fire suppression equipment. For the above reasons, the project would not expose people or structures to significant risk of loss, injury, or death involving wildland fires. There would be no impact.

NO IMPACT

9 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?	☐	☐	■	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	■
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	■	☐
d. Substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite?	☐	☐	■	☐
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	■
f. Otherwise substantially degrade water quality?	☐	☐	■	☐
g. Place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?	☐	☐	☐	■

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h. Place structures in a 100-year flood hazard area that would impede or redirect flood flows?	☐	☐	☐	■
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?	☐	☐	■	☐
j. Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	■

Existing Setting

The project site is located in the San Francisco Bay Hydrologic Region, which covers approximately 4,500 square miles and encompasses 10 counties, including Alameda County. It corresponds with the boundaries of the San Francisco Regional Water Quality Control Board Region 2 and the San Francisco Bay Area Integrated Regional Water Management Plan. The San Francisco Bay Hydrologic Region is a complex network of watersheds, marshes, rivers, creeks, reservoirs, and bays mostly draining into the San Francisco Bay and the Pacific Ocean (San Leandro 2016c).

The project site is located in the Estudillo Canal Watershed. Stormwater runoff is collected through a system of underground culverts, storm drains, and engineered channels that drain into the Estudillo Canal, which ultimately discharges into San Francisco Bay (San Leandro 2016c). The storm drains in Aladdin Avenue connect to this system.

The City of San Leandro Department of Public Works owns and maintains 175 miles of storm drain conduits throughout the city. The City's storm drain system feeds into a larger system owned and operated by the Alameda County Flood Control and Water Conservation District. This system includes the lower reaches of San Leandro and San Lorenzo Creeks, as well as a number of channels extending into San Leandro neighborhoods west of I-880. The District's drainage facilities include levees, pump stations, erosion control devices, and culverts (San Leandro 2016c).

Stormwater runoff pollutants vary with land use, topography, and the amount of impervious surface, as well as the amount and frequency of rainfall and irrigation practices. Runoff in developed areas typically contain oil, grease, litter, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations usually occur at the beginning of the wet season during the "first flush" (San Leandro 2016c).

All stormwater runoff from the project is ultimately discharged into San Francisco Bay. The San Francisco Bay Regional Water Quality Control Board (RWQCB) monitors surface water quality through implementation of the Water Quality Control Plan (Basin Plan) and designates beneficial uses for surface water bodies and groundwater. The beneficial uses for San Francisco Bay include industrial service supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish

migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact recreation, water non-contact recreation, and navigation (San Leandro 2016c).

At the 610 Aladdin Avenue parcel, the site is almost entirely paved with either concrete or asphalt and graded to facilitate drainage and prevent ponding (Edgar & Associates 2015). The storm drainage system was designed to collect and convey storm water and to meet the requirements of the City of San Leandro. The facility is surrounded by a concrete curb or block wall to prevent run-on from adjacent properties as well as runoff from the site to adjacent properties. The onsite storm drainage system consists of valley gutters, drainage inlets, and underground 12-inch storm drain piping. All of the drainage inlets are equipped with Triton filter inserts and shut-off valves. During rain events, the shut-off valves are opened, allowing storm water to flow for increased filtration during the rainy season. During dry days, the shutoff valves are closed to limit debris accumulation or accidental release. The drainage system consists of two branches: one collecting drainage from the east side of the facility and one collecting drainage from the west side of the facility. Roof drains discharge to the paved surfaces and enter the storm water system as sheet flow. The two branches connect at a single inlet at the front of the property. With the installation of the storm water treatment system in 2012, storm water from the west side of the property is bypassed to the Clara separator via a 3-inch PVC pipe (VESTRA Resources Inc. 2015).

Storm water is conveyed via a 24-inch pipe to the City of San Leandro storm drain system connecting at the drop inlet in front of the office building. Storm water from the site is ultimately conveyed to the Lower San Francisco Bay approximately 2.2 miles east of the facility (VESTRA Resources Inc. 2015). The municipal storm drain system is maintained by the Alameda County Public Works Agency (Edgar & Associates 2015).

A Stormwater Pollution Prevention Plan (SWPPP), prepared by VESTA Resources, Inc. and last updated in April 2015, is currently in place for operations at the 610 Aladdin Avenue parcel. Preparation of a SWPPP is required by federal and state regulation and is administered by the State Water Resources Control Board (SWRCB) through the RWQCB. ACI's SWPPP has been prepared to comply with the terms of the General Permit for Storm Water Discharges Associated with Industrial Activities (National Pollutant Discharge Elimination System [NPDES] Permit No. CAS000001/2014-0057-DWQ). The intent of the order is to protect water quality by controlling pollutants in storm water runoff. This SWPPP is designed to comply with Best Available Technology (BAT), Best Conventional Pollutant Control Technology (BCT), and Best Management Practices (BMPs) to reduce or eliminate pollution from industrial facilities during storm events. BMPs included in the SWPPP are currently implemented at the site.

At the existing Transfer Facility, MSW, green waste with co-collected organics, and C&D debris is transferred from collection vehicles to transfer vehicles with walking floor trailers. Although waste is transferred directly into the transfer vehicle without touching the ground, there is the potential for some materials to fall to the ground and contact rainwater or be blown into storm drains. An attendant is assigned to clean up fallen debris immediately to keep the material from contaminating stormwater and to keep the facility clean. Collection vehicles and trailers also have the potential to leak oil, fuel, and other materials on the surface. Employees are instructed to spread absorbent on grease and oil spills and to sweep up the contaminated absorbent and dispose of it properly (Edgar & Associates 2015).

Impact Analysis

a. Would the project violate any water quality standards or waste discharge requirements?

c. Would the project substantially alter the existing drainage pattern of the site or area, including by altering the course of a stream or river, in a manner that would result in substantial erosion or siltation on or offsite?

d. Would the project substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite?

e. Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

f. Would the project otherwise substantially degrade water quality?

There are no streams or rivers on or near the project site. The proposed project would not alter the course of a stream or river. No construction is proposed at the 601 Aladdin Avenue parcel. Should maintenance shop be relocated to this parcel, it would be within the existing warehouse structures and only minor modifications would be required. In addition, the expanded bulky item sorting would continue to occur inside the warehouse. At the 601 Aladdin Avenue parcel, no changes to the existing drainage pattern of the site would occur. Therefore, impacts related to stormwater runoff and water quality at this parcel would be less than significant.

During construction of the Transfer Facility building on the 610 Aladdin Avenue parcel, existing equipment, concrete or asphalt materials would be removed from the proposed building's footprint to accommodate excavation of the building foundations and the subsurface truck ramp. During these removal and excavation activities, the site's soils would be exposed to wind and water erosion that could transport sediments into local stormwater drainages. Also, accidental spills of fluids or fuels from construction vehicles and equipment, or miscellaneous construction materials and debris, could be mobilized and transported offsite in overland flow. These contaminant sources could degrade the water quality of receiving water bodies (i.e., the San Francisco Bay), potentially resulting in a violation of water quality standards. However, the facility's existing SWPPP would continue to be implemented during construction. The SWPPP includes BMPs to prevent pollution from entering the storm drain system. In addition, in accordance with SLMC Section 7-12-230, the project applicant is required to prepare and implement an erosion and sedimentation control plan and a drainage plan during construction. The plans shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials onto lands of adjacent property owners, public streets, or to watercourses as a result of conditions created by grading operations. With implementation of stormwater control measures during construction, impacts related to stormwater runoff and water quality during construction would be less than significant.

Implementation of the project may require some modest changes to the 610 Aladdin Avenue parcel's stormwater collection system to accommodate the transfer building's new foundation. However, no changes in the collection system's capacity or overall function are proposed. With implementation of the project, the activities that could have the greatest effect on water quality (e.g., waste transfer operations) would occur inside the new Transfer Facility building. The inclusion of waste transfer operations in a building would substantially improve the ability of the site operator to minimize the exposure of stormwater to contaminants. Therefore, the new Transfer

Facility building would reduce the potential for stormwater contamination from activities at the 610 Aladdin Avenue parcel. Also, only a negligible increase in stormwater discharge would be anticipated with implementation of the proposed operational changes, primarily due to the increase in waste tonnage accepted at the site. An increase in tonnage may require an increase in the use of water for dust suppression.

In addition, because the project would create and/or replace at least 10,000 square feet of impervious surface to construct the Transfer Facility, the project would be subject to the San Francisco Bay Region Municipal Regional Stormwater (MRP) NPDES Permit (NPDES Permit Order No. R2-2015-0049 dated November 19, 2015), and the provisions set forth in Section C.3 *New Development and Redevelopment*. Stormwater discharge during operation is regulated by the Municipal Separate Storm Sewer System (MS4) Permit, issued by the RWQCB, pursuant to NPDES regulations. Water quality in stormwater runoff is regulated locally by the Alameda County Clean Water Program, which includes the C.3 provisions set by the San Francisco Bay RWQCB. Provision C.3 of the MRP addresses post-construction stormwater requirements for new development and redevelopment projects that add and/or replace 10,000 square feet or more of impervious area. Because the project would replace in excess of 10,000 square feet of the impervious surface of the project site, it must comply with the C.3 provisions set by the RWQCB. Therefore, the project must meet certain criteria including: 1) incorporate site design, source control, and stormwater treatment measures into the project design; 2) minimize the discharge of pollutants in stormwater runoff and non-stormwater discharge; and 3) minimize increases in runoff flows as compared to pre-development conditions. A Stormwater Control Plan (SCP) that details the site control, source control, and stormwater measures that would be implemented at the site must be submitted to the City. In addition, Low Impact Development (LID) requirements apply. The Alameda County Clean Water Program's C.3 Technical Guidance document (2016) provides guidance on how to meet the C.3 requirements.

By adhering to the provisions of NPDES Section C.3, City requirements, and the facilities existing SWPPP, the project would not result a substantial increase in stormwater runoff or in adverse effects on water quality during construction or operation. With implementation of the required measures contained in these plans and requirements, excessive stormwater runoff, flooding, erosion, or sedimentation would not occur and the potential for the project to violate water quality standards or waste discharge requirements would be reduced. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

As discussed in Section 18, *Utilities and Service Systems*, the project would receive its water from the East Bay Municipal Utility District (EBMUD). Based on historical averages, about 90 percent of the water delivered by EBMUD originates from the Mokelumne River watershed, which is fed primarily from the melting snowpack of the Sierra Nevada. The remaining 10 percent originates as runoff from the protected watershed lands and reservoirs in the East Bay Hills (San Leandro 2016e).Therefore, the project would not rely on groundwater for its water supply and would not increase groundwater usage such that a net deficit in aquifer volume would occur.

Development under the project does not include installation of new groundwater wells, or use of groundwater from existing wells. The project would not include the use of groundwater resources and would have no effect on groundwater supplies. The project site is currently almost entirely paved with impervious surfaces. The proposed project would not change this condition and therefore would not decrease or increase groundwater recharge. Therefore, there would be no impact to groundwater supplies or recharge.

NO IMPACT

g. Would the project place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?

The project does not propose the development of housing and is located outside of the 100-year floodplain (San Leandro 2016a). There would be no impact.

NO IMPACT

h. Would the project place in a 100-year flood hazard area structures that would impede or redirect flood flows?

The project site is located outside of the 100-year FEMA-designated floodplain of the Estudillo Canal (San Leandro 2016a). Therefore, the project would not place structures inside a 100-year flood hazard area and there would be no impact.

NO IMPACT

i. Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding including that occurs as a result of the failure of a levee or dam?

The project site is located in the inundation areas of two dams: Upper San Leandro Reservoir and Lake Chabot. Lake Chabot is classified as a high hazard dam because its failure could result in a significant loss of life and property damage. The California Division of Safety of Dams (DSOD) inspects each dam on an annual basis to ensure the dam is safe, performing as intended, and is not developing problems (San Leandro 2016a).

The East Bay Municipal Water District (EBMUD) owns and operates these two reservoirs, which store runoff from local watersheds for water supply. Lake Chabot was built in 1892 and impounds approximately 3 billion gallons of water that is used for non-potable water supply, emergency water supply, conservation/storage of local runoff, and recreation (San Leandro 2016a).

Four miles upstream is the Upper San Leandro Reservoir, which was constructed in 1977 and holds more than 13 billion gallons of water. This reservoir is closed to public access, except for the trail system, and is used for raw water storage. While failure of these dams is extremely unlikely, most of San Leandro would be flooded in the event of a dam failure of either Lake Chabot or Upper San Leandro Reservoir (San Leandro 2015).

Requirements for earthquake and flood safety for the EBMUD dams are imposed by the DSOD. Chabot Dam is inspected monthly by EBMUD personnel along with annual inspections by DSOD personnel. DSOD requires that embankments under its jurisdiction are safe enough to withstand a maximum credible earthquake without an uncontrolled release of reservoir water. In 2003, DSOD requested EBMUD to perform a stability evaluation of the Chabot Dam. The results, which were issued in 2005, indicated that upgrading the dam and retrofitting the outlet works was warranted. An Environmental Impact Report (EIR) was certified in December 2013 that discusses the proposed

seismic upgrade program in detail and the dam improvements are expected to begin in 2016. Both Lake Chabot and Upper San Leandro dams are considered to be stable and dam failure is unlikely (City of San Leandro 2016a2014).

The risk of dam failure is extremely low, with seismic strengthening soon to take place at Lake Chabot, and continuing maintenance and further improvements taking place at both dams in the future (San Leandro 2015)). In addition, the proposed project does not involve residential uses and would not substantially increase the population of the area. Further, the proposed project would not increase the number of employees such that substantial indirect population growth in the area would occur.

Due to the very low probability of a dam failure that results in inundation of the City of San Leandro and that no housing or population increases would occur from the project, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

j. Would the project result in inundation by seiche, tsunami, or mudflow?

The nearest largest body of water to the project is the San Francisco Bay, which is over two miles to the west of the project site. The project is also over two miles from Lake Chabot to the northeast. Since the project site is not near any large bodies of water and is two miles inland from the San Francisco Bay, the project site would not be subject to inundation by seiche, tsunami, or mudflow. No impact would occur.

NO IMPACT

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10 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. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	■	☐
c. Conflict with an applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	■

Existing Setting

The land use designation for the 610 Aladdin Avenue parcel is Public/Institutional and it is zoned Industrial General District (IG). The Public/Institutional land use designation is used to denote public or institutional buildings and to denote major utility properties or facilities. Floor area ratios of up to 1.0 are permitted (San Leandro 2016a).

Transfer stations and recycling facilities are allowed in areas zoned IG subject to a conditional use permit and the requirements of Zoning Code Section 4-1646 – Recycling Facilities. The requirements of this code section that are applicable to all collection and processing facilities include the following:

a) No facility shall occupy a required front or corner side yard, and all regulations applicable to the principal structure on the site shall apply to collection and processing facilities except as provided in this Section.

b) A large collector or processing facility may accept used motor oil for recycling from the generator in accordance with Section 25250.11 of the California Health and Safety Code.

c) All exterior storage of material shall be in sturdy containers or enclosures that are covered, secured, and maintained in good condition. Storage containers for flammable material shall be constructed of non-flammable material. No storage, excluding truck trailers and overseas containers, will be visible above the height of the fencing.

d) Noise levels shall not exceed 60 decibels (60 dBA) as measured at the property line of an R district or otherwise shall not exceed seventy decibels (70 dBA).

e) All facilities shall be administered by onsite personnel during hours the facility is open. If a large collection or processing facility is located within 500 feet of an R district, it shall not be in operation between 7:00 p.m. and 7:00 a.m.

f) Any containers provided for after-hours donation of recyclable materials shall be of sturdy, rustproof construction; shall have sufficient capacity to accommodate materials collected; and shall be secure from authorized entry or removal of materials.

g) The site of the facility shall be kept free of litter and any other undesirable material. Containers shall be clearly marked to identify the type of material that may be deposited. A notice stating that no material shall be left outside the recycling containers shall be displayed.

h) Sign requirements shall be those provided for the zoning district in which the facility is located. In addition, each facility shall be clearly marked with the name and phone number of the facility operator and the hours of operation.

i) No dust, fumes, smoke vibration or odor above ambient level may be detectable on neighboring properties. (Ord. 2016-012 § 4; Ord. 2014-011 § 2; Ord. 2008-013 § 1; Ord. 2004-007 § 5; Ord. 2001-015 § 1)

The 601 Aladdin Avenue parcel is also zoned IG but has a land use designation of Light Industrial. Warehousing activities are a permitted use in areas zoned IG. According to the 2035 General Plan, light industrial areas may contain wholesale activities, distribution facilities, research and development or e-commerce uses, business services, and manufacturing operations that produce minimal offsite impacts. Campus-style industrial parks, professional offices, and a limited range of commercial uses are also permitted. A maximum floor area ratio of 1.0 applies, although this area contains multiple zoning districts and this maximum may not be available in all districts (San Leandro 2016a).

Impact Analysis

a. Would the project physically divide an established community?

The project includes operational changes at the MRF and Transfer Facility, and at the Limited Volume Transfer Facility to accommodate anticipated growth in the recycling materials waste stream and to improve operational efficiency. None of the operational changes would physically divide the community. No linear features, new structures or changes in parcel configurations are proposed that would separate areas physically or otherwise. There would be no impact.

NO IMPACT

b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

As mentioned above under Existing Setting, the land use designation for the 610 Aladdin Avenue parcel is Public/Institutional. This designation allows for public services as well as major public utilities or facilities. The existing facility provides a public utility of solid waste management. The proposed project does not change the use of the facility. Therefore, the proposed project would be consistent with this parcel's Public/Industrial land use designation. The proposed operational

changes associated with the proposed project would also be consistent with this parcel's Industrial General District (IG) zoning designation, subject to a CUP and the requirements of Zoning Code Section 4-1646 – Recycling Facilities.

The land use designation for the 601 Aladdin Avenue parcel is Light Industrial. The expansion of the Limited Volume Transfer Facility bulky item sorting operations would be consistent with the distribution-facility type uses allowed in this land use designation. These warehouse-type operations would also be consistent with the parcel's Industrial General District (IG) zoning designation.

The City of San Leandro's Open Space, Parks, and Conservation Element of the 2035 General Plan states that Goal OSC – 7 is to promote recycling, water conservation, green building, and other programs which reduce greenhouse gas emissions and create a more sustainable environment. Policy OSC 7.1 in the goal is aimed to actively promote recycling and other programs that reduce the amount of solid waste entering the local landfills. The project is directly consistent with Action OCS-7.1 A and 7.1 B, which encourages implementation of recycling plans and encourages bulky waste pick-up events that ACI participates in. In addition, the project is consistent with Action OSC-7.1 D Food Waste Recycling, which aims to continue to operate green waste and food waste recycling programs. Therefore, the project would be consistent with policies in the City's General Plan intended to avoid environmental impacts related to solid waste.

Assuming approval of the CUP amendment, the project would not conflict with applicable land use plans, policies or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigation an environmental effect.

LESS THAN SIGNIFICANT IMPACT

c. Would the project conflict with an applicable habitat conservation plan or natural community conservation plan?

As discussed in Section 4, *Biological Resources*, the project site is not located inside the boundary of a Habitat Conservation Plan or Natural Community Conservation Plan. There would be no impact.

NO IMPACT

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11 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?	☐	☐	☐	■

a. Would the project 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. Would the project 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?

San Leandro's principal mineral resources are volcanic rocks, such as basalt, andesite, and rhyolite. The only quarry in the city is operated roughly two miles northeast of the project site, and future quarrying is unlikely due to environmental impacts and stringent permitting (San Leandro 2016c). The project would continue to perform existing operations, and would not result in a loss of available minerals. There would be no impact.

NO IMPACT

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12 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c. A substantial permanent increase in ambient noise levels above those existing prior to implementation of the project?	☐	☐	■	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above those existing prior to implementation of the project?	☐	☐	■	☐
e. For a project located in 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?	☐	☐	☐	■
f. For a project near a private airstrip, would it expose people residing or working in the project area to excessive noise?	☐	☐	☐	■

Existing Setting

Noise is unwanted sound that disturbs human activity. Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). Because of the way the human ear works, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40 to 50 dBA, while arterial streets are in the 50 to 60+ dBA range.

Normal conversational levels are in the 60 to 65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (such as construction equipment). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by the introduction of intervening structures. For example, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm that breaks the line-of-sight reduces noise levels by 5 to 10 dBA. The construction style for dwelling units in California generally provides a reduction of exterior-to-interior noise levels of about 30 dBA with closed windows (Federal Highway Administration [FHWA] 2006).

Some land uses are more sensitive to ambient noise levels than other uses due to the amount of noise exposure and the types of activities involved. For example, residences, motels, hotels, schools, libraries, churches, nursing homes, auditoriums, museums, cultural facilities, parks, and outdoor recreation areas are more sensitive to noise than commercial and industrial land uses. The nearest residences to the 601 Aladdin Avenue parcel are located approximately 900 feet to the northeast of the property line beyond the adjacent UPRR and BART tracks. The nearest residences to the 610 Aladdin Avenue parcel are located approximately 1,100 feet to the northeast of the property line. Views of the two parcels from these residences are blocked by existing industrial buildings and intervening sound walls.

The noise environment on the project site is dominated by the industrial uses on and surrounding the site, vehicle noise generated from I-880, which accommodates 10 lanes of vehicle traffic in the project vicinity, vehicle noise from Alvarado Street and Aladdin Avenue, and rail vehicle noise from the adjacent UPRR tracks and nearby BART tracks.

Regulatory Setting

Noise regulations and ordinances typically establish allowable noise levels for different land uses and define exempt noise activities. The San Leandro Land Use Compatibility Guidelines included in the San Leandro General Plan Environmental Hazards Element identify normally acceptable noise levels in industrial areas as up to 75 decibels. Noise levels from 70 to 80 decibels are conditionally acceptable and noise levels in excess of 75 decibels are normally unacceptable.

Chapter 4-1 of the SLMC provides provision for restrictions and regulations for noise in the city of San Leandro. These regulations specifically restrict construction activities that occur after the typical work day for uses adjacent to or across a street or right-of-way from a residential use (Municipal Code Section 4-1-1115). However, the SLMC does not include any restrictions on construction activities in industrial areas.

Chapter 4-1646 of the City of San Leandro Zoning Code specifies regulations that apply to recycling facilities. The Zoning Code prohibits the facility from generating noise that exceed 60 dBA as measured at the property line of an R district or exceeding 70 decibels (SLMC Section 4-1646-5(d)).

Impact Analysis

a. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

c. Would the project result in a substantial permanent increase in ambient noise levels above levels existing without the project?

610 Aladdin Avenue

The expanded operations associated with the project would not generate noise levels in excess of established standards for industrial uses. With project implementation, the majority of the site's operations would take place inside enclosed buildings. With the construction of the new Transfer Facility building on the 610 Aladdin Avenue site, the waste transfer operations that currently occur outside would occur entirely inside the new building. The noise generated from these transfer operations would therefore be substantially attenuated. The walls would effectively dampen the noise generated by the waste transfer operations when compared to current conditions.

The project includes extending the waste acceptance, transfer and processing hours or the MRF and Transfer Facility to 24 hours per day, seven days per week. The waste acceptance and transfer hours are currently 5:00 am to 6:00 pm Monday through Friday at the Transfer Facility and the permitted processing hours are currently 5:00 am to 10:00 pm Monday through Saturday at the MRF. Extending the hours of waste acceptance, transfer and processing of both the MRF and Transfer Facility would extend the noise generation from the site into the nighttime and early morning hours. However, with the construction of the Transfer Facility building, the majority of these activities would occur inside an enclosed building, which would substantially attenuate the noise levels. The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (2006) indicates that the manner in which newer structures in California are constructed generally provides a reduction of exterior-to-interior noise levels of approximately 25 dBA with closed windows (2006).

Section 4-1646 of the City of San Leandro Zoning Code states that noise levels may not exceed sixty decibels (60 dBA) as measured at the property line of an R (residential) district. The closest R district is located approximately 1,100 feet to the northeast of the 610 Aladdin Avenue parcel. To approximate noise levels at this R district, noise measurements for a transfer facility similar to the ACI facility were evaluated. Average hourly noise level measurements were collected for the Sacramento Recycling and Transfer Station located at 8491 Fruitridge Road in Sacramento, California (HDR Engineering 2007). At a distance of 205 feet from the facility, the average hourly noise level was 67.3 decibels. Based on a standard noise attenuation rate of a 6 decibel decrease for every doubling of distance, the projected noise level at a distance of 1,100 feet would be approximately 53 decibels. This calculation does not include any attenuation associated with intervening buildings or the existing sound wall located adjacent to the residential uses, which would further reduce noise levels generated from the site. Even assuming the peak perimeter noise level allowed by Section 4-1646 of 70 decibels and no attenuation from intervening buildings or sound walls, the projected noise level at the closest R district would be approximately 56 decibels, which would be below the Zoning Code restriction of 60 dBA at the nearest residential district.

As described in Table 4 and Table 6, the proposed project would increase the number of daily truck trips to and from the project site by 94 trips, including 9 new AM peak hour trips and 9 PM peak hour trips. Therefore, traffic-related noise from trucks would be increased compared to existing conditions. These trips would not be concentrated during the peak hour but instead would be

spread throughout the day. Trucks traveling to and from I-880 travel to the project site via Marina Boulevard and Alvarado Street. These streets are commercial corridors with no noise-sensitive receptors. Therefore, any increase in traffic noise associated with the project would not cause excessive noise levels for any nearby noise-sensitive receptors.

The 610 Aladdin Avenue parcel is located in a developed industrial area that is substantially set back from sensitive residential uses. Although the nighttime and early morning operations would increase noise generation n this industrial area, these activities would not be expected to exceed Zoning Code noise limits for the closest R district. The incorporation of noise-generating activities associated with loading transfer trailers at the site inside an enclosed building would ensure these noise levels are not exceeded. For these reasons, the proposed activities at the 610 Aladdin Avenue parcel would not be expected to generate noise levels in excess of the City's General Plan or Noise Ordinance standards or any other applicable standards and would not create a substantial permanent increase in ambient noise. This impact would be less than significant.

601 Aladdin Avenue

The bulky sorting operations that occur inside the warehouse at the 601 Aladdin Avenue parcel would continue to occur inside the warehouse. Therefore, noise generated from these activities would not increase off of the site even with the increase in bulky sorting activities. The maintenance facility currently located at the 610 Aladdin Avenue parcel could be related to the 601 Aladdin Avenue parcel as part of the project. If so, the relocated maintenance shop on this parcel would operate inside a fully-permitted, indoor industrial facility, similar to current conditions on the 610 Aladdin Avenue parcel. If the maintenance facility is relocated to another site, it would also be a fully-permitted, indoor industrial facility. Therefore, noise levels associated with the interior maintenance shop would not substantially differ due to the relocation. For these reasons, the proposed activities at the 601 Aladdin Avenue parcel would not generate noise levels in excess of the City's General Plan or Noise Ordinance standards or any other applicable standards and would not create a substantial permanent increase in ambient noise. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

The FTA describes the general human response to different levels of groundborne vibration velocity levels as follows (2006):

- 75 VdB - Approximate dividing line between barely perceptible and distinctly perceptible
- 85 VdB - Vibration acceptable only if there are an infrequent number of events per day
- 90 VdB - Difficulty with tasks such as reading computer screens

This analysis uses the FTA's vibration impact thresholds to determine whether groundborne vibration would be "excessive." The FTA recommends an 80 VdB threshold for infrequent events at residences and buildings where people normally sleep. In terms of groundborne vibration impacts on structures, the FTA states that groundborne vibration levels in excess of 100 VdB would damage fragile buildings and levels in excess of 95 VdB would damage extremely fragile historic buildings.

Table 3 identifies various vibration velocity levels at distances from the source for the types of construction equipment that generally generate high levels of vibration and could be expected to be

used for project construction. A distance of 900 feet represents the distance to the nearest sensitive receptor. The primary sources of man-made vibration are blasting, grading, pavement breaking, and demolition. As shown in Table 3, a jackhammer would generate the highest vibration levels. At a distance of 900 feet, general construction equipment would generate a vibration level of under 63 VdB, which is less than the 80 VdB threshold for infrequent events at residences recommended by FTA. Furthermore, 63 VdB is less than the approximate dividing line between barely perceptible and distinctly perceptible (75 VdB). Impacts would be less than significant.

Table 3 Construction Equipment and Associated Noise

	Approximate VdB	
Equipment	**50 feet**	**900 feet**
Jackhammer	88	63
Generators	81	56
Dozer	82	57

Source: Federal Railroad Administration 2006

Following construction, the site activities would not substantially differ from those that currently occur at the site with the exception that transfer operations would take place inside an enclosed building. Though the project would increase the number of truck trips to and from the facility per day, these additional truck trips would be spread out across the day and would not generate groundborne vibration that would differ substantially from current levels. Thus, operation of the project would not expose people to excessive groundborne vibration or groundborne noise levels. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction of the project could result in the temporary elevation of noise levels at the project site and surrounding areas. Although construction activities may briefly or occasionally serve to elevate ambient noise levels at adjoining land uses, these impacts would generally be limited to the temporary site preparation and grading periods. The City regulates construction activities that occur after the typical work day for uses adjacent to or across a street or right-of-way from a residential use (SLMC Section 4-1-1115). However, the project site is located in an industrial area and is surrounded by industrial uses; therefore, this provision of the SLMC would not apply to the project

Table 4 identifies various construction equipment noise emission levels for different types of construction equipment at distances of 50 and 1,100 feet from the source, since the nearest noise-sensitive receptors to the site of the new Transfer Facility are approximately 1,100 feet away. As shown, at a distance of 1,100 feet, construction noise would be a maximum of approximately 62 dBA. At this level, construction noise would not be substantial compared to ambient noise levels. Therefore, there would not be a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. This impact would be less than significant.

Table 4 Typical Noise Levels at Construction Sites

	Typical Noise Level (dBA 1-hour Leq)	
Equipment	**50 Feet From Source**	**1,000 Feet From Source***
Backhoe	80	53.2
Dozer	85	58.2
Truck	88	61.2
Jack Hammer	88	61.2
Paver	89	62.2

*Sound levels at a distance of 900 feet from source calculated based on a standard noise attenuation of 6 dBA per doubling of distance. This analysis is conservative in that it does not take into account noise attenuation that would occur from intervening barriers such as buildings.

Source: Federal Transit Administration 2006

LESS THAN SIGNIFICANT IMPACT

e. For a project located in 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?

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise?

As discussed in Section 8, *Hazards and Hazardous Materials*, the nearest airport to the site is the Oakland International Airport which is located three miles to the west. Although the project site is located inside the Oakland International Airport Influence Area, the project site is not located inside any of the eight Safety Compatibility Zones (Oakland International Airport 2010). Per the Land Use Compatibility Plan, the project site is located outside of the existing noise level contours for the Airport, and would not subject workers at the site to excessive noise. There would be no impact.

NO IMPACT

13 Population and Housing

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

Existing Setting

The project site is located in an industrial area in the city of San Leandro. There are no residences on or adjacent to the project site.

Impact Analysis

a. Would the project induce substantial 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)?

Implementation of the project would include modifications to the existing industrial land uses, and the construction of a new Transfer Facility. The project does not involve development of new housing or habitable residences. Implementation of the project would not affect residential growth and would not directly add residents to the city of San Leandro.

Current operations for the MRF and Transfer Facility employ 77 staff persons. According to ACI, the proposed project would not result in ACI hiring additional employees. The proposed project is designed to improve operational efficiencies, resulting in handling increased material tonnages over a longer operating period with the same number or fewer employees. Therefore, no substantial growth would be generated from the project, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

There are no residences on or adjacent to the project site. The project would not involve the demolition or displacement of housing. There would be no impact.

NO IMPACT

c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

As discussed above, the project would not demolish or remove any existing housing.

No people would be displaced or indirectly displaced as part of the project. There would be no impact.

NO IMPACT

14 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, or the 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:				
1 Fire protection?	☐	☐	■	☐
2 Police protection?	☐	☐	■	☐
3 Schools?	☐	☐	☐	■
4 Parks?	☐	☐	☐	■
5 Other public facilities?	☐	☐	☐	■

Existing Setting

The project site is served by the Alameda County Fire Department, the San Leandro Police Department, and is located with the San Leandro Unified School District. Additional details are provided in the analyses below.

Impact Analysis

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 fire protection?

Fire protection is provided to the city by the Alameda County Fire Department through a contract for services. The Fire Department provides fire suppression, hazardous materials mitigation, paramedic services, urban search and rescue, fire prevention and public education. Station 12 is the closest station to the project site. Located at 1065 143rd Avenue, this station is located approximately 6 minutes driving time from the project site. This station houses both an engine and a truck company. It is also the home of hazardous materials response vehicles, and the Battalion

Chief for Battalion 1. Station 12 services an area of approximately 2.5 square miles (San Leandro 2016c).

The project includes several operational changes that would increase vehicle trips to and from the site and that would expand the site's acceptance, transfer and processing hours. Because the project expands operations that are already occurring at the site, there is the potential that the risk of fires and accidents could increase. However, operation of the facility currently includes specific health and safety procedures that are intended to minimize the potential for fires and accidents, and these procedures would continue to be implemented with project implementation. The facility also maintains onsite fire suppression equipment. The existing site is currently served by the Alameda County Fire Department, and the project would not provide any new or physically altered government facilities or require the need for new or physically altered government facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 police protection?

The San Leandro Police Department provides law enforcement services in the City of San Leandro. The Department is located at 901 E. 14th Street, which is approximately 8 minutes driving time from the project site. The project site is located in Beat #3, which is served by four sergeants and four beat officers (San Leandro 2016c).

The project includes several operational changes that would increase vehicle trips to and from the site and that would expand the site's acceptance, transfer and processing hours. The project would not increase the demand for police protection services because the type of operations at the site would not substantially change. The existing site is currently served by the San Leandro Police Department, and the project would not provide any new or physically altered government facilities or require the need for new or physically altered government facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 schools?

The project site is located in the San Leandro Unified School District (San Leandro Unified School District 2016). The nearest school to the project site is McKinley Elementary School, which is located approximately a half mile to the northeast. As discussed in Section 13, *Population and Housing*, the project does not include any residential development and would not directly or indirectly add substantial population to the city of San Leandro. Therefore, the project would not generate substantial numbers of new students, thus impacting school resources. There would be no impact.

NO IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 parks?

The San Leandro Recreation and Human Services Department manages the recreational and park uses in the city. The nearest recreational facilities to the project site are located at Burrell Fields, which are located approximately a half mile to the west at the corner of Aladdin Avenue and Teagarden Street. The Burrell Fields include the Pacific Recreation Center and the San Leandro Ball Park (San Leandro 2016a).

As discussed in Section 13, *Population and Housing*, the project would not add substantial population to the city of San Leandro. Therefore, the project would not substantially increase demand for recreational resources. There would be no impact.

NO IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 other public facilities?

As discussed in Section 13, *Population and Housing*, the project would not add substantial population to the city of San Leandro. Therefore, the project would not substantially increase demand for other public facilities and resources. Impacts to stormwater, wastewater, and water facilities are discussed in Section 18, *Utilities and Service Systems.* There would be no impact.

NO IMPACT

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15 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?	☐	☐	☐	■

Existing Setting

The project site is located in a developed industrial area in the city of San Leandro. The nearest recreational facilities to the project site are located at Burrell Fields, which are located approximately ½ mile to the west at the corner of Aladdin Avenue and Teagarden Street. The Burrell Fields include the Pacific Recreation Center and the San Leandro Ball Park. The facilities include a football field and track with stands, three baseball diamonds, six tennis courts, and associated concession stands and parking.

Impact Analysis

a. Would the project 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?

The project does not include any components that would directly result in an increased use of Burrell Fields or other park or recreational facilities in the city of San Leandro. In addition, as discussed in Section 13, *Population and Housing*, the project would not add substantial population to the city which in turn would use recreational facilities. Therefore, the project would not increase the use of parks such that substantial physical deterioration would occur. There would be no impact.

NO IMPACT

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project would not include any recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. As described above, the project would not increase the use of recreational facilities such that substantial physical deterioration would occur. There would be no impact.

NO IMPACT

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16 Transportation/Traffic

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	■	☐
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	■	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	■
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	☐	■
e. Result in inadequate emergency access?	☐	☐	☐	■
f. Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	☐	☐	☐	■

Existing Setting

The analysis in this section is based primarily on the Traffic Impact Study prepared by Kimley Horn Associates in April 2017. The Study titled *Alameda County Industries Transfer Processing Facility* is included as Appendix B of this Initial Study.

Existing Roadway Network

I-880 provides the direct regional access to the project site via an interchange approximately ¼ mile west of Teagarden Street. I-880 currently has four lanes in the northbound and five lanes in the southbound direction with a posted speed limit of 65 miles per hour.

Marina Boulevard is a 2.5 mile arterial roadway providing access to I-880 in the project vicinity in the city of San Leandro. The roadway is a two lane, undivided roadway east of San Leandro Boulevard, a four lane divided roadway from San Leandro Boulevard to Pacific Avenue, a six lane divided roadway from Pacific Avenue to I-880 ramps, a four lane undivided roadway from I-880 ramps to Doolittle Drive, and a two lane undivided roadway from Doolittle Drive to Neptune Drive. The posted speed limit in the project vicinity is 40 miles per hour.

Teagarden Street is a collector roadway connecting Marina Boulevard to Montague Avenue, Aladdin Avenue, and Alvarado Street. The roadway is predominantly two lanes undivided, with on-street parking permitted along some sections. The posted speed limit is 35 miles per hour. Teagarden Street's name changes to Wayne Avenue north of Marina Boulevard.

Alvarado Street is a collector roadway connecting Marina Boulevard to Montague Avenue, Aladdin Avenue, and Teagarden Street. The roadway is predominantly two lanes undivided and the posted speed limit is 40 miles per hour. The proposed project would generate new vehicular trips that would increase traffic volumes on the city's street network. To assess changes in traffic conditions associated with the proposed project, the following intersections were evaluated in the TIS:

- **Teagarden Street – Wayne Street/Marina Boulevard.** This intersection is signalized with marked crosswalks eastbound and westbound on Marina Boulevard and northbound on Teagarden Street. It has one left-turn bay, one shared through and left-turn lane, and one right-turn bay in the northbound direction; one right-turn bay and one shared through and left-turn lane in the southbound direction; one left-turn bay, two through lanes, and one shared through and right-turn lane in the westbound direction; and one left turn bay, three through lanes, and one right turn bay in the eastbound direction.
- **Alvarado Street/Marina Boulevard.** This intersection is signalized with marked crosswalks on all approaches. It has two left-turn bays, one through lane, and one right-turn bay in the northbound direction; two left-turn bays, one through lane, and one shared through and right-turn lane in the southbound direction; one left-turn bay, one through lane, and one shared through and right-turn lane in the westbound direction; and one left turn bay, two through lanes, and one right turn bay in the eastbound direction.

Study intersections were selected based on consultation City staff, proximity to the project site, and proposed project peak hour trips.

In addition, roadway segments were assessed qualitatively. Typically, if intersections operate satisfactorily, segments would also operate satisfactorily. Both intersections were analyzed for weekday AM and PM peak periods, which are the peak periods during which the city road network is busiest.

Weekday intersection turning movement volumes for Teagarden Street/Marina Boulevard and Alvarado Street/Marina Boulevard were collected on Tuesday, February 23, 2016 from 7:00 am to 9:00 am (AM Peak) and from 4:00 pm to 6:00 pm (PM Peak). Weekday 24-hour bi-directional tube counts were collected on February 24, 2016 on Teagarden Street, south of Marina Boulevard and on Alvarado Street, south of Marina Boulevard. These traffic counts were taken during a non-holiday week, a weekday when local schools were in session, and when the weather was fair.

Thresholds of Significance

The City of San Leandro uses the Alameda County Traffic Impact Study Guidelines and endeavors to maintain a target LOS at signalized intersections at LOS D, in compliance with the Alameda County Standards. Therefore, the proposed project would create a significant impact at a signalized intersection if it would cause the LOS levels to drop below LOS D.

Impact Analysis

a. *Would the project conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?*

Project Trip Generation

The project would result in new vehicle trips due to the increased capacity, extended hours, and new materials from third-party haulers accepted at the facility. The existing vehicle trips associated with each facility activity, as well as estimated new vehicle trips are shown in

Table 5.

Table 5 Estimated Vehicle Trips by Activity

Activity	Existing Vehicle Trips Per Day	Estimated Vehicle Trips Per Day
Material Recovery Facility (MRF)	80 truck trips	110 truck trips
	110 MRF trips	164 MRF trips
	190 VTPD	**274 VTPD**
Direct Transfer Facility (Municipal Solid Waste)	36 collection truck trips	36 collection truck trips
	26 transfer truck trips	26 transfer truck trips
	62 VTPD	**62 VTPD**
Direct transfer Facility (Green Waste / Organics)	32 collection truck trips	32 collection truck trips
	10 transfer truck trips	10 transfer truck trips
	42 VTPD	**42 VTPD**
Construction and Demolition (C&D) Debris	8 C&D transfer trailer trips	8 C&D transfer trailer trips
	8 VTPD	8 VTPD
Subtotal	**302 VTPD**	**386 VTPD (Permit Limit)**
Combined 601 and 610 Aladdin Avenue Facilities (Employee/office vehicle trips)	60 VTPD	60 VTPD
Limited Volume Transfer Facility	10 flatbed/roll off trucks	20 flatbed/roll off trucks
	10 VTPD	20 VTPD
Total	**372 VTPD**	**466 VTPD**

Source: Alameda County Industries 2016
VTPD = vehicle trips per day. C&D = construction and demolition

Trip generation for the project was calculated based on data provided by ACI. Because the waste types received at the Facility can vary substantially from day to day, it is not possible to precisely predict how vehicle trips would be distributed between the different activities onsite. However, the distribution identified in the Traffic Impact Analysis is intended to conservatively represent the expected increase in vehicle trips associated with the proposed project, with the understanding that ACI does not propose at any time to exceed their permitted vehicle limit with project implementation.

Project trips under the Material Recovery Facility and Transfer Facility Solid Waste Facility Permit (SWFP No. 01-AA-0290) (accounted for in existing conditions volumes) include 190 Material Recovery Facility (MRF) vehicle trips per day (VTPD), 62 Municipal Solid Waste (MSW) VTPD, 42 Green Waste/Organics (GWO) VTPD, 8 Construction and Demolition (C & D) VTPD, 60 employee/office VTPD, and 10 Limited Volume Transfer Facility (LVTF) VTPD. The existing traffic consists of trucks, flatbeds, trailers, and passenger cars (office employees).

The project proposes to increase MRF VTPD to 274 and LVTF VTPD to 20. The TIS conducted peak hour counts for both AM and PM hours. Table 6 shows project trip generation for peak and off-peak hour trips.

Table 6 Net New Project Trip Generation – Truck Trips

Activity	Trips During AM Peak Hour		Trips During PM Peak Hour		Trips During Off peak Hours	
	Entering	Exiting	Entering	Exiting	Entering	Exiting
Existing						
Material Recovery Facility	2	2	2	2	36	36
	5	5	5	5	45	45
Limited Volume Transfer Facility	1	0	0	1	4	4
Proposed						
Material Recovery Facility	3	3	3	3	49	49
	8	8	8	8	66	66
Limited Volume Transfer Facility	1	1	1	1	8	8
Net New Trips						
Material Recovery Facility	1	1	1	1	13	13
	3	3	3	3	21	21
Limited Volume Transfer Facility	0	1	1	0	4	4
Total New Trips	4	5	5	4	38	38
PCE Net New Trips	12	15	15	12	114	114

Source: Alameda County Industries 2016

As shown in Table 6, the project would result in 9 new AM peak and 9 PM peak hour truck trips. The estimate of AM and PM peak hour traffic was based on the assumption that 10 percent of the total increase in vehicle trips (i.e., 94 trips per day) would occur in the AM peak hour (9 trips) and 10 percent would occur in the PM peak hour (9 trips). Although the 10 percent assumption is common in conducting traffic impact analyses, it represents a conservative assumption when applied to a solid waste facility that typically generates peak vehicle trips in the early morning before the AM peak hour when waste collection vehicles are departing the site or during midday before the PM peak hour when fully-loaded collection vehicles are returning to the site. Site employees also typically arrive before the AM peak hour and depart before the PM peak hour.

The new project trips will be three-axle trucks, therefore a passenger car equivalent (PCE) of 3 was applied to the new trips resulting in an equivalent 27 new AM peak and 27 new PM peak project trips. The use of a passenger-car-equivalent multiplier for truck trips is standard practice in the industry with the multipliers commonly being either 2.0 or 2.5. Therefore, the use of a 3.0 multiplier represents a conservative approach to conducting the traffic analysis.

Existing Plus Project Conditions

Traffic operations were evaluated at the study intersections under existing plus project conditions and traffic generated by the project. Project trips were added to existing volumes and are shown below in Table 7.

Table 7 Existing and Existing Plus Project Level of Service

Intersection	Control Type	Existing Conditions				Existing Plus Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Marina Blvd. / Teagarden St. –Wayne Ave	Signal	30.6	C	32.6	C	30.6	C	32.6	C
Marina Blvd. / Alvarado St.	Signal	41.1	D	36.0	D	42.3	D	36.0	D

Notes: Delay indicated in seconds/vehicle

Source: Traffic Impact Study – Kimley Horn 2017

As shown in Table 7, both intersections operate at LOS D or better during existing conditions and during existing plus project conditions. The added PCE converted vehicle trips along Alvarado Street and Teagarden Street are expected to be less than 2.4 percent of the baseline volumes, and would not noticeable effect segment operations (Kimley Horn 2017). Impacts would be less than significant.

Future (Near Term) Plus Project Conditions

Future (near-term year 2021) plus project conditions were analyzed in the TIS. To assume a near term future baseline for the year 2021, a one percent average annual growth was applied to the existing two-way traffic volumes (Kimley Horn 2017). The project generated vehicle trips were then added to the near term, year 2021 conditions to determine projected LOS and delay. Near term plus project conditions are shown in Table 8.

Table 8 Near Term Plus Project Intersection Level of Service

Intersection	Control Type	Near Term Conditions				Near Term Plus Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Marina Blvd. / Teagarden St. – Wayne Ave	Signal	31.9	C	33.6	C	31.9	C	33.5	C
Marina Blvd. / Alvarado St.	Signal	44.0	D	36.8	D	45.3	D	36.8	D

Notes: Delay Indicated in seconds/vehicle

Source: Traffic Impact Study – Kimley Horn 2017

As shown in Table 8, both intersections would operate at acceptable levels of service (LOS D or better) in the future near term conditions. The added PCE converted vehicle trips along Alvarado Street and Teagarden Street are expected to be less than 2.3 percent of the baseline volumes, and would not noticeable effect segment operations (Kimley Horn 2017). Impacts would be less than significant.

Cumulative (2035) Plus Project Conditions

Traffic operations were evaluated at the study intersections under cumulative traffic conditions in the year 2035. Cumulative conditions in 2035 were based on build out of the City of San Leandro General Plan. Traffic volumes for 2035 were provided by City staff. The cumulative scenario addresses cumulative intersection and roadway operations on the future transportation network,

and assumes intersection and roadway geometries would remain similar to existing conditions. The cumulative plus project vehicle trips are shown in Table 9.

Table 9 Cumulative Plus Project Intersection Level of Service

Intersection	Control Type	Cumulative Conditions				Cumulative Plus Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Marina Blvd. / Teagarden St. – Wayne Ave	Signal	38.6	D	31.5	C	38.7	C	31.6	C
Marina Blvd. / Alvarado St.	Signal	32.5	C	33.0	C	33.2	D	33.1	C

Notes: Delay Indicated in seconds/vehicle

Source: Traffic Impact Study – Kimley Horn 2017

As shown in Table 9, both study intersections would operate at acceptable levels of service (LOS D or better) in the year 2035 with cumulative plus project conditions. The added PCE converted vehicle trips along Alvarado Street and Teagarden Street are expected to be less than 2.2 percent of the baseline volumes, and would not noticeably effect segment operations (Kimley Horn 2017). Impacts would be less than significant.

Based on the conclusions of the traffic impact study included as Appendix C, the project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system during operation. This impact would be less than significant.

Construction Traffic

According to ACI, construction crews are estimated to be between 25 to 30 workers, averaging 5 vehicle trips per day. However, actual vehicle trips would vary depending on construction activity. The demolition, earthwork, concrete and plumbing, electrical, mechanical, and building (PEMB) delivery estimates approximately 20 vehicle trips per day. This incremental increase in traffic levels associated with construction would not generate any significant traffic impacts. Impacts associated with construction would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

As discussed in the response to question (a) above, the increase in vehicle traffic would not interfere with any plans, ordinances, or policies that address performance of the circulation system. During site operations, both of the intersections evaluated in the traffic impact study would operate at acceptable levels of service (LOS D or better) in the existing plus project, near-term (2021) plus project, and cumulative (2035) plus project traffic conditions. Therefore, the temporary increase in vehicle traffic during construction and the increase in operational traffic volumes would not conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

As discussed in Section 8, *Hazards and Hazardous Materials*, and Section 12, *Noise*, the nearest airport to the site is the Oakland International Airport which is located three miles to the west. Although the project site is located inside the Oakland International Airport Influence Area, the project site is not located inside any of the eight Safety Compatibility Zones (Oakland International Airport 2010).The project would have no influence on air traffic patterns, and would not be affected by potential air traffic safety risks.

NO IMPACT

d. Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

The project would not include hazardous design features, such as sharp curves or dangerous intersections, or create hazardous conditions by introducing incompatible uses. Project implementation would occur on the existing parcels, and would not alter or effect existing street and intersection networks. There is no impact.

NO IMPACT

e. Would the project result in inadequate emergency access?

The project site is directly accessible via Aladdin Avenue, and is located at the end of a cul-de-sac. Project implementation would not change access points to either 610 or 601 Aladdin Avenue. Two emergency access points are currently provided onto Aladdin Avenue for the 610 Aladdin Avenue site, and a large driveway provides direct emergency vehicle access to the 601 Aladdin Avenue site. No changes implemented by the project would result in inadequate emergency access, and there would be no impact.

NO IMPACT

f. Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?

The San Leandro BART station is located approximately one mile north of the project site. A public bus stop is located approximately one mile away at the Williams Street intersection and serves AC-Transit State Route (SR) 75. Additional AC-Transit bus stops are located along Williams Street SR 75) and Washington Avenue (SR 85) near the project site. Construction and implementation of the project would be located directly on site, and would have no impact on existing public transit facilities, and would not decrease performance or safety.

The project is located near both Class II and Class III bicycle facilities. Class II facilities include striped bike lanes along Aladdin Avenue from Alvarado Street to Teagarden Street and on Teagarden Street from Aladdin Avenue to Alvarado Street. Class III facilities are bike routes denoted by signs that are shared with vehicles along the roadway, and are located on Aladdin Avenue west of Teagarden Street and on Alvarado Street south of Teagarden Street. The project would have no impact on these existing bicycle facilities and would not decrease performance or safety.

Existing pedestrian facilities in the study area include sidewalks along both sides of Marina Boulevard, Alvarado Street, Teagarden, Montague Avenue, and Aladdin Avenue in the project

vicinity. The project would have no impact on existing pedestrian facilities, and would not decrease performance or safety.

The Traffic Impact Study concluded that the project would not affect the transit, bicycle, and pedestrian network, and would not result in significant impacts related to mobility in the study area (Kimley Horn 2017).

NO IMPACT

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17 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a 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:				
a. 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), or	☐	■	☐	☐
b. 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 Cod Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American tribe.	☐	■	☐	☐

Existing Setting

Tribal cultural resources are defined under Public Resources Code, Section 21084(a)(1) as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following: 1) included or determined to be eligible for inclusion in the California Register of Historic Resources (CRHR); or 2) included in a local register of historical resources. Tribal cultural resources are also resources determined by the lead agency (i.e., City of San Leandro), in its discretion and supported by substantial evidence, to be significant. In making this determination, the lead agency is required to consider the significance of the resource to a California Native American tribe.

The CRHR includes resources listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP). Pursuant to Public Resources Code, Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of an historic resource (California Code of Regulations, Title 14, 15064.5).

The project site contains industrial buildings typical of the late twentieth century. ACI, along with an affiliated hauling company, San Leandro Disposal, has operated a recyclables collection, processing,

and transfer operation at the 610 Alameda Avenue parcel since 1995. The 601 Alameda Avenue site contains a warehouse and associated parking. Both parcels are paved or covered with existing buildings with the exception of a dirt lot located along the western side of the 610 Alameda Avenue parcel. This dirt lot has historically been used for equipment storage and it has been extensively disturbed. No evidence of historic buildings, sites, structures or objects is present on the project site or in the project vicinity (Douglas Environmental 2017).

Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is 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).

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is 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 Cod Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American tribe.

The City prepared and mailed letters in accordance with AB 52 on June 12, 2017. No tribes inquired about or provided comments on the project. The 610 Aladdin Avenue parcel has operated as a recyclables collection, processing, and transfer operation since 1995 and typical warehouse activities occur at the 601 Aladdin Avenue parcel. As discussed in Section 5, *Cultural Resources*, neither parcel contains historic resources. Historic resources that may have been previously located on the site have likely been destroyed by the original development of the site's industrial uses. In addition, based on the prior disturbance of the site, no tribal cultural resources are expected to be present on the site. The construction of the Transfer Facility building would only disturb approximately half acre in a developed industrial site. Due to the prior disturbance of the site and the small footprint of excavation, the proposed project would not be expected to cause a substantial adverse change in the significance of a tribal cultural resource.

Nonetheless, the proposed excavation associated with the Transfer Facility site could potentially result in adverse effects on unanticipated tribal cultural resources. Impacts from the unanticipated discovery of tribal cultural resources during construction would be less than significant with mitigation incorporated.

Mitigation Measure

TCR-1 **Unanticipated Discovery of Tribal Cultural Resources.** In the event that cultural resources of Native American origin are identified during construction, the applicant shall notify the City and the City shall consult with a qualified archaeologist and begin or continue Native American consultation procedures. If the City determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with Native American groups. If the resource cannot be avoided, additional measures to avoid or reduce impacts to the resource and to address tribal concerns may be required.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

18 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	■	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	■	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	■	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	■	☐
e. 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?	☐	☐	■	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	■	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	■	☐

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

b. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

e. Would the project 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?

Wastewater collection and treatment for the project site is provided by the City of San Leandro Wastewater Treatment Division. The City of San Leandro provides operation and maintenance of the San Leandro Water Pollution Control Plant (SLWPCP), which serves about 55,000 residents, as well as businesses, in the northern two-thirds of San Leandro. The SLWPCP treatment plant is permitted by the RWQCB to provide secondary treatment of up to 7.6 million gallons per day (mgd) average daily dry water flow (ADWF). In 2010, the actual ADWF from the Plant was 4.9 mgd. Thus, the SLWPCP had 2.7 mgd of unused permitted dry weather flow capacity in 2010. The San Francisco RWCQB established wastewater treatment requirements for the SLWPCP in an NPDES Permit (Order No. R2-2012-0004), adopted in 2012 (City of San Leandro 2016c).

Based on EBMUD billing information provided by ACI, from May 2016 through March 2017, the Transfer Facility used 279,000 gallons (both water and sewer), or approximately 920 gallons per day. The proposed new Transfer Facility has no additional restrooms, no additional water consumption processes, and would not use/generate any measurable additional water or wastewater. Therefore, operation of the new Transfer Facility building would not substantially increase water use or wastewater generation.

As mentioned above, the proposed project involves improved but no additional employee break room and restroom facilities. Restrooms involve low-flow fixtures in accordance with CBC requirements. Therefore, any minor increase in the number of employees at the facility that may occur with the project would not result in a substantial increase in wastewater generation. The proposed project involves an increase in the amount of permitted tonnage of recyclable materials received at the MRF. The MRF receives, separates, and prepares materials for transfer to recycling facilities. This process is not water-intensive and therefore does not generate substantial amounts of wastewater. Any increase in the amount of materials processed at the facility would not substantially increase the amount of wastewater generated onsite.

The SLWPCP has approximately 2.7 mgd of unused permitted capacity. The proposed project would not substantially increase wastewater generate beyond existing conditions. Therefore, the proposed project would not exceed wastewater treatment requirements of the RWQCB, result in the need for new or expanded wastewater facilities, or be served by a treatment provider with inadequate capacity. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The facility is almost entirely paved with either concrete or asphalt concrete and graded to facilitate drainage and prevent ponding. Runoff from the site drains into seven catch basins located near the office, maintenance facility, recycling facility and transfer facility. The water flow from the storm drains collects in two separate underground vaults, from where it is pumped into a stormwater clarifier and filtration system, located in a former bay of the direct transfer truck pit. From the filtration system, the treated water flows into the municipal storm drain system by emptying into a storm drain located under Aladdin Avenue. The municipal storm drain system is maintained by the Alameda County Public Works Agency (Edgar & Associates 2015).

The construction of the Transfer Facility building may require some modest changes to the 610 Aladdin Avenue parcel's stormwater collection system to accommodate the building's new foundation. However, no changes in the collection system's capacity or overall function are proposed. The existing transfer facility location is entirely paved and the proposed project would not change this condition. The proposed project would not substantially increase stormwater runoff from the project site such that new or expanded stormwater drainage facilities would be required. This impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Municipal water is provided to the project site by the EBMUD. Water is used at the facility for dust suppression and cleaning, and for sanitary purposes. The construction of the new Transfer Facility building and increase in waste accepted at the facility would slightly increase the demand for water for dust suppression and sanitary purposes. The anticipated increase in demand would represent a negligible effect on EBMUD's available water supplies. For this reason, sufficient water supplies would be available to serve the project from existing entitlements and resources and new or expanded water entitlements would not be necessary. This impact is less than significant.

LESS THAN SIGNIFICANT IMPACT

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The project would involve the construction of a new Transfer Facility building on the 610 Aladdin Avenue parcel and operational changes at both parcels. Construction activities would generate some construction and demolition debris. However, due to the relatively small size of the proposed building footprint, the generated C&D debris would have a negligible effect on available landfill disposal capacity in the region.

The purpose of ACI's operations is to collect, process, and transfer waste for recycling or disposal at area landfills. Increasing the tonnage of waste accepted at the site would not represent an increase in the total waste stream, but rather, a shift in the waste processing location. The proposed project is intended to improve on-site operations, increase efficiencies, and increase the amount of recyclable materials processed at the MRF. The proposed pre-processing of food waste on-site is intended to increase the volume of food waste diverted from the landfill. Therefore, overall, the proposed project may reduce the amount of solid waste send to area landfills.

The project is designed to be consistent with and to implement federal and state solid waste regulations. The operational changes associated with the project would require revisions to the MRF and Transfer Facility Solid Waste Facility Permit (SWFP No. 01-AA-0290) administered by CalRecycle. With approval of permit revisions, the proposed project would be consistent with state regulations that govern the solid waste transfer facility. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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19 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, 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. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	■	☐	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	■	☐	☐

a. Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, 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?

Based on the information and analysis provided in the questions above, implementation of the project would not substantially degrade the quality of the environment and would not 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, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of California history or prehistory. Cultural resources, which illustrate examples of California history and prehistory, have been discussed in Section 5, *Cultural Resources*. Tribal cultural resources are discussed in Section 17, *Tribal Cultural Resources.* Mitigation measures CR-1 through CR-3 and Mitigation Measure TCR-1 have been designed to reduce potential impacts of disturbing

archaeological, paleontological, or tribal cultural resources, as well as human remains. Biological resources are addressed in Section IV, *Biological Resources.* With Mitigation Measure BIO-1 related to nesting birds, the project would not substantially reduce wildlife habitat or population. Based on the ability of the identified mitigation measures to reduce potential impacts to less-than-significant levels, the project's impacts would be considered less than significant with mitigation incorporated.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Implementation of the project would result in less-than-significant environmental impacts with implementation of the identified mitigation measures. The impacts associated with the project are anticipated to be localized at the project site and would not be expected to combine with other projects to cause cumulatively considerable environmental impacts. Given the limited impacts anticipated with project implementation, the project would not be expected to cause cumulatively considerable impacts. This impact is less than significant with mitigation incorporated.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Effects to human beings are generally associated with air quality, noise, traffic safety, and hazards. As discussed in this Initial Study, implementation of the project would result in less-than-significant environmental impacts with respect to air quality, noise, traffic, and hazards and hazardous materials. The geotechnical recommendations and mitigation measure discussed in Section 6, *Geology and Soils*, would ensure that soils and grounds are stable, and that liquefaction risks are less than significant. Mitigation Measure GEO-1 would reduce health and safety risks to human beings, and would result in less than significant impacts. The project would not cause substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant with mitigation.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

References

Bibliography

ACI. "Welcome to Alameda County Industries" webpage. Available: http://www.alamedacountyindustries.com/. Accessed April 2017.

Bay Area Air Quality Management District (BAAQMD). 2017a. Spare the Air – Cool the Climate A Blueprint for Clean Air and Climate Protection in the Bay Area. Final 2017 Clean Air Plan. – Volume I. April 2017.

--------. 2017b. California Environmental Quality Act Air Quality Guidelines. May 2017. http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

California Environmental Protection Agency (CalEPA). 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. March 2006

California Resources Agency. 2012 Alameda County Important Farmland 2012 Map. ftp://ftp.consrv.ca.gov/pub/dlrp/ FMMP/pdf/2012/ala12.pdf, accessed on April 10, 2017.

California Department of Forestry and Fire Protection, Land Cover Map 2006, http://frap.fire.ca.gov/data/ frapgismaps/pdfs/fvegwhr13b_map.pdf, accessed on April 10, 2017.

California Geological Survey. 2003. Earthquake Zones of Required Investigation- San Leandro Quadrangle. Available: http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/SAN_LEANDRO_EZRIM.pdf

Department of Toxic Substances Control (DTSC), EnviroStor Database. 2016. Accessible at: http://www.envirostor.dtsc.ca.gov/public/

Department of Transportation. 2011. State of California Scenic Highways. Accessible at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm

Douglas Environmental. January 2017. Alameda County Industries, Inc. Material Recovery Facility and Transfer Facility Project –Draft Initial Study Mitigated Negative Declaration.

Edgar & Associates. 2015. Transfer/Processing Report, Alameda County Industries Transfer/Processing, San Leandro, California. Prepared for Alameda County Industries, LLC. January 2015.

Federal Highway Administration. 2006. FHWA Highway Construction Noise Handbook. (FHWAHEP-06-015; DOT-VNTSC-FHWA-06-02). Available at: http://www.fhwa.dot.gov/environment/construction_noise/handbook.

Federal Transit Administration. 2016. Transit Noise and Vibration Impact Assessment. Office of Planning and Environment. May 2006.

HDR Engineering. 2007. *Sacramento Recycling and transfer Station – North*. Prepared for City of Sacramento, Department of Utilities, Solid Waste Services.

Intergovernmental Panel on Climate Change (IPCC), 2007: Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

--------. 2014. Summary for Policymakers. In: Climate Change 2014, Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Kimley Horn Associates. 2017. Alameda County Industries Transfer Processing Facility. April 2017

Oakland International Airport. 2010. Land Use Compatibility Plan. Oakland, CA. December 2010. https://www.acgov.org/cda/planning/generalplans/documents/OAKCh3_Oakland_International_Airport_Policies.pdf

San Leandro, City of. 2009. Climate Action Plan – A Vision for a Sustainable San Leandro. http://www.sanleandro.org/civicax/filebank/blobdload.aspx?blobid=4904

--------. 2015. City of San Leandro – 2015 Local Hazard Mitigation Plan. https://www.sanleandro.org/civicax/filebank/blobdload.aspx?BlobID=25274

--------. 2016a. City of San Leandro 2035 General Plan. http://www.sanleandro.org/depts/cd/plan/genplan/default.asp

--------. 2016b. San Leandro Zoning Map. http://www.sanleandro.org/documents/Planning/San%20Leandro%20Zoning%20Map%20Effective%2011-3-2016.pdf

--------. 2016c. General Plan Update Environmental Impact Report for the City of San Leandro. Public Review Draft EIR, Volume 1. http://www.sanleandro.org/depts/cd/plan/genplan/

San Leandro Unified School District. 2016. San Leandro Unified School District website. http://www.sanleandro.k12.ca.us/ (accessed April 12, 2017).

United States Fish and Wildlife Service. 2016. National Wetlands Inventory. https://www.fws.gov/wetlands/Data/Mapper.html

United States Geological Survey (USGS). 1993. San Leandro Quadrangle California 7.5-Minute Topographic Map, Scale 1:24,000

--------. 2000. Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California, R. W. Graymer, Miscellaneous Field Studies MF-2342, scale 1:50,000

--------. 2012. Hayward Quadrangle California 7.5-Minute Topographic Map, Scale 1:24,000

Vestra Resources, Inc. 2015. Storm Water Pollution Prevention Plan (SWPPP) 2015 Update. Alameda County Industries WDID No. 2 01I015900. April 2015

Working Group on California Earthquake Probabilities (WGCEP). 2008. The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2): 2007 â€“ 2036. U. S. Geological Survey Open File Report 2007-1437.

List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the City of San Leandro. Anjana Mepani is the project planner from the City of San Leandro. Persons involved in data gathering analysis, project management, and quality control include the following.

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Abe Leider, AICP CEP, Principal in Charge
Karly Kaufman, MESM, Project Manager
Nik Kilpelainen, Associate Planner

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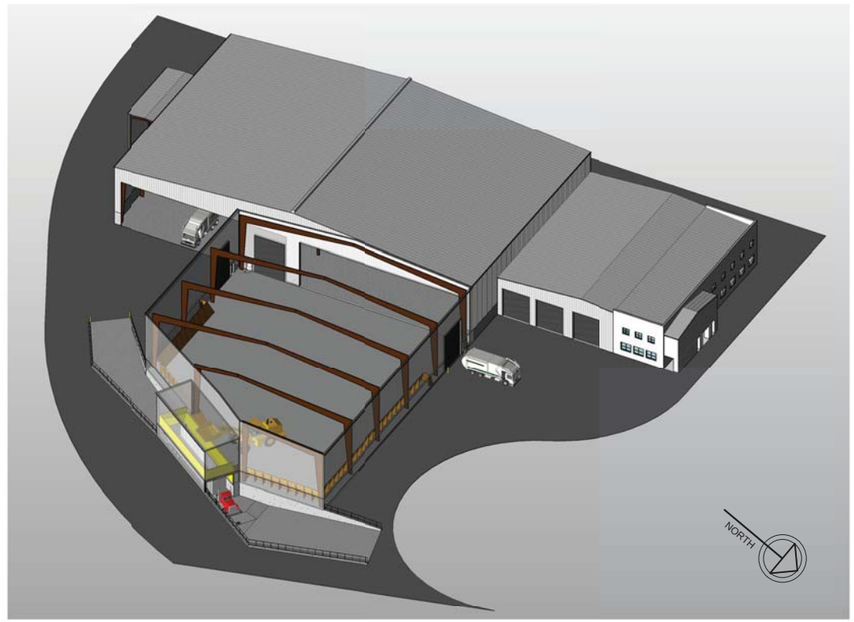
Appendix A

Project Site Plans and Elevations



High East Isometric

Existing Facility Entrance

The proposed transfer station expansion will be constructed in the same style, with the same color scheme, as the photos shown.

Review Comments
(With Key to Drawing Revisions)

Alameda County Fire Department Review Comments
The fire department access road is shown as 20 feet wide. As the building is over 30 feet in height the fire department access road is required to meet the requirements of Sections D105.1 and D105.3 for aerial fire apparatus. Clearly show how access road complies.

Fire Access Layout: See new sheet 1.3

The water supply shall be capable of providing the greater of:
a. The automatic sprinkler system demand, including hose stream allowance.
b. The required fire-flow which is 1,500 gpm at 20psi for 2 hours.

Fire Sprinkler and Fire Flow: See text at left edge of new sheet 1.3.

Building and Safety Services Division Review Comments
1. Square footage shown on Building Area Calculations does not match Site Plan Square Footage. Please clarify.

Square Footage: See revised sheets 1.1 and 1.2. Revised plan square footage on site plans to agree with tabular data. Areas are conservatively measured for these calculations. Exact final areas will provided with permit submittal documents and are pending detailed survey of existing conditions.

2. Please verify that Vertical Continuity of Fire Wall meet the intent of the CBC Sec. 706.6.

Fire Wall Continuity: See new note on detail B of revised sheet B2 noting fire wall extends 36" above existing roof.

Planning Services Division Review Comments
1. Please provide additional information on the following:
a. Provide Lot Coverage calculation for 610 Aladdin Avenue

Lot Coverage: see revised sheet 1.2 with new project data table

b. Provide Floor Area Ratio (F.A.R.) calculation for 610 Aladdin Avenue

FAR: see revised sheet 1.2 with new project data table

c. Provide setback dimensions for the proposed transfer station addition building at 610 Aladdin Avenue in the plans and in a table.

Setback Dimensions: see revised sheet 1.2 with setback dimensions added and table of setbacks in top left corner of sheet.

d. Provide the proposed roof height for the top of proposed transfer station addition building on the elevations

Roof Height: see revised sheet 3.0 with roof peak elevation

e. Provide a color rendering for the proposed transfer station addition building

Rendering: see revised cover sheet 0.1 with photographs of existing facility and statement that "The proposed transfer station expansion will be constructed in the same style, with the same color scheme, as the photos shown."

Drawing List

Structural Narrative

This project will incorporate a structural design that does not increase the seismic force in any existing structural member by more than 10 percent cumulative since the original construction and does not decrease the the design strength of any existing structural element more than 5 percent cumulative since the original construction.

Additions will be structurally independent of the existing structure.

ACCURACY NOTE: THIS BUILDING PLAN IS FOR CONCEPTUAL USE ONLY. DO NOT USE FOR DESIGN, PERMITTING, OR CONSTRUCTION.

PLANS OF EXISTING BUILDINGS ARE SCHEMATIC ONLY AND DO NOT SHOW ALL INTERIOR WALLS OR DOORS OR EXACT DIMENSIONS!

ALAMEDA COUNTY INDUSTRIES

ET environmental
Vision • Solutions • Value™

ALAMEDA COUNTY INDUSTRIES Transfer Station Addition

610 Aladdin Avenue, San Leandro, CA 94577

Conceptual Plans Only - Not for Design, Permitting, or Construction

Revision Number	Description	Date
K	Rev. K	5-31-2017
L	Rev. L	6-26-2017

Project # 02-ET1491

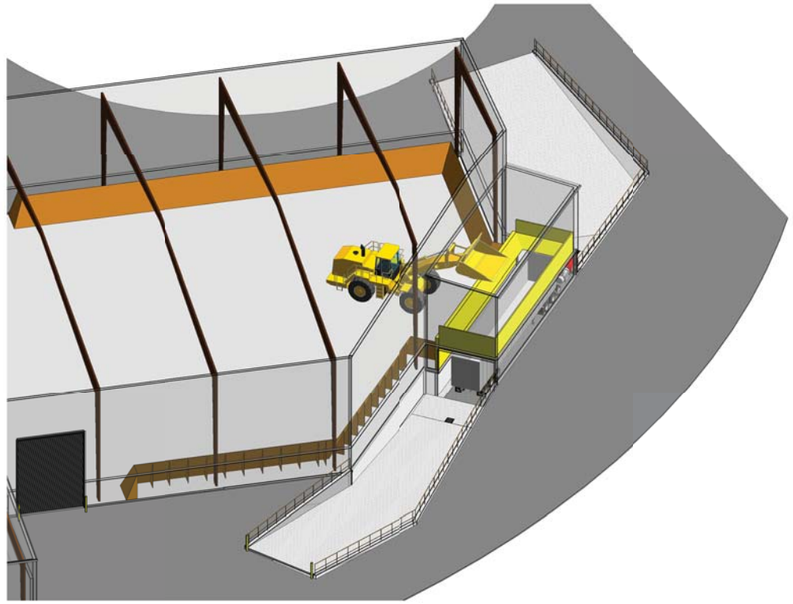
WORKING DRAFT - L

6-26-2017

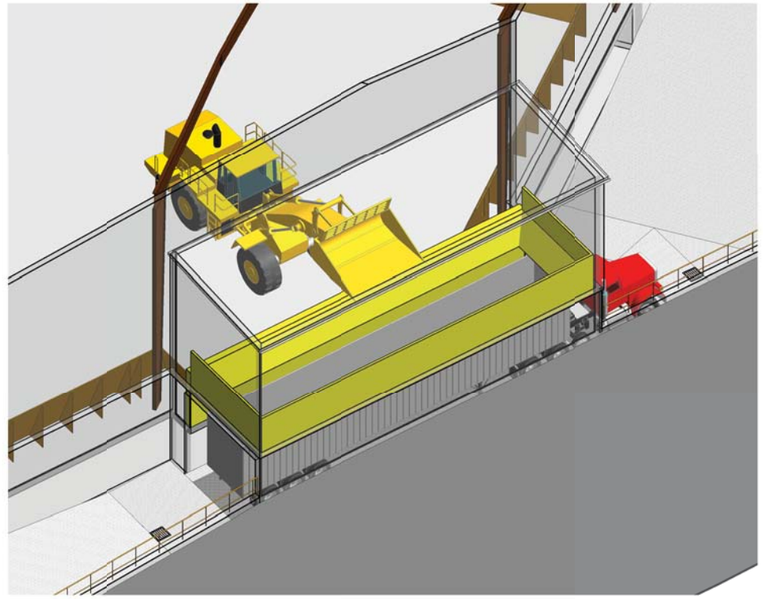
SHEET NUMBER
0.1
Cover Sheet

ORIGINAL SHEET SIZE 22" X 34"

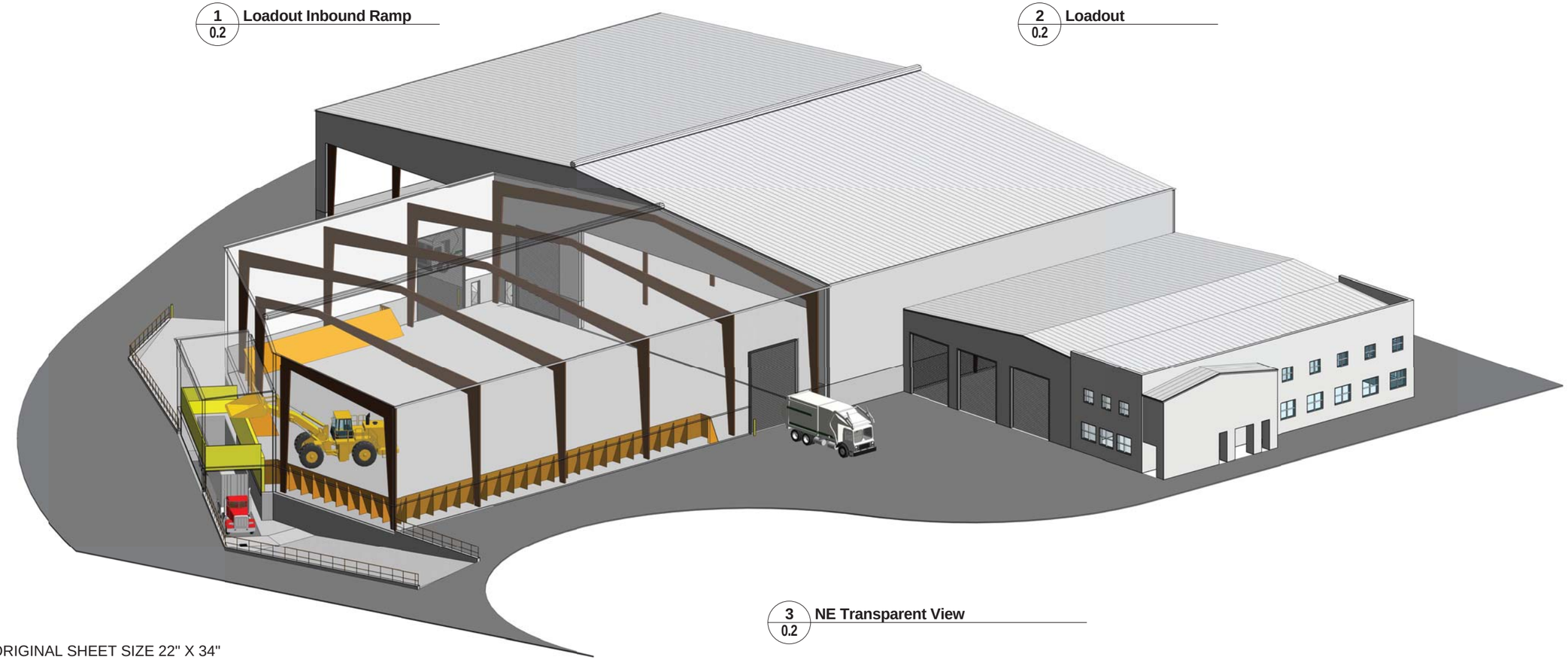
PROJECT # 02-ET1491



1 / 0.2 **Loadout Inbound Ramp**



2 / 0.2 **Loadout**



3 / 0.2 **NE Transparent View**

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ALAMEDA COUNTY INDUSTRIES Transfer Station Addition

610 Aladdin Avenue, San Leandro, CA 94577

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L	Rev. L	6-26-2017

Project # 02-ET1491

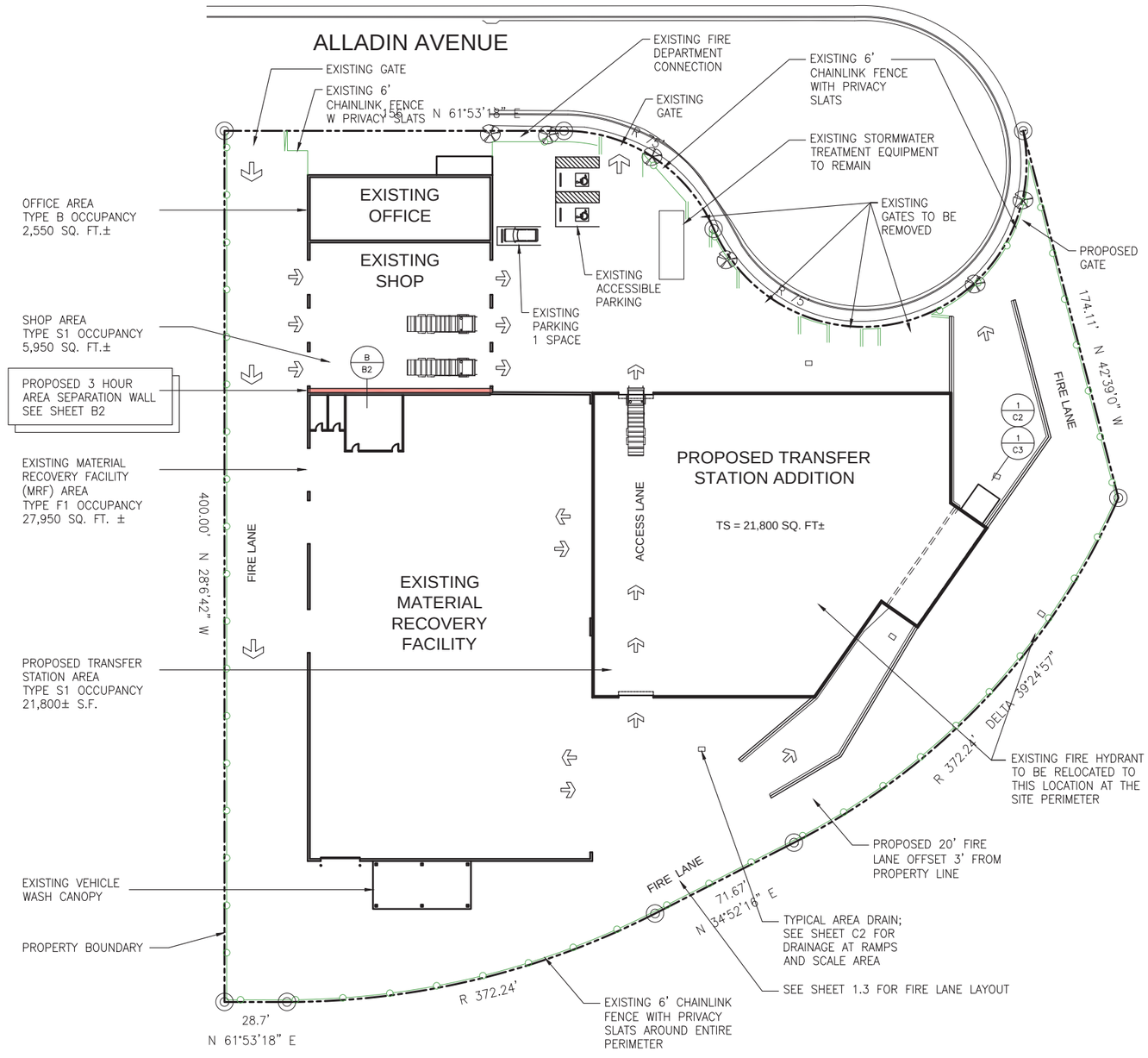
WORKING DRAFT - L

6-26-2017

SHEET NUMBER

0.2

Perspectives



ORIGINAL SHEET SIZE 22" X 34"

CODE AREA AND FENCE PLAN

1" = 30'

BUILDING AREA CALCULATIONS FOR PROPOSED TRANSFER STATION ADDITION

Fire Sprinklers: Existing Office, Shop, and Material Recovery Facility (MRF) have fire sprinklers. Proposed Transfer Station to have fire sprinklers. Existing Risers in NE Corner of Maintenance Shop, and exterior NE corner of Existing Transfer Station. Existing FDC on Alladin Ave.

Existing Construction:

Office:	Type IIIB and B Occupancy, 2,550 sf x 2 stories
Maintenance Shop:	Type IIIB and S1 Occupancy, 5,950 sf x 1 story
Mat. Recov. Facility	Type IIIB and F1 Occupancy, 27,950 sf x 1 story

Proposed:

Transfer Station	Type IIIB and F1 Occupancy, 21,800 sf x 1 story

PART 4C-1 Existing ALAMEDA COUNTY INDUSTRIES Transfer Station:
Building Area Calculation w/ FIRE WALL between Existing Maintainence shop and F1 area
Construction Type: IIIB

B 2,550
S1: 5,950
F1: 27,950
(N) S1: 21,800

Frontage Increase calculation: I(f) = (F/P- 25)W/30
P= 1019 F= 934 W= 30
(F/P - 0.25) = 0.67 W/30 = 1 = I(f) = 0.67

Type IIIB S1 occ base allowable	increase for frontage - If = 0.67 X 0.67		increase for sprinklers one story X 3	Allowable w/ increases	Actual Area
17500 +	11725	+	52500	81725 (S1)	21800 (s1)
Type IIIB F1 occ base allowable	increase for frontage - If = 0.67 X 0.67		increase for sprinklers one story X 3		
12000 +	8040	+	36000	56040 (F1)	27950 (f1)
Type IIIB B occupancy base allowable	increase for frontage - If = 0.67 X 0.67		increase for sprinklers two story X 2		
19000 +	12730	+	38000	69730 (B)	0 (b)
					49750 Total Actual Area

Mixed use occupancy area calculation-Existing Building accounting for New proposed Addition

s1/S1 +	f1/F1	+	b/B	=	<1
0.267	0.499	+	0.000	=	0.77 <1 Therefore: O.K.

PART 4C-2 Existing ALAMEDA COUNTY INDUSTRIES Transfer Station:
Building Area Calculation w/ FIRE WALL between Existing Maintainence shop and F1 area
Construction Type: IIIB

B 2,550
S1: 5,950
F1: 27,950
(N) S1: 21,800

Frontage Increase calculation: I(f) = (F/P- 25)W/30
P= 370 F= 285 W= 30
(F/P - 0.25) = 0.52 W/30 = 1 = I(f) = 0.52

Type IIIB S1 occ base allowable	increase for frontage - If = 0.52 X 0.52		increase for sprinklers two story X 2	Allowable w/ increases	Actual Area
17500 +	9100	+	35000	61600 (S1)	5950 (s1)
Type IIIB F1 occ base allowable	increase for frontage - If = 0.52 X 0.52		increase for sprinklers two story X 2		
12000 +	6240	+	24000	42240 (F1)	0 (f1)
Type IIIB B occupancy base allowable	increase for frontage - If = 0.52 X 0.52		increase for sprinklers two story X 2		
19000 +	9880	+	38000	66880 (B)	2550 (b)
					8500 Total Actual Area

Mixed use occupancy area calculation-Existing Building accounting for New proposed Addition

s1/S1 +	f1/F1	+	b/B	=	<1
0.097	0.000	+	0.038	=	0.13 <1 Therefore: O.K.

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L	Rev. L	6-26-2017

Project # 02-ET1491

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1.1

SITE PLAN

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AREA CALCULATIONS

LOT AREA: 123,046 SF (2.82 AC)

(E) BUILDING FOOTPRINT: 36,450 SF

(E) BUILDING FLOOR AREA: 39,000 SF

(P) BUILDING FOOTPRINT: 21,800 SF

(P) BUILDING FLOOR AREA: 21,800 SF

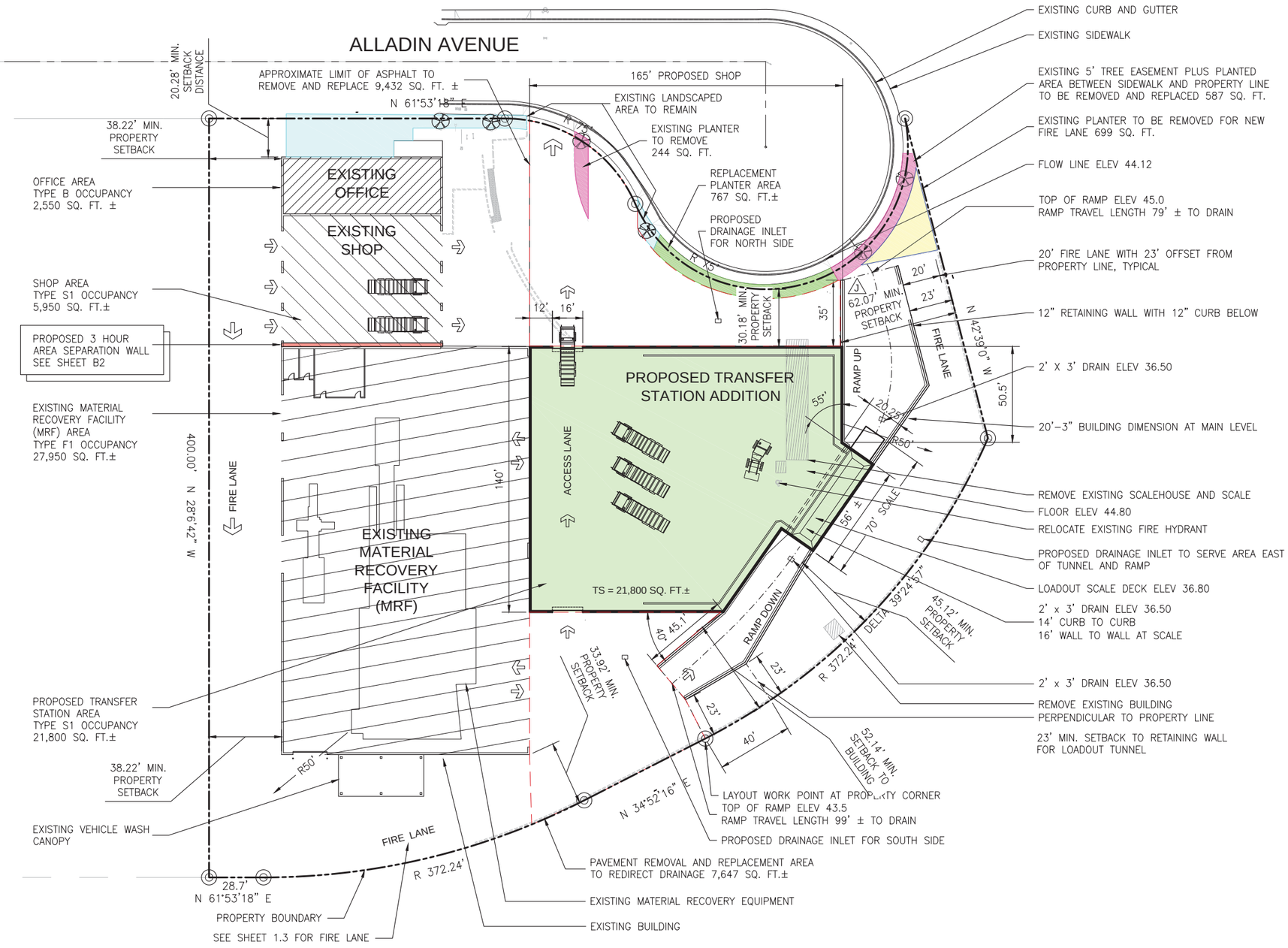
TOTAL PROPOSED BUILDING FOOTPRINT: 58,250 SF

TOTAL PROPOSED BUILDING FLOOR AREA: 60,800 SF

FLOOR AREA RATIO: 0.49:1

LOT COVERAGE: 47.34%

SETBACKS	
LOCATION	SETBACK
NORTHWEST AT OFFICE TO ALADDIN AVE.	20.28
NORTHWEST AT CULDESAC	30.18'
EAST AT BUILDING LOADOUT AREA	45.12'
EAST AT LOADOUT RETAINING WALL (NO BUILDING WALLS HERE)	23.0'
EAST AT EXISTING MRF CORNER	33.92'
SOUTHWEST (AT LEFT FIRE LANE)	38.22'



1" = 30'

0 15' 30' 60' 90'

ORIGINAL SHEET SIZE 22" X 34"

SITE PLAN - DETAILED

1" = 30'

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Project # 02-ET1491

WORKING DRAFT - L

6-26-2017

SHEET NUMBER

1.2

SITE PLAN DETAILED

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Required Fire Flow Calculations

5/31/2017 - NEW SHEET 1.3

The water supply shall be capable of providing the greater of:

a) The automatic sprinkler system demand, including hose stream allowance
b) The required fire-flow which is 1,500 gpm at 20 psi for 2 hours

The proposed new Transfer Station Addition building will be sprinklered throughout with an automatic sprinkler system which should be designed to the same occupancy classification as the existing building which is Extra Hazard Group I (0.30 gpm/sqft Over 2500 sqft.)

The resulting anticipated automatic sprinkler system demand for this system is 750 gpm discharging from the sprinkler system plus a 500 gpm hose stream allowance per NFPA-13-2016 requirements for a
total automatic sprinkler demand of 1250 gpm.

The Required Fire Flow per city comments and CFC is **1,500 gpm at 20 psi for 2 hours.**

The required fire flow is greater than the projected automatic sprinkler system demand and thus the fire flow is the controlling demand the water supply must be able to provide.

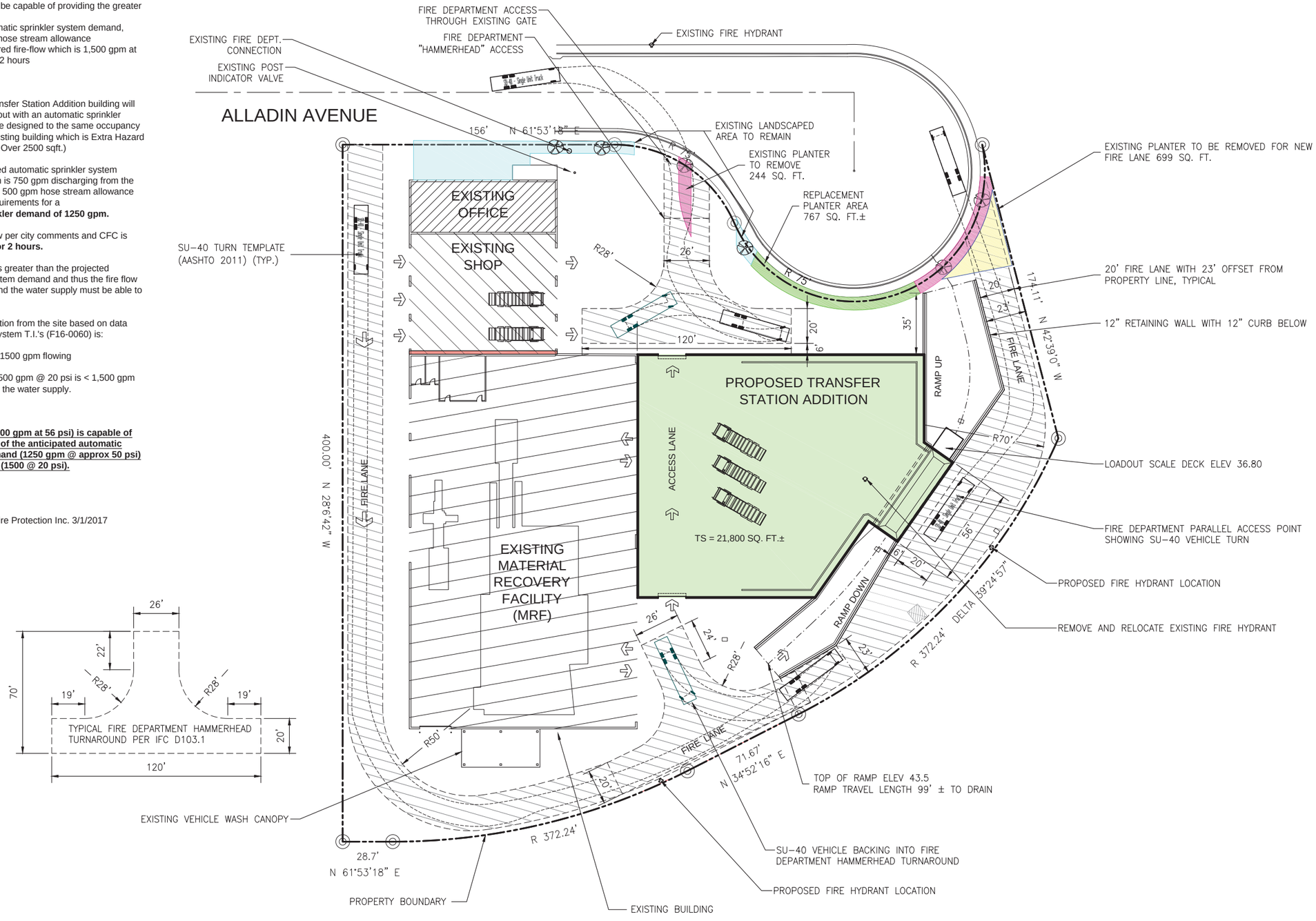
The water flow information from the site based on data from recent sprinkler system T.I.'s (F16-0060) is:
57 PSI Static
56 PSI Residual @ 1500 gpm flowing

Required fire flow of 1,500 gpm @ 20 psi is < 1,500 gpm @56 psi available from the water supply.

Thus, the results are:

The water supply (1,500 gpm at 56 psi) is capable of providing the greater of the anticipated automatic sprinkler system demand (1250 gpm @ approx 50 psi) and fire flow demand (1500 @ 20 psi).

reference: Walschon Fire Protection Inc. 3/1/2017



1" = 30'
0 15' 30' 60' 90'

ORIGINAL SHEET SIZE 22" X 34"

FIRE DEPARTMENT ACCESS AND COMPLIANCE LAYOUT

1" = 30'

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Project # 02-ET1491

WORKING DRAFT - L
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SHEET NUMBER
1.3
FIRE DEPT. LAYOUT

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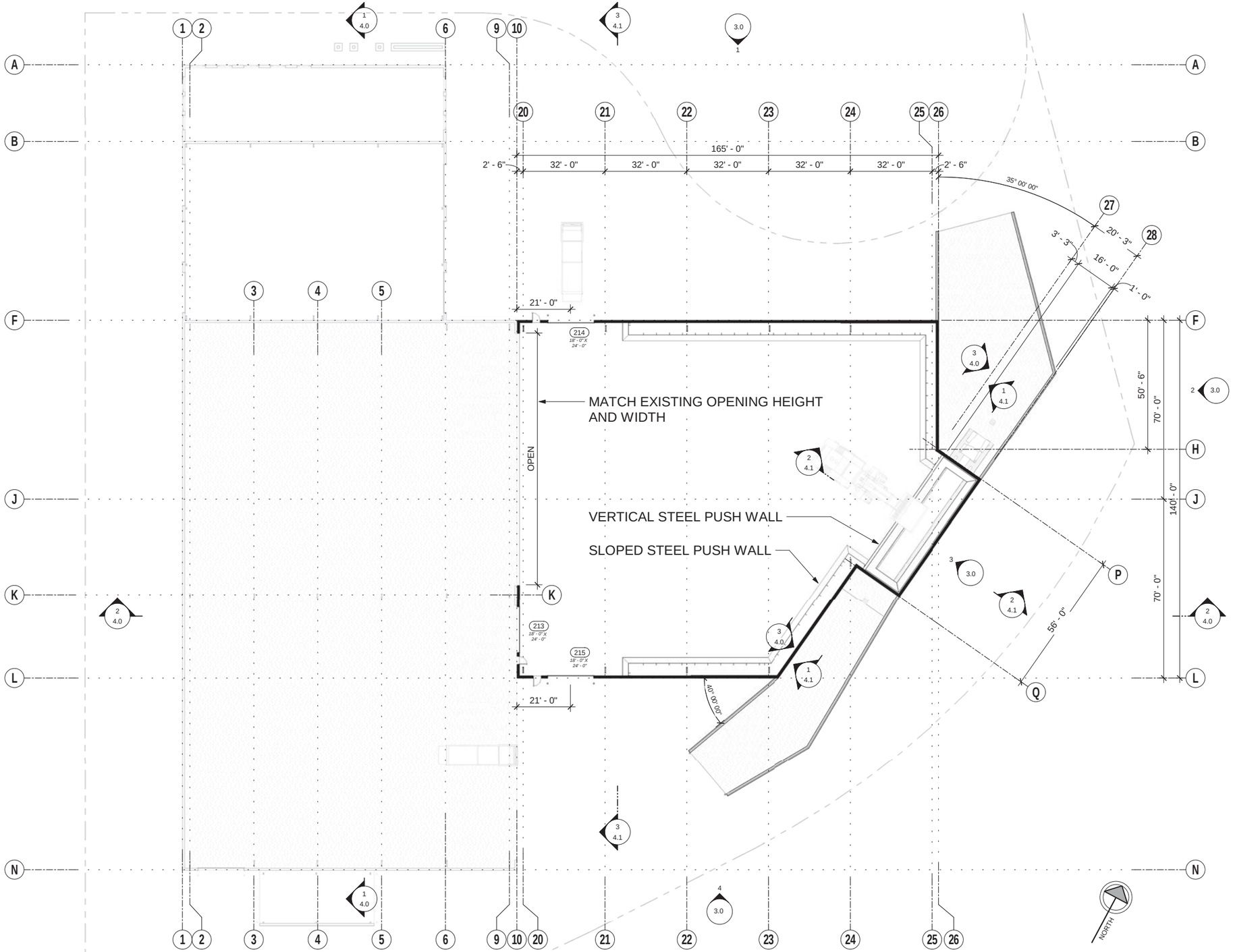

1 / 2.0 Proposed Main Level Plan
1" = 20'-0"

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L	Rev. L	6-26-2017

Project # 02-ET1491

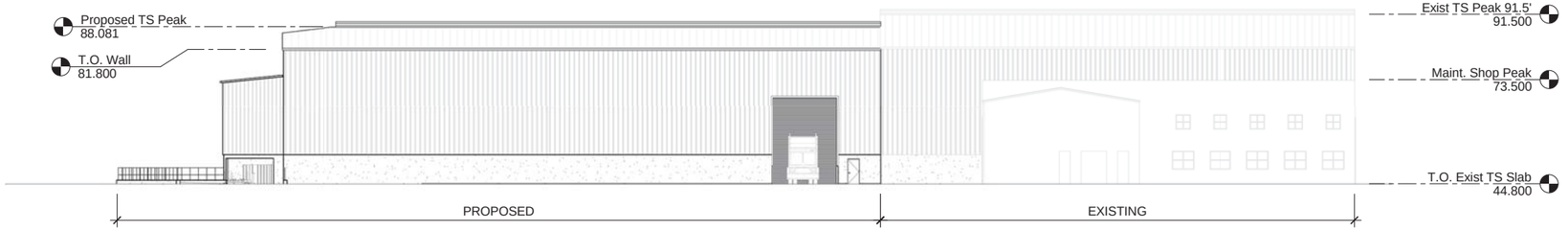
WORKING DRAFT - L

6-26-2017

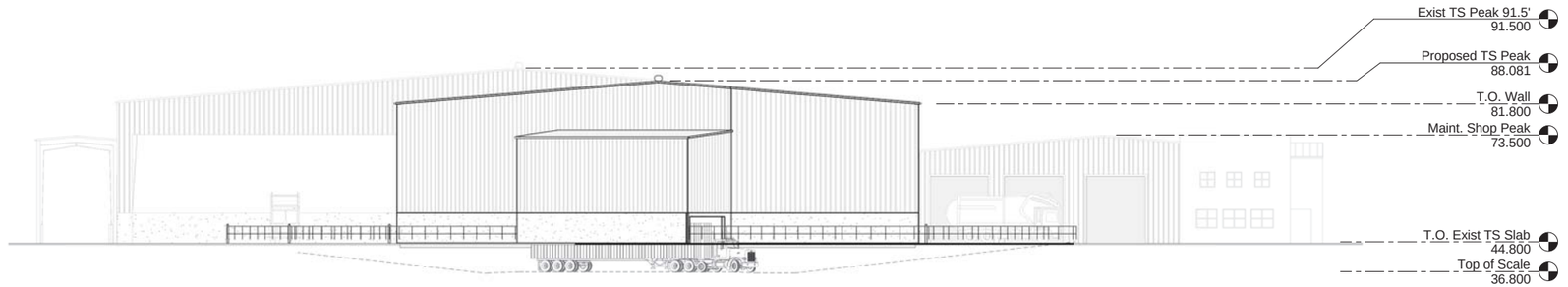
SHEET NUMBER

2.0

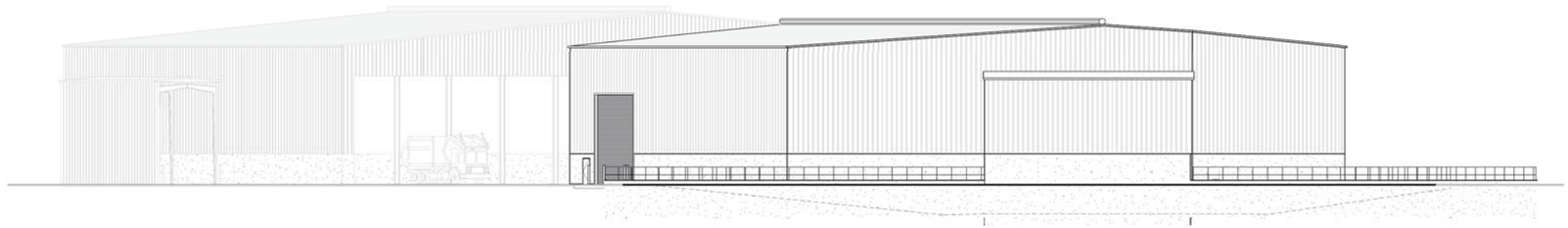
Proposed Main Level Plan



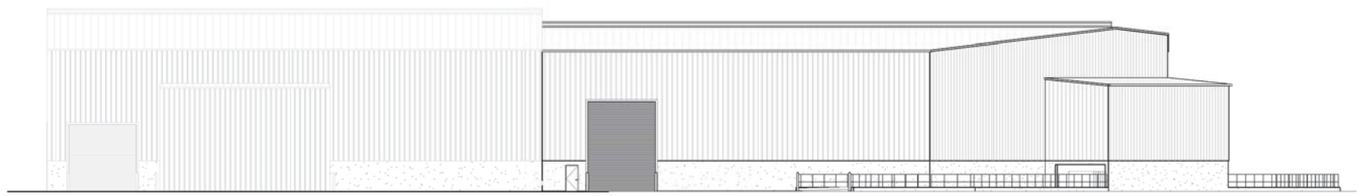
1 / 3.0 North Elevation
1" = 20'-0"



2 / 3.0 East Elevation
1" = 20'-0"



3 / 3.0 Southeast Elevation
1" = 20'-0"



4 / 3.0 South Elevation
1" = 20'-0"

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PROJECT # 02-ET1491

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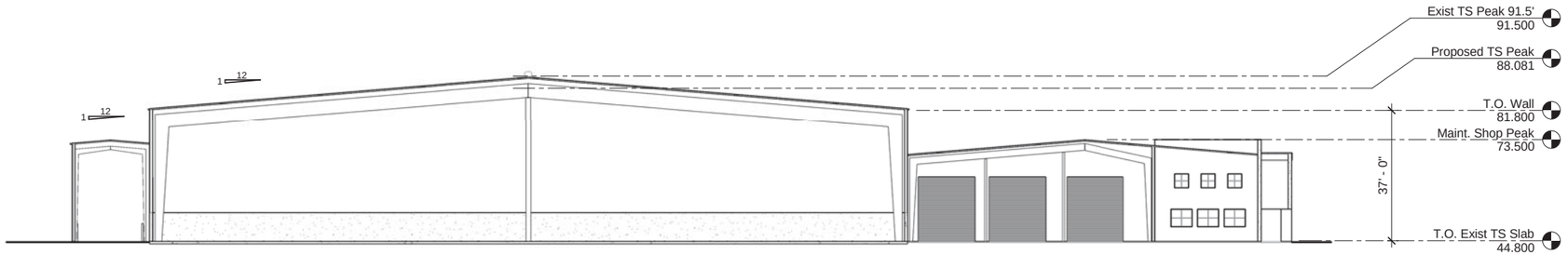
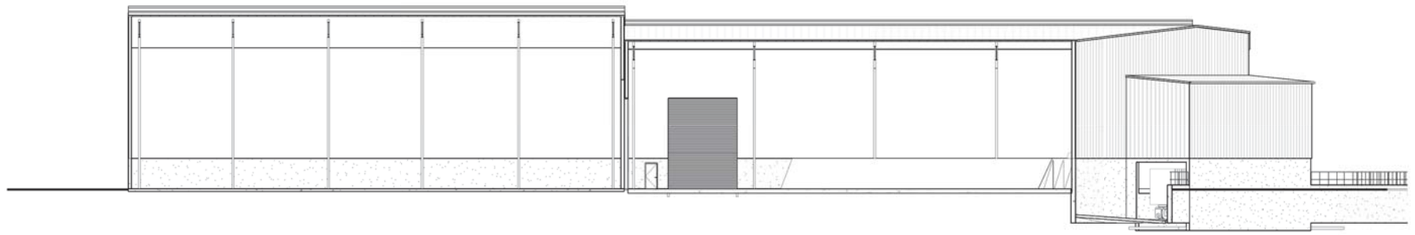
Project # 02-ET1491

WORKING DRAFT - L
6-26-2017

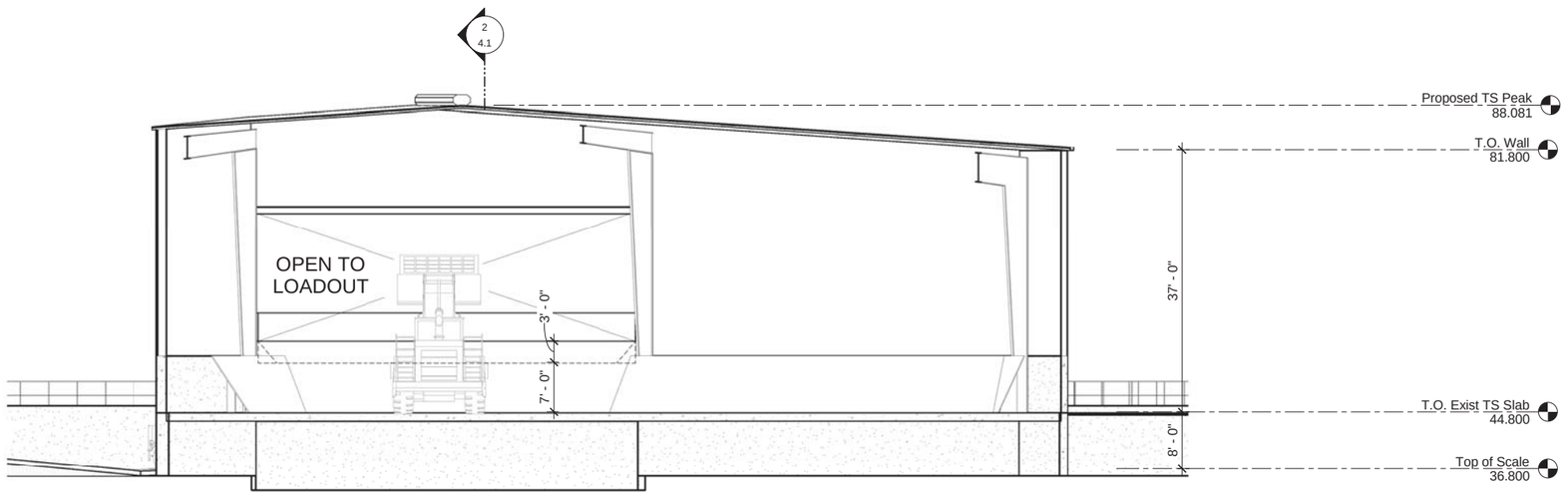
SHEET NUMBER
3.0
Elevations



1 / 4.0 Section at Existing TS Looking West
1" = 20'-0"



2 / 4.0 Section at Existing TS Looking North
1" = 20'-0"



3 / 4.0 Interior View of Loadout
3/32" = 1'-0"

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PROJECT # 02-ET1491

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L	Rev. L	6-26-2017

Project # 02-ET1491

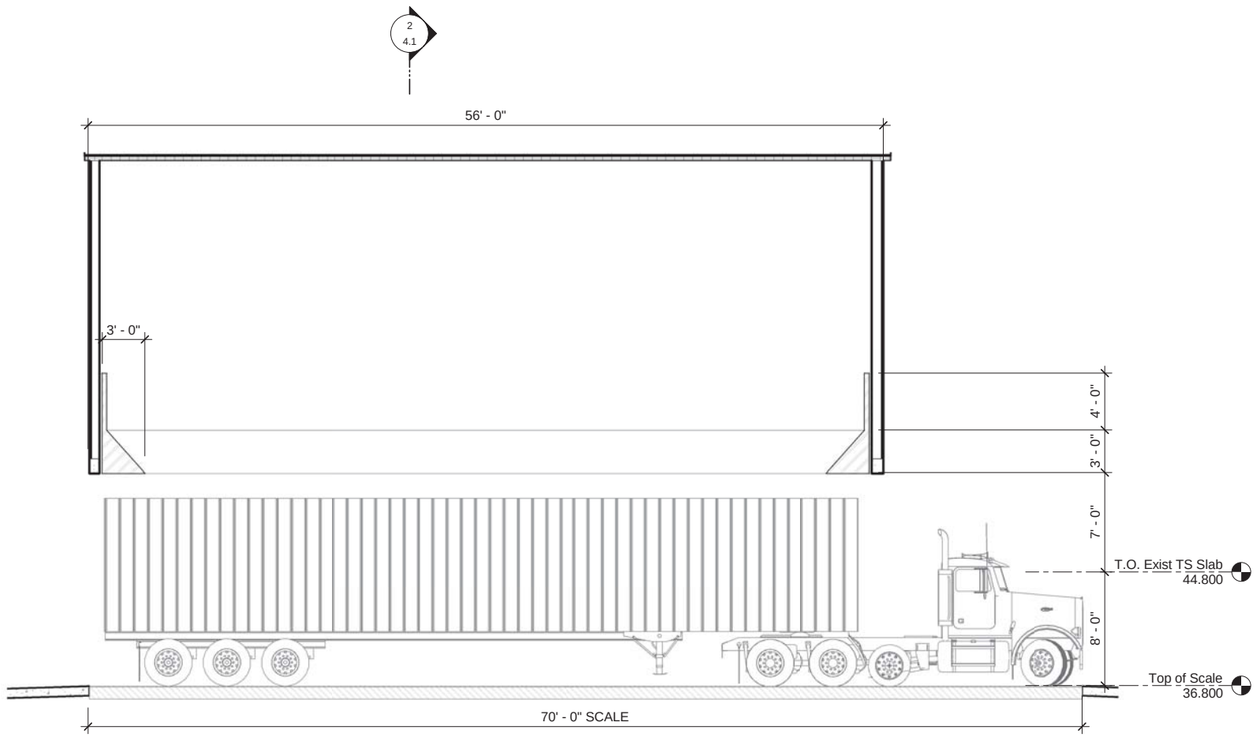
WORKING DRAFT - L

6-26-2017

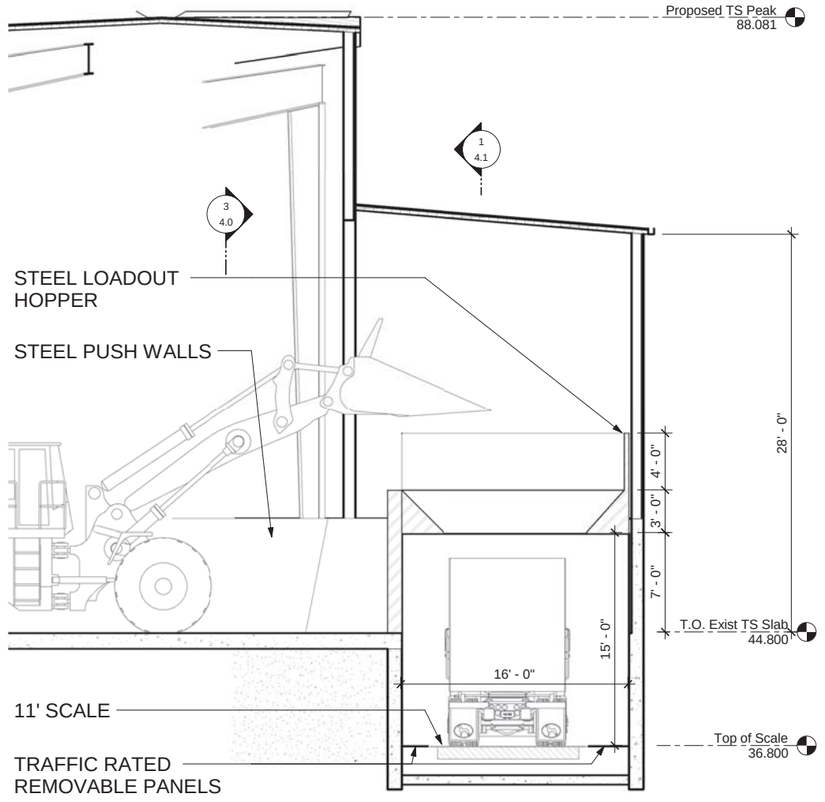
SHEET NUMBER

4.0

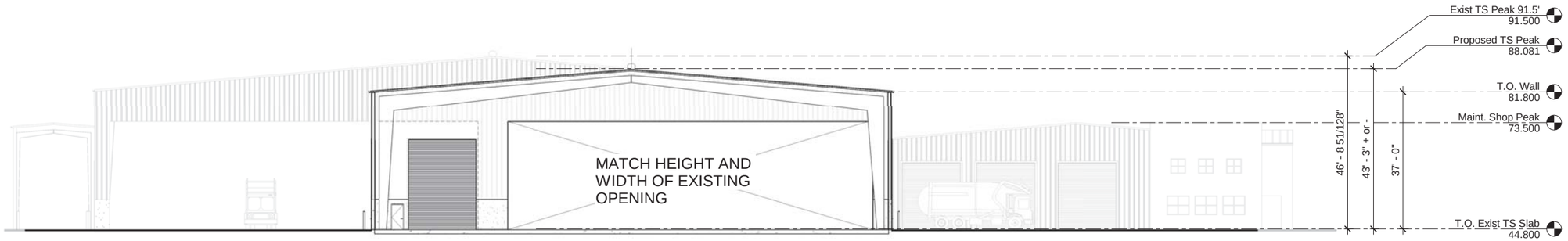
Sections



1 / 4.1 Long Section at Loadout
3/16" = 1'-0"



2 / 4.1 Section Across Loadout Tunnel
3/16" = 1'-0"



3 / 4.1 Section at New Load Aisle Looking West
1/16" = 1'-0"

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Project # 02-ET1491

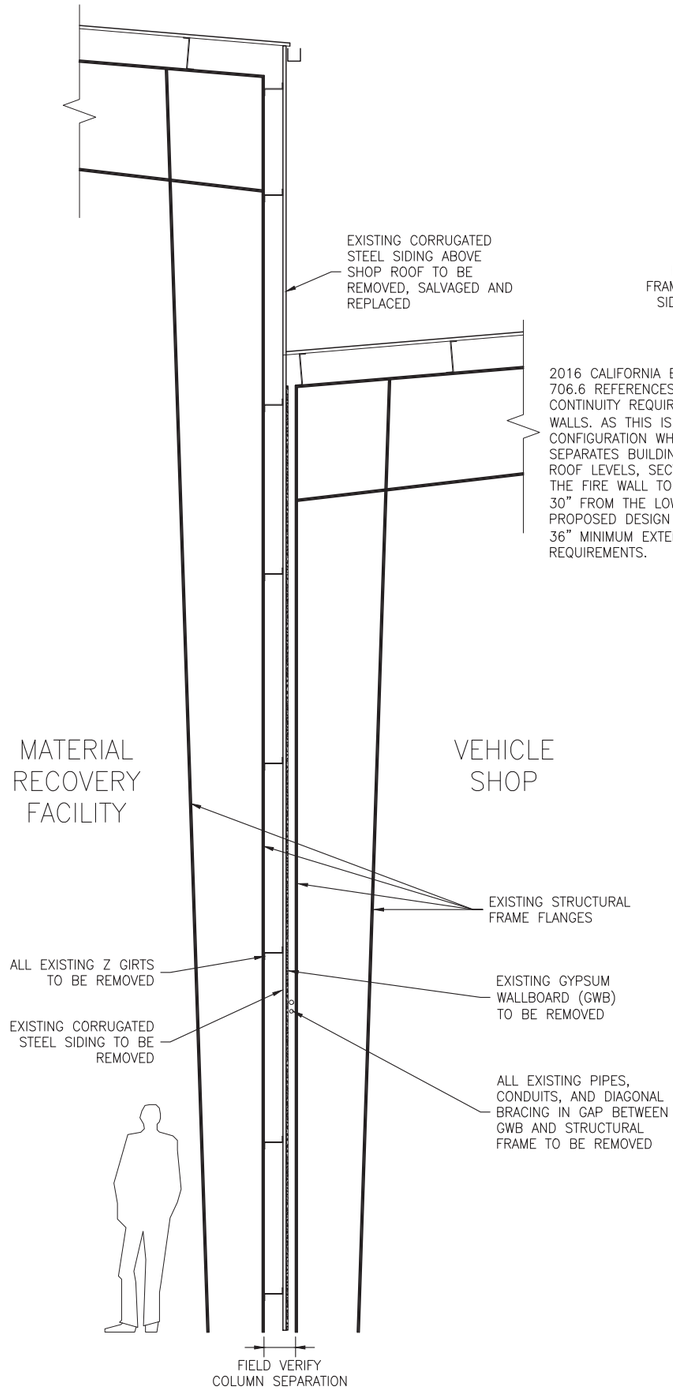
WORKING DRAFT - L

6-26-2017

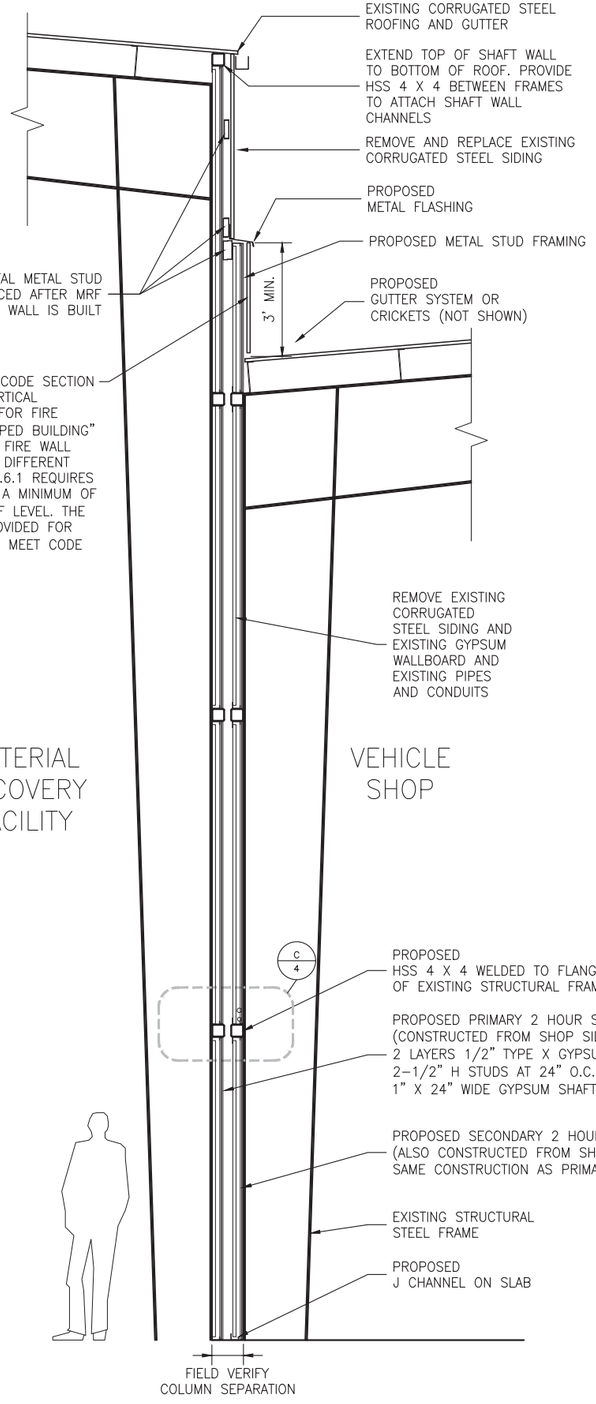
SHEET NUMBER

4.1

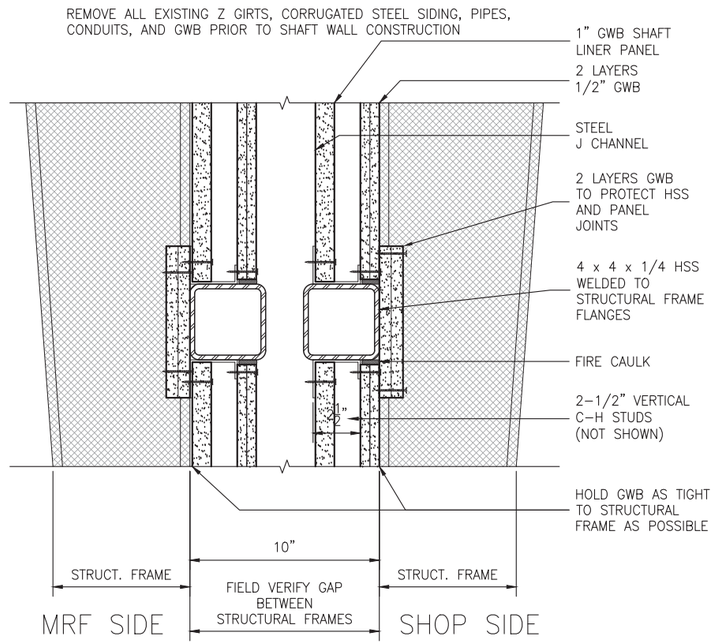
Sections



A/B2 EXISTING MRF TO SHOP WALL
1/2" = 1'



B/B2 PROPOSED MRF TO SHOP WALL
1/2" = 1'

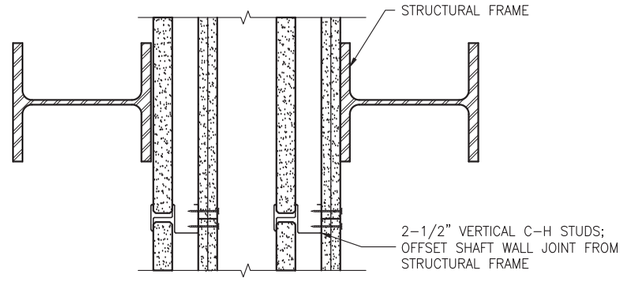


ALL FIREWALL CONSTRUCTION OCCURS FROM SHOP SIDE

DOUBLE 2 HOUR WALL CONSTRUCTION IS EQUIVALENT TO A SINGLE 3 HOUR WALL PER NFPA 221, TABLE 4.5

Maximize the clear space between the walls: NFPA 221-6.8-Clearance. Clearance to allow for expansion of unprotected structural framework shall be provided. See NFPA 221-6.8.3 for seismic design criteria. "...sufficient separation shall be provided ...between double walls to allow independent movements of the elements without contact.

C/B2 DOUBLE 2 HOUR SHAFT WALL
1/2" = 1'



D/B2 PLAN DETAIL AT SHAFT WALL
1/2" = 1'

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Project # 02-ET1491

WORKING DRAFT - L
6-26-2017
FIRE WALL LAYOUT

SHEET NUMBER
B2

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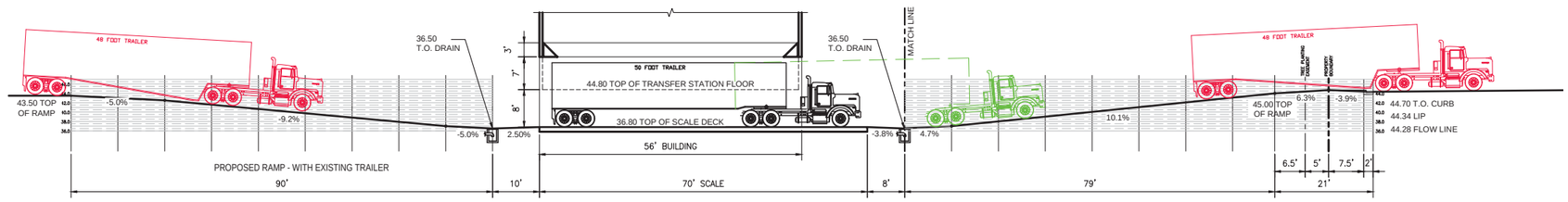
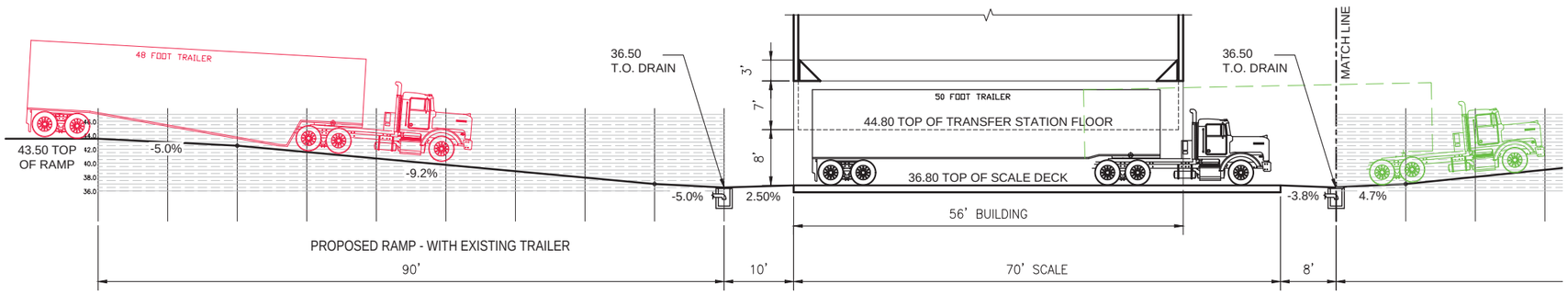


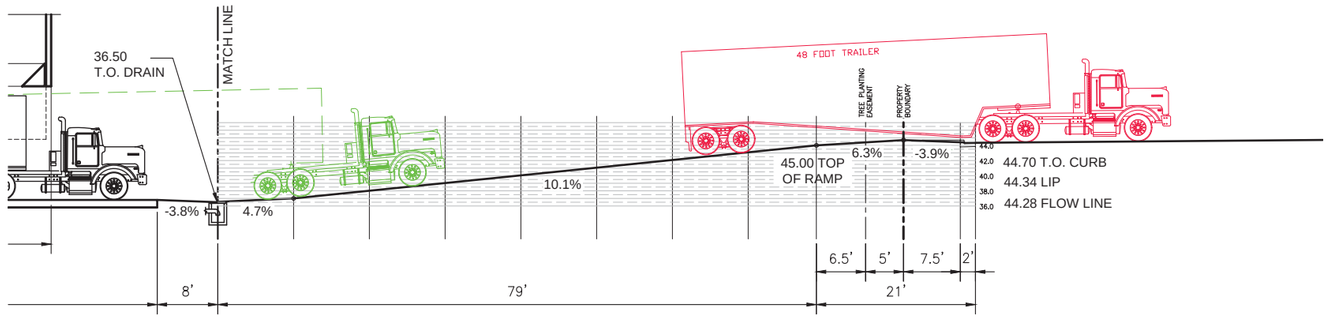
1 OVERALL RAMP PROFILE

1" = 15'



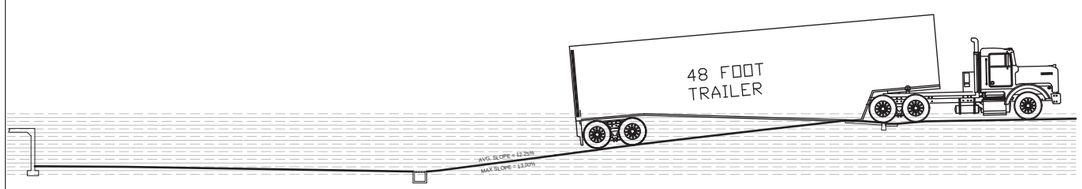
2 INBOUND RAMP AND SCALE PROFILE

1" = 10'



3 OUTBOUND RAMP PROFILE

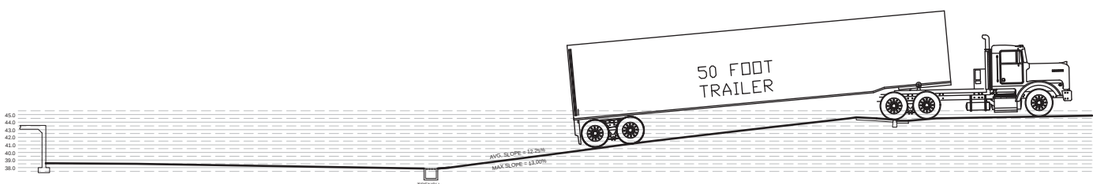
1" = 10'



EXISTING RAMP - WITH POSSUM-BELLY TRAILER

4 EXISTING RAMP PROFILE

1" = 10'



EXISTING RAMP - WITH EXISTING TRAILER

5 EXISTING RAMP PROFILE

1" = 10'

1" = 30'

0 15' 30' 60' 90'

ORIGINAL SHEET SIZE 22" X 34"

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Project # 02-ET1491

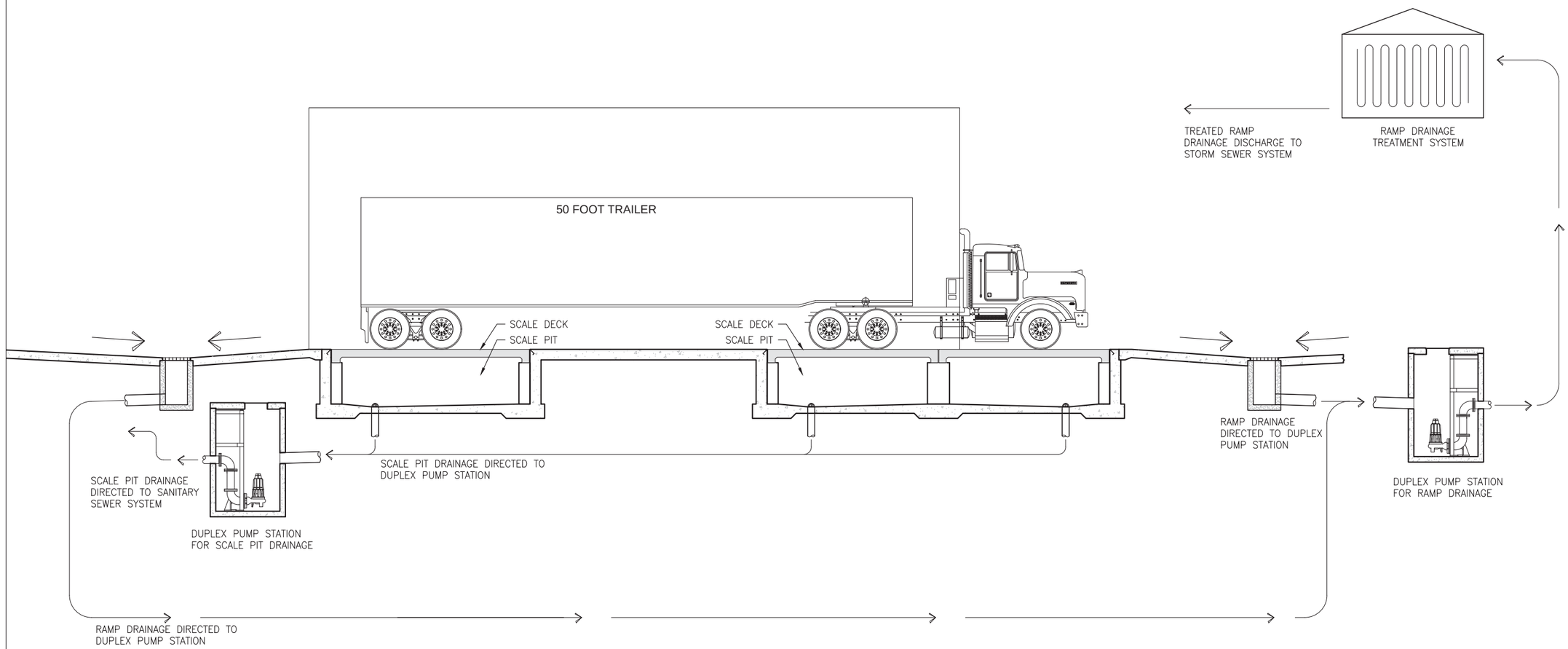
WORKING DRAFT - L

6-26-2017

RAMP PROFILES

SHEET NUMBER

C1



1 RAMP AND TRUCK SCALE DRAINAGE SCHEMATIC
1" = 5'

1" = 30'
0 15' 30' 60' 90'

ORIGINAL SHEET SIZE 22" X 34"

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ALAMEDA COUNTY INDUSTRIES

ET environmental
Vision • Solutions • Value™

ALAMEDA COUNTY INDUSTRIES Transfer Station Addition

610 Aladdin Avenue, San Leandro, CA 94577

Conceptual Plans Only - Not for Design, Permitting, or Construction

Revision Number	Description	Date
K	Rev. K	5-31-2017
L	Rev. L	6-26-2017

Project # 02-ET1491

WORKING DRAFT - L
6-26-2017
RAMP DRAINAGE

SHEET NUMBER
C2

Appendix B

Department of Toxic Substances Control - No Further Action Letter

Department of Toxic Substances Control

Edwin F. Lowry, Director
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

FILE COPY

March 13, 2002

Messrs. Spinardi and Battinich
Aladdin Depot
23294 Connecticut Street
Hayward, California 94545

FORMER TRANSCON LINES SITE, 601 ALADDIN AVENUE, SAN LEANDRO, CALIFORNIA, DOCKET NO. I&/SE 97/98-006

Dear Messrs. Spinardi and Battinich:

The Department of Toxic Substances Control (DTSC) hereby notifies the named Responsible Parties for the Former Transcon Lines Site (the Site) that, based on existing information, the terms of the above-referenced Order will not be currently enforced. The obligations of the Responsible Parties for the Site under said Order shall be subject to no further action with the following conditions.

1) Within thirty (30) days, Responsible Parties shall close all wells within the property according to the Alameda County Water District rules and regulations and notify DTSC five (5) days in advance of well closure activities.

2) No groundwater wells shall be installed within the property since wells could affect the natural attenuation and bio-remediation progress of the existing groundwater plume. Failure to comply with the conditions of the termination may result in enforcement action by DTSC and recover cost for clean up of the groundwater plume.

3) The Responsible Parties shall grant DTSC access to the Site at such future time as may be required to exercise any additional investigations and/or cleanup.

4) The Responsible Parties shall immediately provide to DTSC any site investigations and reports that have not already been provided to DTSC or that are prepared after the date of this notice.

Please be advised that this notice does not relieve Responsible Parties from their obligation to pay all past and future costs incurred by the DTSC in responding to the contamination at the Site; nor does this notice relieve Responsible Parties from their obligation under Paragraph 6.13 of the Order to retain, for a minimum of ten years after receipt of this notice, all data, reports and other documents pertaining to any investigations and work undertaken pursuant to the Order. If previously unidentified or uncharacterized contamination is discovered at the Site, additional investigations and/or cleanup may be required.

If you have any questions concerning this matter, please contact Jayantha Randeni of my staff at (510) 540-3806.

Sincerely,

Barbara J. Cook, P.E., Chief
Northern California
Coastal Cleanup Operations Branch

Appendix C

Traffic Impact Study

Alameda County Industries Transfer Processing Facility
City of San Leandro, CA

TRAFFIC IMPACT STUDY

APRIL 10, 2017

Prepared For:

City of San Leandro
835 East 14th Street
San Leandro, CA 94577

Prepared By:

Kimley»Horn

100 West San Fernando Street, Suite 250
San Jose, CA 95113

Contents

Figures

Tables

EXECUTIVE SUMMARY

This study evaluates existing and future traffic for the proposed increase in the permitted tonnage of recyclables allowed by the Solid Waste Facility, as well as the extension of its waste acceptance, transfer, and processing hours of operation. This study analyzes traffic conditions for surrounding area intersections/roadway systems and assesses potential traffic impacts on the City of San Leandro transportation network. The following intersections were studied in the analysis for existing, project, background, and cumulative conditions:

1. Teagarden Street – Wayne Avenue / Marina Boulevard
2. Alvarado Street / Marina Boulevard

The following roadway segments were evaluated qualitatively for existing (2016), project, near-term (2021), and cumulative (2035) conditions:

1. Teagarden Street – South of Marina Boulevard
2. Alvarado Street – South of Marina Boulevard

The project will generate 9 AM (4 IN, 5 OUT) and 9 PM (5 IN, 4 OUT) new truck peak hour trips. The project trip distribution assumes that approximately 75% of the project trips will distribute west on Marina Boulevard. Approximately 25% of the project trips will distribute east of Alvarado Street. This is consistent with existing project traffic distribution.

The analysis found that intersection operations are acceptable for baseline conditions (existing, near-term, and cumulative). Project trips are anticipated to be three-axle trucks and a conservative passenger car equivalence (PCE) factor of 3 was applied to project trips. Project trips with PCE factor were added to baseline volumes and the analysis indicates that intersection operations remain acceptable for all baseline plus project conditions (existing plus project, near-term plus project, and cumulative plus project).

On the roadway segments, the proposed project trips are low compared to baseline volumes and are anticipated to be immaterial to segment operations on Teagarden Street and Alvarado Street.

1.0 INTRODUCTION

This study evaluates existing and future traffic conditions for the proposed project, a Materials Recovery Facility (MRF), and assesses the potential traffic impacts on the City transportation network. The analysis evaluates traffic conditions for surrounding area intersections and considers the roadway system in the project vicinity.

The current facility has two primary uses, which, in addition to the MRF, includes a solid waste transfer facility (Transfer Station). Under the current permit, the combined MRF and Transfer Station are permitted to accept a maximum of 412 tons per day (TPD). This number includes a maximum of 280 TPD accepted at the Transfer Station and 132 TPD accepted at the MRF. Alameda County Industries (ACI), manager of the facility, proposes the following changes to operations at the Transfer Station and MRF:

- Remove separate tonnage limits for individual categories of materials and increase the permitted tonnage allowed from 412 TPD to 620 TPD for the Facility (Transfer Station and MRF).
- Extend waste acceptance, transfer, and processing hours to 24 hours per day and 7 days per week for the Facility (Transfer Station and MRF).
- Accept food waste/organics and other materials from third party waste haulers and jurisdictions for transfer and/or pre-processing at the Facility (Transfer Station and MRF).

These changes to the Facility will generate additional traffic on the City roadway network.

Figure 1 illustrates the location of the project site in relation to other streets in the City of San Leandro.

1.1 STUDY METHODOLOGY

DEVELOPMENT CONDITIONS

This traffic impact study was based on the following development conditions:

- Existing Conditions
    - Existing Conditions represents existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from peak hour traffic counts at the study intersections and tube counts on roadway segments.
- Near-Term Conditions (2021)
    - Near-Term Conditions represents existing plus assumed near-term growth peak-hour traffic volumes on the roadway network in the year 2021. Forecasted traffic volumes were obtained by applying a 1% average annual volume growth rate at the study intersections. Near-term study intersection and roadway geometries and control are assumed to be the same as existing conditions.
- Cumulative Conditions (2035)
    - Cumulative Conditions 2035 represent build out of the City of San Leandro General Plan. Traffic volumes for 2035 were provided by City staff. This scenario addresses cumulative intersection and roadway operations on the future transportation network. Cumulative study intersection and roadway geometries and control are assumed to be the same as existing conditions.

- Project Characteristics
    - Project characteristics include descriptions of Project trip generation, distribution and assignment. To determine the level of the Project's impact at each of the study locations, an analysis was performed with Project generated trips added to the baseline conditions.
- Existing plus Project Conditions
    - Existing plus Project Conditions represents existing traffic plus trips associated with the proposed Project. This scenario discusses traffic operations of the study locations under Existing Conditions with the addition of Project traffic. The roadway network for this scenario is the same as Existing Conditions.
- Near-Term plus Project Conditions (2021)
    - Near-Term plus Project Conditions analyzes the addition of Project trips to the Near-Term baseline traffic volumes and roadway network.
- Cumulative plus Project Conditions (2035)
    - Cumulative plus Project Conditions analyzes the addition of Project trips to the Cumulative Conditions 2035 baseline traffic volumes and roadway network.

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ACI Transfer Processing Facility

Figure 1

Project Location and Trip Distribution

TRAFFIC ANALYSIS METHODOLOGY

Traffic conditions are measured by average daily traffic (ADT), peak hour traffic volumes, level of service (LOS), average delay, and the volume to capacity (V/C) ratio. Average daily traffic is the total number of cars passing over a segment of the roadway, in both directions, on an average day. Peak hour volumes are the total number of cars passing over a roadway segment during the peak hour and typically occur in the morning (AM) or afternoon/evening (PM). Based on traffic counts, the weekday AM peak occurs between 7:30 am and 9:00 am in the project vicinity. The weekday PM peak occurs between 4:30 pm and 6:00 pm.

Signalized Intersections

Signalized intersections were analyzed based on the *Highway Capacity Manual* (HCM) 2010 method using Synchro Version 9 software. The 2010 HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. Control delay is the amount of delay that is attributed to the particular traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

The City of San Leandro uses Alameda County Traffic Impact Study Guidelines and endeavors to maintain a target LOS at signalized intersections at LOS D, in compliance with the Alameda County Standards.

Table 1 – Signalized Intersection Level of Service Definitions

Level of Service	Description	Signalized (Avg. control delay per vehicle- sec/veh.)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	< 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80

Project impacts are determined by comparing conditions without the proposed project to those with the proposed project. Significant impacts for intersections are created when traffic from the proposed project causes the LOS to fall below the LOS threshold and causes any impacted intersections to deteriorate further. Significant impact criteria are discussed further in Section 2 of this report.

1.2 STUDY INTERSECTIONS INCLUDED IN ANALYSIS

The proposed project will generate new vehicular trips that will increase traffic volumes on the City's street network. To assess changes in traffic conditions associated with the proposed project, the following intersections, listed with the existing control type, were evaluated in this traffic study:

1. Teagarden Street – Wayne Avenue / Marina Boulevard (Signalized)
2. Alvarado Street / Marina Boulevard (Signalized)

Study intersections were selected based on consultation City staff, proximity to the project site, and proposed project peak hour trips. These study intersections are illustrated in **Figure 1.**

1.3 STUDY ROADWAY SEGMENTS INCLUDED IN ANALYSIS

The proposed project will generate new vehicular trips that will increase traffic volumes on the nearby street network. To assess changes in traffic conditions associated with the proposed project, the following roadway segments were considered in this traffic study:

3. Teagarden Street – South of Marina Boulevard
4. Alvarado Street – South of Marina Boulevard

2.0 THRESHOLDS OF SIGNIFICANCE

Significance criteria are used to identify Project impacts. Currently, the City and the County specify LOS thresholds that are utilized for roadways under their respective jurisdictions. The following significance criteria were used for this TIA.

2.1 LEVEL OF SERVICE STANDARDS

CITY OF SAN LEANDRO

Intersections

- LOS D is the acceptable standard for signalized intersections, which is consistent with Alameda County Standards.

3.0 EXISTING CONDITIONS

3.1 EXISTING INTERSECTION AND ROADWAY NETWORK

To determine potential significant impacts related to the proposed project, existing intersections were selected for analysis based on input from City of San Leandro staff. Roadway segments were assessed qualitatively. Typically, if intersections operate satisfactorily, segments would also operate satisfactorily. Both intersections were analyzed for weekday AM and PM peak periods, which are the peak periods during which the City road network is busiest. **Figure 2** shows the location of existing study intersections and roadway segments within the project area as well as the lane configurations.

Weekday intersection turning movement volumes for Teagarden Street / Marina Boulevard and Alvarado Street / Marina Boulevard were collected on Tuesday, February 23, 2016 from 7:00 am to 9:00 am (AM Peak) and from 4:00 pm to 6:00 pm (PM Peak). Weekday 24-hour bi-directional tube counts were collected on February 24, 2016 on Teagarden Street, south of Marina Boulevard and on Alvarado Street, south of Marina Boulevard. These traffic counts were taken during a non-holiday week, a weekday when local schools were in session, and when the weather was fair. Existing lane geometry and turning movements are shown in **Figure 2.** Intersection volume data sheets for all traffic counts and tube counts are provided in the **Appendix**.

EXISTING STUDY INTERSECTIONS

- **Teagarden Street – Wayne Street / Marina Boulevard** is a signalized intersection with marked crosswalks eastbound and westbound on Marina Boulevard and northbound on Teagarden Street. It has one left-turn bay, one shared through and left-turn lane, and one right-turn bay in the northbound direction; one right-turn bay and one shared through and left-turn lane in the southbound direction; one left-turn bay, two through lanes, and one shared through and right-turn lane in the westbound direction; and one left turn bay, three through lanes, and one right turn bay in the eastbound direction.
- **Alvarado Street / Marina Boulevard** is a signalized intersection with marked crosswalks on all approaches. It has two left-turn bays, one through lane, and one right-turn bay in the northbound direction; two left-turn bays, one through lane, and one shared through and right-turn lane in the southbound direction; one left-turn bay, one through lane, and one shared through and right-turn lane in the westbound direction; and one left turn bay, two through lanes, and one right turn bay in the eastbound direction.

EXISTING STUDY ROADWAY SEGMENTS

Regional Roadways

The following regional roadways provide access to the project:

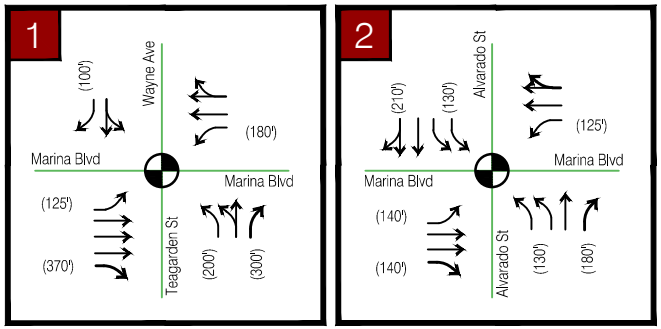
- **Interstate I-880** provides the direct regional access to the project site via an interchange approximately ¼ mile west of Teagarden Street. I-880 currently has four lanes in the northbound and five lanes in the southbound direction with a posted speed limit of 65 miles per hour.

Local Roadways

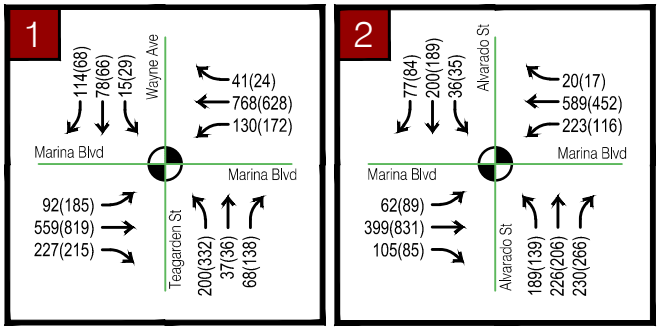
The following local roadways provide direct or indirect access to the site:

- **Marina Boulevard** is a 2.5 mile arterial roadway providing access to I880 in the project vicinity in the City of San Leandro. The roadway is a two lane, undivided roadway east of San Leandro Boulevard, a four lane divided roadway from San Leandro Boulevard to Pacific Avenue, a six lane divided roadway from Pacific Avenue to I-880 ramps, a four lane undivided roadway from I-880 ramps to Doolittle Drive, and a two lane undivided roadway from Doolittle Drive to Neptune Drive. The posted speed limit in the project vicinity is 40 miles per hour.
- **Teagarden Street** is a collector roadway connecting Marina Boulevard to Montague Avenue, Aladdin Avenue, and Alvarado Street. The roadway is predominantly two lanes undivided, with on-street parking permitted along some sections. The posted speed limit is 35 miles per hour. Teagarden Street's name changes to Wayne Avenue north of Marina Boulevard.
- **Alvarado Street** is a collector roadway connecting Marina Boulevard to Montague Avenue, Aladdin Avenue, and Teagarden Street. The roadway is predominantly two lanes undivided and the posted speed limit is 40 miles per hour.

Existing Lane Geometry



Peak Hour Turning Volumes



LEGEND	
X	INTERSECTION #
	TRAFFIC SIGNAL
STOP	STOP SIGN
(XXX')	TURN POCKET LENGTH (FT)
XX(XX)	AM PEAK (PM PEAK)

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Figure 2

Existing Geometry, Control, and Traffic Volumes

3.2 EXISTING LEVEL OF SERVICE AT STUDY INTERSECTIONS

Traffic operations were evaluated at the study intersections under existing traffic conditions. Results of the analysis are presented in **Table 2**. As shown in **Table 2**, both intersections operate at acceptable levels of service in existing conditions.

Analysis sheets are provided in **Appendix**.

Table 2 – Existing Conditions Level of Service

#	Intersection	Control Type	Existing Conditions					
			AM Peak Hour			PM Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS
1	Marina Blvd / Teagarden St – Wayne Ave	Signal	Overall	30.6	C	Overall	32.6	C
2	Marina Blvd / Alvarado St	Signal	Overall	41.1	D	Overall	36.0	D

Notes:

1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard is D.
4. Intersections that fall below City standard are highlighted and shown in **bold.**

3.3 EXISTING PEDESTRIAN AND BICYCLE NETWORK

BICYCLES

Within the City limits near the Project, Class I, II, and III bikeway facilities are discussed below:

Class I facilities are paved bicycle paths that are physically separated from the vehicular travel lane. No Class I facilities currently exist in the project vicinity.

Class II facilities, which are striped bike lanes along the street, exist on Aladdin Avenue from Alvarado Street to Teagarden Street and on Teagarden Street from Aladdin Avenue to Alvarado Street.

Class III bicycle facilities are bike routes denoted by signs that are shared with vehicles along the roadway. Class III bicycle facilities exist on Aladdin Avenue west of Teagarden Street and on Alvarado Street south of Teagarden Street.

PEDESTRIANS

Existing pedestrian facilities in the study area include sidewalks along both sides of Marina Boulevard, Alvarado Street, Teagarden Street, Montague Avenue, and Aladdin Avenue in the project vicinity.

3.4 EXISTING TRANSIT NETWORK

The San Leandro BART Station is located less than 1.25 miles north of the project site.

The bus stop closest to the project site is located approximately one mile away at the Williams Street and Alvarado Street intersection and it serves AC-Transit Route 75. Additional AC-Transit bus stops are located along Williams Street (serving Route 75) and Washington Avenue (serving Route 85) near the project site.

4.0 PROPOSED PROJECT

4.1 PROPOSED SITE USE

The Project proposes the following changes to operations at the Transfer Station and MRF:

- Remove separate tonnage limits for individual categories of materials and increase the permitted tonnage allowed from 412 TPD to 620 TPD for the Facility (Transfer Station and MRF).
- Extend waste acceptance, transfer, and processing hours to 24 hours per day and 7 days per week for the Facility (Transfer Station and MRF).
- Accept food waste/organics and other materials from third party waste haulers and jurisdictions for transfer and/or pre-processing at the Facility (Transfer Station and MRF).

The project driveways will not be moved and no roadway, intersection, or driveway improvements are proposed.

4.2 PROJECT TRIP GENERATION

Trip generation for the project was calculated based on data provided by ACI. Project trips under the current permit (accounted for in existing conditions volumes) include 190 Material Recovery Facility (MRF) vehicle trips per day (VTPD), 62 Municipal Solid Waste (MSW) VTPD, 42 Green Waste / Organics (GWO) VTPD, 8 Construction and Demolition (C & D) VTPD, 60 employee/office VTPD, and 10 Limited Volume Transfer Facility (LVTF) VTPD. The existing traffic consists of trucks, flatbeds, trailers, and some passenger cars (office employees).

The project proposes to increase MRF VTPD to 274 and LVTF VTPD to 20. This increase is anticipated to result in 9 new AM peak and 9 PM peak hour truck trips. The new project trips will be three-axle trucks, therefore a PCE of 3 was applied to the new trips resulting in an equivalent 27 new AM peak and 27 new PM peak project trips (passenger car equivalents). **Table 3** shows anticipated vehicle trips per day by activity and **Table 4** shows project trip generation for peak and off-peak hour trips.

Table 3 – Vehicle Trips by Activity (Alameda County Industries, Inc.)

Activity	Existing Vehicle Trips Per Day (VTPD)	Estimated Vehicle Trips Per Day (VTPD)
Material Recovery Facility	190 VTPD	274 VTPD
	- 80 truck trips	- 110 truck trips
	- 110 MRF vehicle trips	- 164 MRF vehicle trips
Direct Transfer Facility (Municipal Solid Waste)	62 VTPD	62 VTPD
	- 36 collection truck trips	- 36 collection truck trips
	- 26 transfer truck trips	- 26 transfer truck trips
Direct Transfer Facility (Green Waste / Organics)	42 VTPD	42 VTPD
	- 32 collection truck trips	- 32 collection truck trips
	- 10 transfer trailer trips	- 10 transfer trailer trips
Construction and Demolition (C&D) Debris	8 VTPD	8 VTPD
	- 8 C&D transfer trailer trips	- 8 C&D transfer trailer trips
SUBTOTAL	**302 VTPD**	**386 VTPD (Permit Limit)**
Combined 601 and 610 Aladdin Avenue Facility	60 VTPD	60 VTPD
	- employee/office vehicle trips (parking off of 610 site)	- employee/office vehicle trips (parking off of 610 site)
Limited Volume Transfer Facility	10 VTPD	20 VTPD
	- 10 flatbed/roll-off trucks	- 20 flatbed/roll-off trucks
TOTAL	**372 VTPD**	**466 VTPD**
Source: Alameda County Industries 2016		

Table 4 – Net New Project Trip Generation (Alameda County Industries, Inc.) – Truck Trips

Activity	Trips During AM Peak (7am-9am)		Trips During PM Peak (4pm-6pm)		Trips During Off-Peak Hours	
Existing	Entering	Exiting	Entering	Exiting	Entering	Exiting
Material Recovery Facility	2	2	2	2	36	36
	5	5	5	5	45	45
Limited Volume Transfer Facility	1	0	0	1	4	4
Proposed	Entering	Exiting	Entering	Exiting	Entering	Exiting
Material Recovery Facility	3	3	3	3	49	49
	8	8	8	8	66	66
Limited Volume Transfer Facility	1	1	1	1	8	8
Net New Trips	Entering	Exiting	Entering	Exiting	Entering	Exiting
Material Recovery Facility	1	1	1	1	13	13
	3	3	3	3	21	21
Limited Volume Transfer Facility	0	1	1	0	4	4
TOTAL NEW TRIPS	**4**	**5**	**5**	**4**	**38**	**38**
PCE NET NEW TRIPS	**12**	**15**	**15**	**12**	**114**	**114**

Source: Alameda County Industries 2016

4.3 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution for the additional trips from the proposed project was developed based on of the existing facility. The projected additional trips from the proposed project were assigned to the roadway network based on the proposed trip distribution as illustrated in **Figure 1**. A PCE factor of 3 was applied for analysis purposes.

- 75 percent to and from the west, via Marina Boulevard
- 25 percent to and from the east, via Marina Boulevard

Of the above 100 percent from east and west, 20 percent are anticipated to access the existing site via Teagarden Street and 80 percent are anticipated to access the existing site via Alvarado Street. A directional split of 50 percent (50 percent in and 50 percent out) based on existing operations was applied to the projected VTPD. The proposed trip distribution is shown in **Figure 1** and project only trips are illustrated in **Figure 3**.

4.4 EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Traffic operations were evaluated at the study intersections under Existing Plus Project conditions and traffic generated by the project is illustrated on **Figure 3**. Project trips were added to existing volumes and are shown in **Figure 4**. Analysis results are presented in **Table 5**.

As shown in **Table 5**, both intersections would operate at acceptable levels of service (LOS D or better).

4.5 EXISTING PLUS PROJECT ROADWAY SEGMENT EVALUATION

Weekday 24-hour bi-directional tube counts were collected on February 24, 2016 on Teagarden Street, south of Marina Boulevard and on Alvarado Street, south of Marina Boulevard. Existing two-way traffic volumes (northbound and southbound) on the Alvarado Street segment peaks at 8:00am (1047 vehicles) and 3:00pm (975 vehicles). Existing two-way traffic volumes (northbound and southbound) on the Teagarden Street segment peaks at 8:00am (687 vehicles) and 2:00pm (771 vehicles).

The proposed project is anticipated to add up to 23 AM Peak and 23 PM Peak PCE vehicle trips on the Alvarado Street segment and up to 4 AM Peak and 4 PM Peak PCE vehicle on the Teagarden Street segment. The added PCE trips are therefore expected to be less than 2.4% of the baseline volumes and will not noticeably effect segment operations.

NORTH

LEGEND

X	INTERSECTION #
	TRAFFIC SIGNAL
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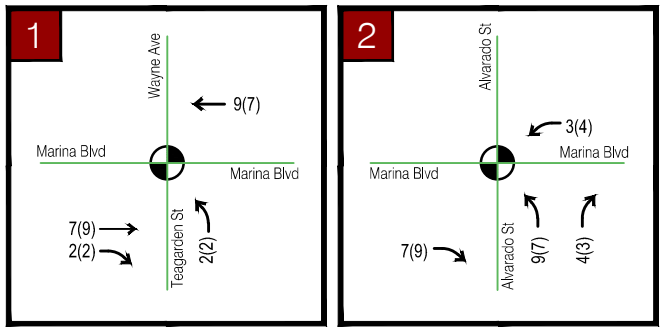
XX(XX)	AM PEAK (PM PEAK)

Project Only Trips



*Passenger Car Equivalents (PCE Factor = 3)

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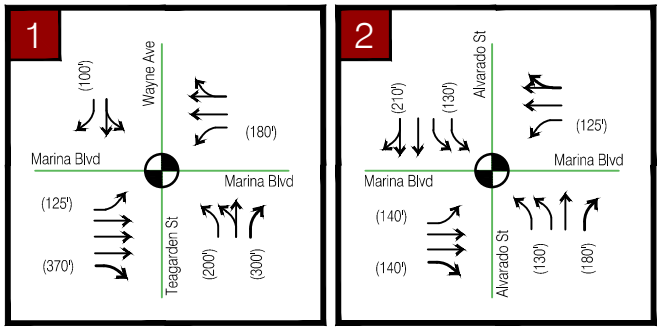
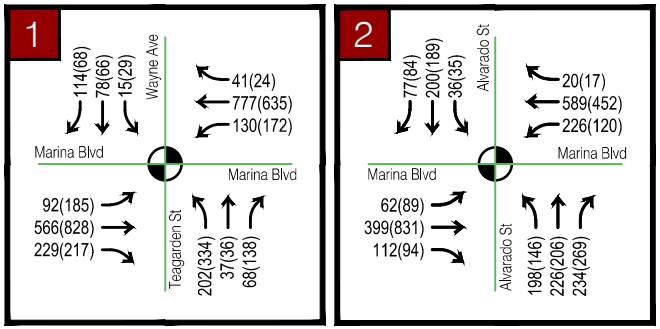
Figure 3

Project Trip Assignment

Existing Lane Geometry



Peak Hour Turning Volumes



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X	INTERSECTION #
	TRAFFIC SIGNAL
STOP	STOP SIGN
(XXX')	TURN POCKET LENGTH (FT)
XX(XX)	AM PEAK (PM PEAK)

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Figure 4

Existing Plus Project Geometry, Control, and Traffic Volumes

Table 5 – Existing Plus Project Level of Service

#	Intersection	Control Type	Existing Conditions						Existing Plus Project Conditions					
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Marina Blvd / Teagarden St – Wayne Ave	Signal	Overall	30.6	C	Overall	32.6	C	Overall	30.6	C	Overall	32.6	C
2	Marina Blvd / Alvarado St	Signal	Overall	41.1	D	Overall	36.0	D	Overall	42.3	D	Overall	36.0	D

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard is D.
4. Intersections that fall below City standard are highlighted and shown in **bold**.

5.0 NEAR-TERM (2021) CONDITIONS

5.1 NEAR-TERM IMPROVEMENTS

No improvements at the study intersections or on the study roadway segments have been identified.

5.2 NEAR-TERM CONDITIONS LEVEL OF SERVICE AT STUDY INTERSECTIONS

Traffic operations were evaluated at the study intersections under Near-Term traffic conditions. Near-Term project lane geometry, traffic control, and peak hour traffic volumes are illustrated in **Figure 5**. Results of the analysis are presented in **Table 6**.

As shown in **Table 6**, both study intersections would operate at acceptable levels of service (LOS D or better).

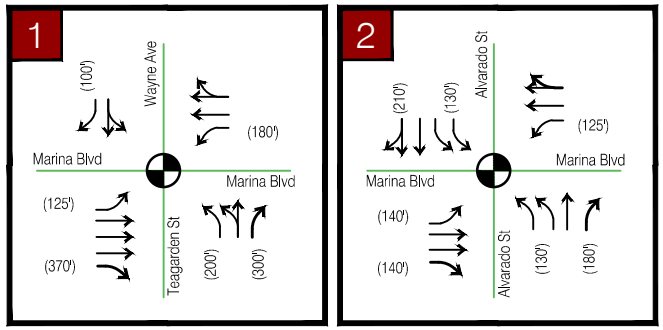
Table 6 – Near-Term Intersection Level of Service Summary

#	Intersection	Control Type	Near-Term Conditions					
			AM Peak Hour			PM Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS
1	Marina Blvd / Teagarden St – Wayne Ave	Signal	Overall	31.9	C	Overall	33.6	C
2	Marina Blvd / Alvarado St	Signal	Overall	44.0	D	Overall	36.8	D

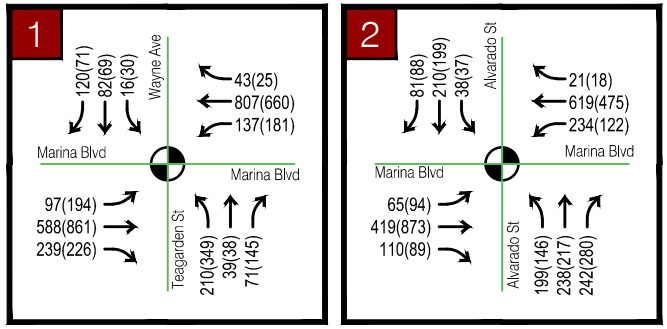
Notes:

1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard is D.
4. Intersections that fall below City standard are highlighted and shown in **bold.**

Near-Term Lane Geometry



Peak Hour Turning Volumes



LEGEND	
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	TRAFFIC SIGNAL
STOP	STOP SIGN
(XXX')	TURN POCKET LENGTH (FT)
XX(XX)	AM PEAK (PM PEAK)

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Figure 5

Near-Term Geometry, Control, and Traffic Volumes

6.0 NEAR-TERM (2021) PLUS PROJECT TRAFFIC CONDITIONS

Traffic operations were evaluated under the following Near-Term conditions:

- Near-Term (2021) Conditions
- Near-Term (2021) plus Project Conditions

Results of the analysis are presented in the following section.

6.1 NEAR-TERM PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Trips generated by the project were assigned in the Near-Term 2021 conditions as shown in **Figure 3**. Near-Term plus project traffic volumes were assessed and are illustrated in **Figure 6**. Near-Term plus project conditions were evaluated at the study intersections and are presented in **Table 7**.

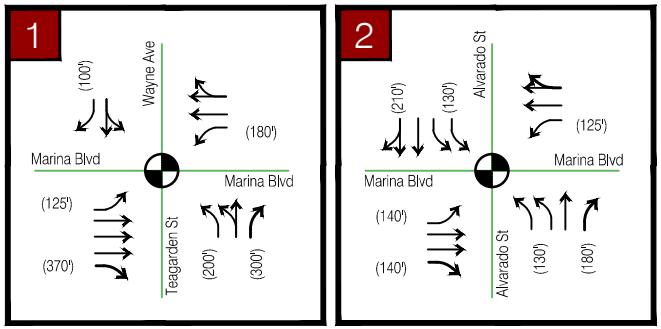
As shown in **Table 7**, both study intersections would operate at acceptable levels of service (LOS D or better).

6.2 NEAR-TERM PLUS PROJECT ROADWAY SEGMENT EVALUATION

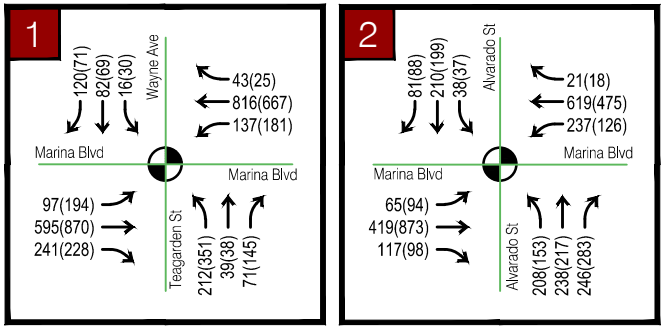
A 1% average annual growth rate was applied to the existing two-way traffic volumes (northbound and southbound) to estimate Near-Term segment volumes for the year 2021. Near-Term two-way traffic volumes (northbound and southbound) on the Alvarado Street segment are therefore expected to be approximately 1101 vehicles (AM Peak) and 1025 vehicles (PM Peak). Near-Term two-way traffic volumes (northbound and southbound) on the Teagarden Street segment are therefore expected to be approximately 723 vehicles (AM Peak) and 811 vehicles (PM Peak).

The proposed project is anticipated to add up to 23 AM Peak and 23 PM Peak PCE vehicle trips on the Alvarado Street segment and up to 4 AM Peak and 4 PM Peak PCE vehicle on the Teagarden Street segment. The added PCE trips are therefore expected to be less than 2.3% of the baseline volumes and will not noticeably effect segment operations.

Near-Term Lane Geometry



Peak Hour Turning Volumes



LEGEND	
X	INTERSECTION #
	TRAFFIC SIGNAL
STOP	STOP SIGN
(XXX')	TURN POCKET LENGTH (FT)
XX(XX)	AM PEAK (PM PEAK)

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Figure 6

Near-Term Plus Project Geometry, Control, and Traffic Volumes

Table 7 – Near-Term Plus Project Intersection Level of Service Summary

#	Intersection	Control Type	Near-Term Conditions						Near-Term Plus Project Conditions					
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Marina Blvd / Teagarden St – Wayne Ave	Signal	Overall	31.9	C	Overall	33.6	C	Overall	31.9	C	Overall	33.5	C
2	Marina Blvd / Alvarado St	Signal	Overall	44.0	D	Overall	36.8	D	Overall	45.3	D	Overall	36.8	D

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard is D.
4. Intersections that fall below City standard are highlighted and shown in **bold**.

7.0 CUMULATIVE (2035) CONDITIONS

7.1 CUMULATIVE IMPROVEMENTS

No improvements at the study intersections or on the study roadway segments have been identified.

7.2 CUMULATIVE CONDITIONS LEVEL OF SERVICE AT STUDY INTERSECTIONS

Traffic operations were evaluated at the study intersections under cumulative traffic conditions. Cumulative project lane geometry, traffic control, and peak hour traffic volumes are illustrated in **Figure 7**. Results of the analysis are presented in **Table 8**.

As shown in **Table 6**, both study intersections would operate at acceptable levels of service (LOS D or better).

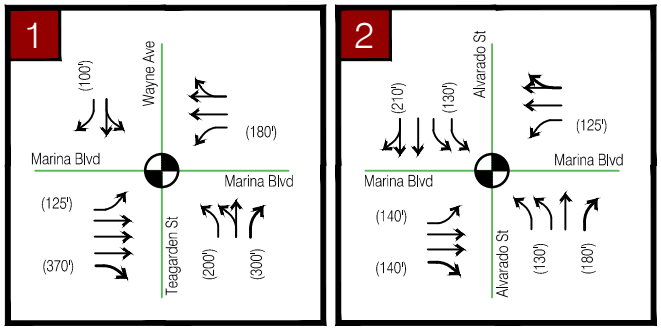
Table 8 – Cumulative Intersection Level of Service Summary

#	Intersection	Control Type	Existing Conditions					
			AM Peak Hour			PM Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS
1	Marina Blvd / Teagarden St – Wayne Ave	Signal	Overall	38.6	D	Overall	31.5	C
2	Marina Blvd / Alvarado St	Signal	Overall	32.5	C	Overall	33.0	C

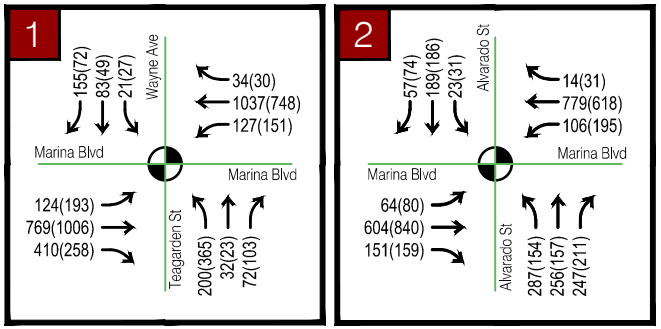
Notes:

1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard is D.
4. Intersections that fall below City standard are highlighted and shown in **bold.**

Cumulative Lane Geometry



Peak Hour Turning Volumes



LEGEND	
X	INTERSECTION #
	TRAFFIC SIGNAL
STOP	STOP SIGN
(XXX')	TURN POCKET LENGTH (FT)
XX(XX)	AM PEAK (PM PEAK)

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Figure 7

Cumulative Geometry, Control, and Traffic Volumes

8.0 CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS

Traffic operations were evaluated under the following cumulative conditions:

- Cumulative (2035) Conditions
- Cumulative (2035) plus Project Conditions

Results of the analysis are presented in the following section.

8.1 CUMULATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Trips generated by the project were assigned in the cumulative 2035 conditions as shown in **Figure 3**. Cumulative plus project traffic volumes were assessed and are illustrated in **Figure 8**. Cumulative plus project conditions were evaluated at the study intersections and are presented in **Table 9**.

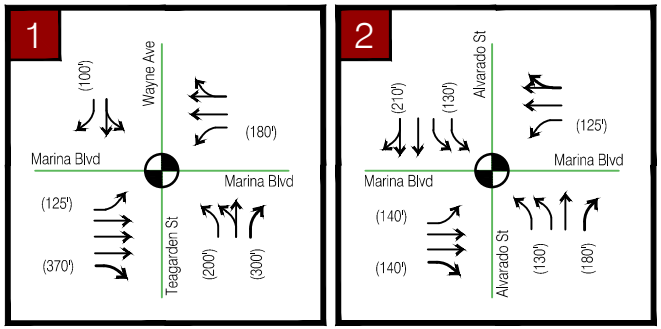
As shown in **Table 9**, both study intersections would operate at acceptable levels of service (LOS D or better).

8.2 CUMULATIVE PLUS PROJECT ROADWAY SEGMENT EVALUATION

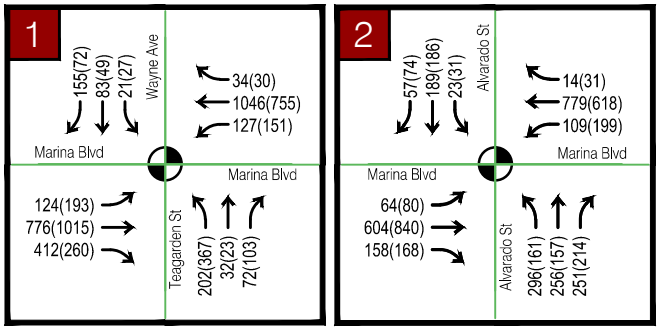
Two-way traffic volumes (northbound and southbound) were estimated for Cumulative conditions on the roadway segments for the year 2035 based on data provided by the City. Cumulative two-way traffic volumes (northbound and southbound) on the Alvarado Street segment are therefore expected to be approximately 1236 vehicles (AM Peak) and 1062 vehicles (PM Peak). Cumulative two-way traffic volumes (northbound and southbound) on the Teagarden Street segment are therefore expected to be approximately 924 vehicles (AM Peak) and 949 vehicles (PM Peak).

The proposed project is anticipated to add up to 23 AM Peak and 23 PM Peak PCE vehicle trips on the Alvarado Street segment and up to 4 AM Peak and 4 PM Peak PCE vehicle on the Teagarden Street segment. The added PCE trips are therefore expected to be less than 2.2% of the baseline volumes and will not noticeably effect segment operations.

Cumulative Lane Geometry



Peak Hour Turning Volumes



LEGEND	
X	INTERSECTION #
	TRAFFIC SIGNAL
STOP	STOP SIGN
(XXX')	TURN POCKET LENGTH (FT)
XX(XX)	AM PEAK (PM PEAK)

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Figure 8

Cumulative Plus Project Geometry, Control, and Traffic Volumes

Table 9 – Cumulative Plus Project Intersection Level of Service Summary

#	Intersection	Control Type	Cumulative Conditions						Cumulative Plus Project Conditions					
			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Marina Blvd / Teagarden St – Wayne Ave	Signal	Overall	38.6	D	Overall	31.5	C	Overall	38.7	D	Overall	31.6	C
2	Marina Blvd / Alvarado St	Signal	Overall	32.5	C	Overall	33.0	C	Overall	33.2	C	Overall	33.1	C

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard is D.
4. Intersections that fall below City standard are highlighted and shown in **bold**.

9.0 POTENTIAL EFFECTS ON TRANSIT, BICYCLE, AND PEDESTRIAN MOBILITY

The project is not related to the transit, bicycle, and pedestrian network and is therefore not anticipated to have an effect on mobility in the study area.

APPENDIX

A: TURNING MOVEMENT VOLUMES AND TUBE COUNTS

B: EXISTING TRAFFIC CONDITIONS ANALYSIS SHEETS

C: EXISTING PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

B: NEAR-TERM (2021) TRAFFIC CONDITIONS ANALYSIS SHEETS

C: NEAR-TERM (2021) PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

D: CUMULATIVE (2035) TRAFFIC CONDITIONS ANALYSIS SHEETS

E: CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

Type of peak hour being reported: Intersection Peak

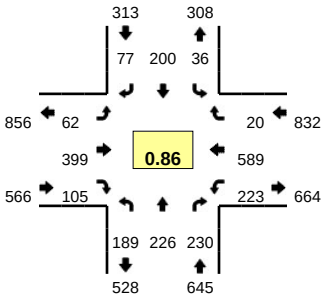
Method for determining peak hour: Total Entering Volume

LOCATION: Alvarado St -- Marina Blvd

CITY/STATE: San Leandro, CA

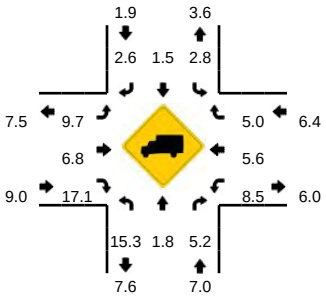
QC JOB #: 13723403

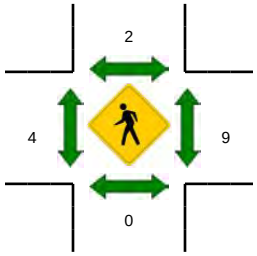
DATE: Tue, Feb 23 2016

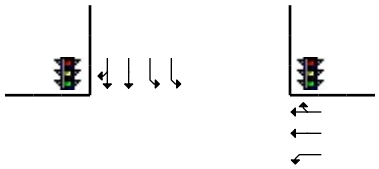


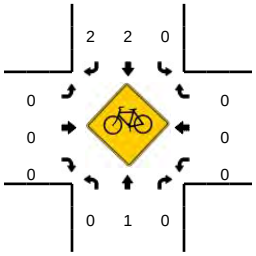
Peak-Hour: 7:35 AM -- 8:35 AM

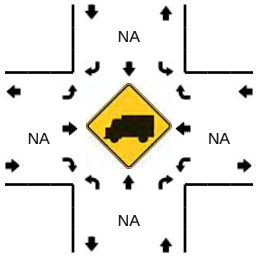
Peak 15-Min: 7:45 AM -- 8:00 AM

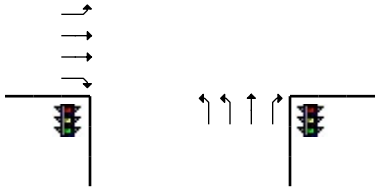


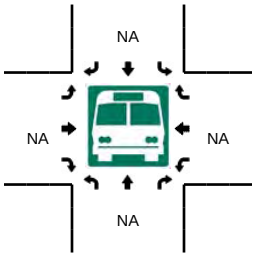












5-Min Count Period Beginning At	Alvarado St (Northbound)				Alvarado St (Southbound)				Marina Blvd (Eastbound)				Marina Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	9	8	10	0	1	9	5	0	5	17	6	0	12	33	1	0	116	
7:05 AM	13	15	17	0	0	5	8	0	3	15	10	0	6	36	3	0	131	
7:10 AM	12	8	6	0	1	6	3	0	7	24	9	0	8	32	0	0	116	
7:15 AM	10	9	9	0	1	10	1	0	8	17	9	0	15	36	0	0	125	
7:20 AM	15	9	12	0	2	8	9	0	3	28	5	0	11	44	1	0	147	
7:25 AM	14	16	12	0	4	5	5	0	2	15	3	0	14	40	1	0	131	
7:30 AM	16	17	17	0	1	9	3	0	3	21	4	0	11	35	0	0	137	
7:35 AM	15	19	14	0	5	12	5	0	6	25	3	0	13	38	3	0	158	
7:40 AM	15	21	32	0	0	8	9	0	7	29	10	0	22	49	0	0	202	
7:45 AM	18	22	20	0	4	26	6	0	5	41	4	0	18	50	0	0	214	
7:50 AM	18	18	24	0	1	25	5	0	1	44	13	0	22	70	2	0	243	
7:55 AM	15	21	15	0	4	17	8	1	4	40	19	0	27	53	4	0	228	1948
8:00 AM	15	22	22	0	6	19	6	0	7	35	9	0	15	49	1	0	206	2038
8:05 AM	14	26	20	0	5	22	8	0	7	30	9	0	18	40	2	0	201	2108
8:10 AM	17	17	19	0	0	22	4	0	3	29	9	0	18	48	2	0	188	2180
8:15 AM	15	19	22	0	1	17	6	0	2	27	6	1	26	50	3	0	195	2250
8:20 AM	17	13	14	0	1	13	6	0	10	41	8	0	15	42	2	0	182	2285
8:25 AM	16	10	18	0	3	7	11	0	5	28	6	0	13	53	0	0	170	2324
8:30 AM	14	18	10	0	5	12	3	0	4	30	9	0	16	47	1	0	169	2356
8:35 AM	13	11	17	0	2	8	8	0	12	28	8	0	9	35	1	0	152	2350
8:40 AM	13	13	15	0	1	12	5	0	5	33	10	0	16	33	0	0	156	2304
8:45 AM	11	8	12	0	3	9	5	0	8	31	5	0	17	41	0	0	150	2240
8:50 AM	16	13	17	0	2	15	8	0	8	37	7	0	14	54	1	0	192	2189
8:55 AM	11	20	17	0	0	7	1	0	3	35	15	0	8	34	1	0	152	2113

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	204	244	236	0	36	272	76	4	40	500	144	0	268	692	24	0	2740
Heavy Trucks	24	8	4		0	4	0		4	24	20		20	20	0		128
Pedestrians		0				0				8				20			28
Bicycles	0	0	0		0	1	2		0	0	0		0	0	0		3
Railroad Stopped Buses																	

Comments:

Report generated on 2/29/2016 5:29 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

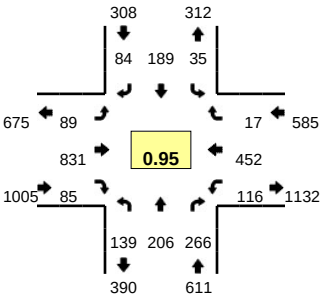
Method for determining peak hour: Total Entering Volume

LOCATION: Alvarado St -- Marina Blvd

CITY/STATE: San Leandro, CA

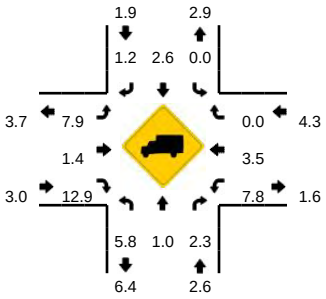
QC JOB #: 13723404

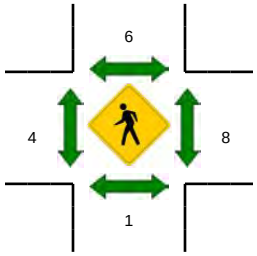
DATE: Tue, Feb 23 2016

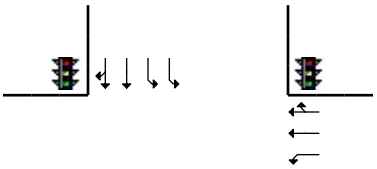


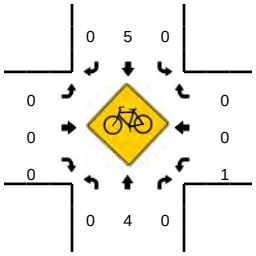
Peak-Hour: 4:55 PM -- 5:55 PM

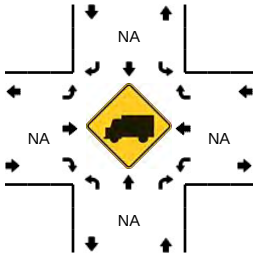
Peak 15-Min: 5:05 PM -- 5:20 PM

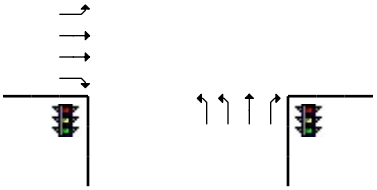


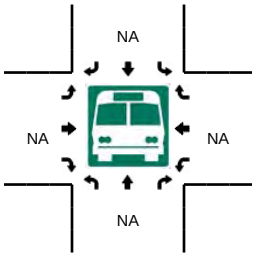












5-Min Count Period Beginning At	Alvarado St (Northbound)				Alvarado St (Southbound)				Marina Blvd (Eastbound)				Marina Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	16	6	27	0	1	13	10	0	2	39	7	0	6	32	3	0	162	
4:05 PM	15	13	22	0	0	15	8	0	7	55	14	0	19	37	1	0	206	
4:10 PM	8	11	26	0	1	15	2	0	7	76	11	0	9	33	3	0	202	
4:15 PM	8	11	15	0	6	21	4	0	4	62	15	1	15	27	3	0	192	
4:20 PM	14	12	18	0	1	12	10	0	3	38	12	0	13	41	3	0	177	
4:25 PM	4	12	7	0	4	9	8	0	5	55	11	0	16	32	1	0	164	
4:30 PM	14	13	21	0	2	14	8	0	6	54	12	0	10	32	1	0	187	
4:35 PM	22	16	23	0	3	11	5	0	5	56	17	0	7	52	2	0	219	
4:40 PM	22	16	21	0	5	15	5	0	7	55	9	0	6	33	0	0	194	
4:45 PM	11	23	19	0	4	10	9	0	5	69	10	0	7	47	1	0	215	
4:50 PM	14	16	21	0	4	11	6	0	7	58	4	0	6	42	7	0	196	
4:55 PM	18	17	28	0	3	13	11	0	5	56	6	0	11	38	0	0	206	2320
5:00 PM	9	15	11	0	3	21	4	0	10	55	6	0	5	27	2	0	168	2326
5:05 PM	23	24	31	0	1	8	6	0	5	66	8	0	9	38	2	0	221	2341
5:10 PM	16	18	26	0	1	13	9	0	5	72	11	0	8	30	3	0	212	2351
5:15 PM	7	13	23	0	7	27	3	0	7	71	7	0	13	45	4	0	227	2386
5:20 PM	8	21	22	0	3	14	12	0	7	67	4	0	13	28	0	0	199	2408
5:25 PM	10	14	25	0	6	22	5	0	2	70	11	0	10	36	1	0	212	2456
5:30 PM	5	16	24	0	3	11	3	0	13	74	5	0	15	40	0	0	209	2478
5:35 PM	12	18	17	0	3	19	7	0	5	86	5	0	12	49	1	0	234	2493
5:40 PM	9	12	25	0	2	15	1	0	12	68	6	0	8	38	1	0	197	2496
5:45 PM	12	18	16	0	1	8	2	0	6	76	11	0	8	38	3	0	199	2480
5:50 PM	10	20	18	0	2	18	21	0	12	70	5	0	4	45	0	0	225	2509
5:55 PM	5	23	19	0	3	18	8	0	3	47	2	0	17	34	2	0	181	2484

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	184	220	320	0	36	192	72	0	68	836	104	0	120	452	36	0	2640
Heavy Trucks	12	8	8		0	4	0		8	16	12		12	20	0		100
Pedestrians		4				8				0				12			24
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/29/2016 5:29 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

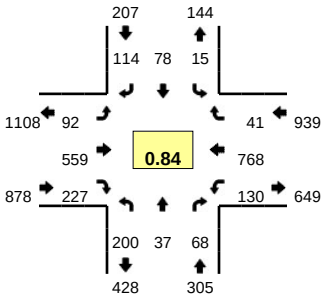
Method for determining peak hour: Total Entering Volume

LOCATION: Teagarden St/Wayne Ave -- Marina Blvd

QC JOB #: 13723401

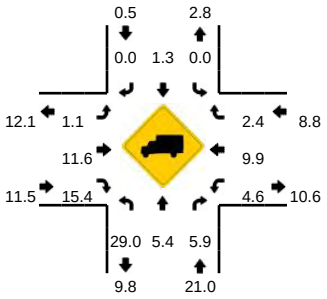
CITY/STATE: San Leandro, CA

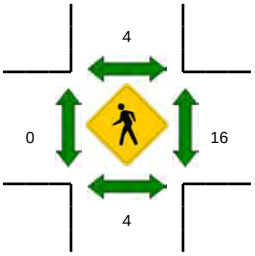
DATE: Tue, Feb 23 2016

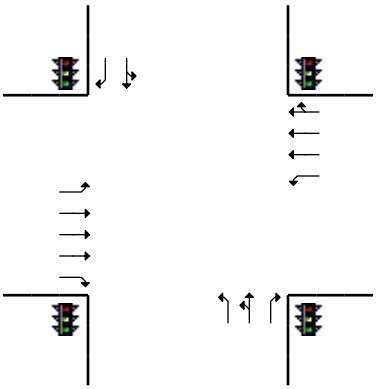


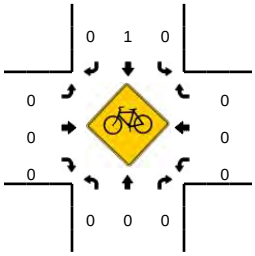
Peak-Hour: 7:40 AM -- 8:40 AM

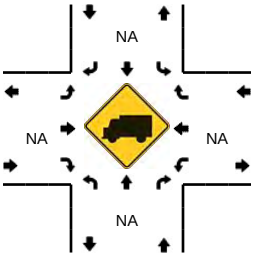
Peak 15-Min: 7:50 AM -- 8:05 AM

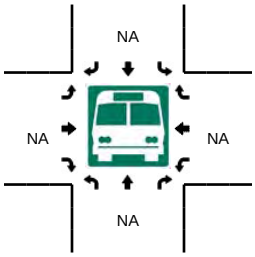












5-Min Count Period Beginning At	Teagarden St/Wayne Ave (Northbound)				Teagarden St/Wayne Ave (Southbound)				Marina Blvd (Eastbound)				Marina Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	14	2	0	0	0	6	7	0	2	26	17	3	8	40	0	1	126	
7:05 AM	15	1	3	0	0	2	4	0	3	40	18	3	6	55	0	1	151	
7:10 AM	9	0	3	0	0	1	5	0	5	35	21	1	9	52	1	0	142	
7:15 AM	16	2	9	0	0	7	6	0	1	27	26	5	7	39	2	1	148	
7:20 AM	16	2	5	0	1	5	12	0	4	37	13	3	7	71	1	0	177	
7:25 AM	19	2	3	0	0	3	10	0	6	28	18	2	10	54	2	0	157	
7:30 AM	16	2	2	0	3	4	8	0	7	41	16	0	7	44	3	0	153	
7:35 AM	15	3	5	0	0	3	9	0	5	37	17	0	8	47	3	0	152	
7:40 AM	14	1	6	0	1	4	9	0	4	42	22	2	5	68	1	0	179	
7:45 AM	16	3	6	0	2	3	8	0	11	40	19	0	10	67	4	0	189	
7:50 AM	14	2	7	0	2	6	16	0	6	47	25	2	12	79	5	0	223	
7:55 AM	17	7	7	0	1	10	13	0	5	69	24	3	10	83	8	0	257	2054
8:00 AM	17	4	5	0	2	11	12	0	6	58	29	2	9	54	3	0	212	2140
8:05 AM	19	5	4	0	1	10	10	0	9	47	10	5	14	46	3	0	183	2172
8:10 AM	19	3	3	0	2	6	6	0	4	28	22	0	8	61	3	3	168	2198
8:15 AM	18	4	4	0	1	12	16	0	5	49	17	2	13	54	3	1	199	2249
8:20 AM	15	2	9	0	1	5	7	0	3	45	14	3	11	74	2	0	191	2263
8:25 AM	18	2	6	0	1	4	4	0	3	45	14	2	14	69	1	0	183	2289
8:30 AM	15	2	7	0	1	4	5	0	3	45	14	3	8	67	5	0	179	2315
8:35 AM	18	2	4	0	0	3	8	0	7	44	17	2	9	46	3	3	166	2329
8:40 AM	16	1	7	0	0	0	7	0	6	38	17	4	8	51	6	1	162	2312
8:45 AM	11	0	3	0	1	2	2	0	6	41	22	3	3	63	1	0	158	2281
8:50 AM	14	0	7	0	2	3	4	0	5	41	18	2	9	41	5	1	152	2210
8:55 AM	10	2	10	0	0	2	5	0	3	53	23	4	14	55	3	1	185	2138

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	192	52	76	0	20	108	164	0	68	696	312	28	124	864	64	0	2768
Heavy Trucks	48	4	0		0	4	0		0	68	48		0	48	0		220
Pedestrians		4				8				0				20			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/29/2016 5:29 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

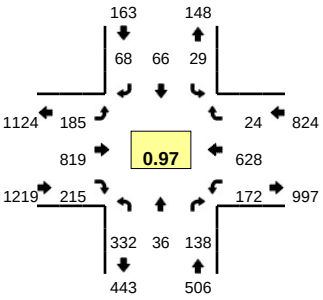
Method for determining peak hour: Total Entering Volume

LOCATION: Teagarden St/Wayne Ave -- Marina Blvd

QC JOB #: 13723402

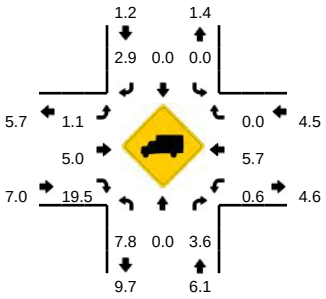
CITY/STATE: San Leandro, CA

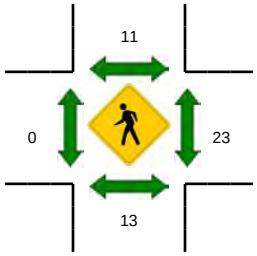
DATE: Tue, Feb 23 2016

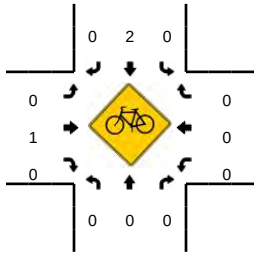


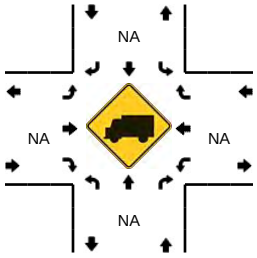
Peak-Hour: 4:35 PM -- 5:35 PM

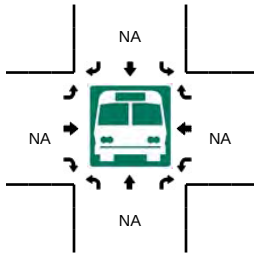
Peak 15-Min: 4:35 PM -- 4:50 PM











5-Min Count Period Beginning At	Teagarden St/Wayne Ave (Northbound)				Teagarden St/Wayne Ave (Southbound)				Marina Blvd (Eastbound)				Marina Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	34	2	21	0	3	6	10	0	7	40	17	13	10	60	2	0	225	
4:05 PM	31	5	10	0	10	6	5	0	7	62	21	11	18	51	2	1	240	
4:10 PM	29	1	8	0	3	3	8	0	9	59	13	10	10	42	0	0	195	
4:15 PM	29	4	13	0	3	10	5	0	3	63	13	14	18	40	1	1	217	
4:20 PM	33	2	15	0	0	3	5	0	10	57	17	4	16	48	5	0	215	
4:25 PM	27	2	9	0	1	2	3	0	2	71	20	12	12	39	3	0	203	
4:30 PM	20	2	16	0	2	7	12	0	4	54	11	4	14	45	1	2	194	
4:35 PM	31	4	8	0	3	2	7	0	7	61	22	6	12	66	2	2	233	
4:40 PM	24	5	9	0	3	3	3	0	12	79	19	8	17	53	2	1	238	
4:45 PM	21	1	8	0	3	5	4	0	6	66	18	14	10	66	3	0	225	
4:50 PM	22	2	11	0	1	10	6	0	10	61	20	6	19	50	3	3	224	
4:55 PM	37	6	10	0	0	4	7	0	6	64	19	5	17	52	1	1	229	2638
5:00 PM	30	2	14	0	2	9	5	0	9	64	21	8	8	49	1	0	222	2635
5:05 PM	31	3	15	0	5	5	5	0	4	57	15	3	15	48	2	0	208	2603
5:10 PM	32	2	17	0	2	10	7	0	5	61	11	12	11	47	1	2	220	2628
5:15 PM	29	5	12	0	4	4	6	0	6	71	23	7	17	48	3	0	235	2646
5:20 PM	24	2	9	1	1	2	4	0	6	76	14	5	10	46	3	0	203	2634
5:25 PM	24	3	11	0	2	6	4	0	12	90	17	10	11	50	2	1	243	2674
5:30 PM	26	1	14	0	3	6	10	0	5	69	16	13	14	53	1	1	232	2712
5:35 PM	17	2	12	0	1	8	4	0	7	81	13	7	21	48	3	1	225	2704
5:40 PM	22	3	8	0	2	7	5	0	8	90	16	6	11	47	1	1	227	2693
5:45 PM	15	2	10	0	2	9	6	0	11	63	11	9	10	45	1	0	194	2662
5:50 PM	24	1	11	0	3	9	8	0	9	67	10	7	19	54	4	3	229	2667
5:55 PM	20	4	11	0	2	3	7	0	8	53	14	13	18	41	1	0	195	2633

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	304	40	100	0	36	40	56	0	100	824	236	112	156	740	28	12	2784
Heavy Trucks	12	0	4		0	0	0		0	40	44		0	36	0		136
Pedestrians		12				8				0				20			40
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/29/2016 5:29 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

LOCATION: Alvarado Street Between Marina Blvd and Alladin Ave

QC JOB #: 13723406

SPECIFIC LOCATION: Alvarado Street Between Marina Blvd and Alladin Ave

DIRECTION: NB/SB

CITY/STATE: San Leandro, CA

DATE: Feb 25 2016 - Feb 25 2016

Start Time	Mon	Tue	Wed	Thu 25-Feb-16	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				50		50			50	
1:00 AM				41		41			41	
2:00 AM				35		35			35	
3:00 AM				53		53			53	
4:00 AM				149		149			149	
5:00 AM				324		324			324	
6:00 AM				478		478			478	
7:00 AM				951		951			951	
8:00 AM				**1047**		**1047**			**1047**	
9:00 AM				701		701			701	
10:00 AM				663		663			663	
11:00 AM				758		758			758	
12:00 PM				794		794			794	
1:00 PM				819		819			819	
2:00 PM				949		949			949	
3:00 PM				**975**		**975**			**975**	
4:00 PM				865		865			865	
5:00 PM				950		950			950	
6:00 PM				686		686			686	
7:00 PM				448		448			448	
8:00 PM				343		343			343	
9:00 PM				221		221			221	
10:00 PM				181		181			181	
11:00 PM				130		130			130	
Day Total				12611		12611			12611	
% Weekday Average				100.0%						
% Week Average				100.0%		100.0%				
AM Peak				8:00 AM		8:00 AM			8:00 AM	
Volume				1047		1047			1047	
PM Peak				3:00 PM		3:00 PM			3:00 PM	
Volume				975		975			975	

Comments:

LOCATION: Teagarden Street Between Marina Blvd and Alladin Ave
QC JOB #: 13723405
SPECIFIC LOCATION: Teagarden Street Between Marina Blvd and Alladin Ave
DIRECTION: NB/SB
CITY/STATE: San Leandro, CA
DATE: Feb 25 2016 - Feb 26 2016

Start Time	Mon	Tue	Wed	Thu 25-Feb-16	Fri 26-Feb-16	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				45	**0**	23			23	
1:00 AM				25		25			25	
2:00 AM				40		40			40	
3:00 AM				53		53			53	
4:00 AM				153		153			153	
5:00 AM				297		297			297	
6:00 AM				460		460			460	
7:00 AM				599		599			599	
8:00 AM				**687**		**687**			**687**	
9:00 AM				596		596			596	
10:00 AM				606		606			606	
11:00 AM				672		672			672	
12:00 PM				715		715			715	
1:00 PM				685		685			685	
2:00 PM				**771**		**771**			**771**	
3:00 PM				751		751			751	
4:00 PM				651		651			651	
5:00 PM				628		628			628	
6:00 PM				491		491			491	
7:00 PM				306		306			306	
8:00 PM				251		251			251	
9:00 PM				178		178			178	
10:00 PM				105		105			105	
11:00 PM				87		87			87	
Day Total				9852	0	9830			9830	
% Weekday Average				100.2%	0.0%					
% Week Average				100.2%	0.0%	100.0%				
AM Peak				8:00 AM	12:00 AM	8:00 AM			8:00 AM	
Volume				687	0	687			687	
PM Peak				2:00 PM		2:00 PM			2:00 PM	
Volume				771		771			771	

Comments:

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	559	227	130	768	41	200	37	68	15	78	114
Future Volume (veh/h)	92	559	227	130	768	41	200	37	68	15	78	114
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1696	1652	1810	1734	1900	1473	1563	1792	1900	1884	1900
Adj Flow Rate, veh/h	110	665	270	155	914	49	269	0	81	18	93	136
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	1	12	15	5	10	10	29	5	6	1	1	0
Cap, veh/h	140	1870	565	186	1995	107	457	0	241	32	163	158
Arrive On Green	0.08	0.40	0.40	0.11	0.43	0.43	0.16	0.00	0.16	0.10	0.10	0.10
Sat Flow, veh/h	1792	4631	1400	1723	4598	246	2805	0	1479	303	1566	1520
Grp Volume(v), veh/h	110	665	270	155	627	336	269	0	81	111	0	136
Grp Sat Flow(s),veh/h/ln	1792	1544	1400	1723	1578	1689	1403	0	1479	1869	0	1520
Q Serve(g_s), s	5.7	9.5	13.5	8.4	13.3	13.4	8.4	0.0	4.6	5.4	0.0	8.4
Cycle Q Clear(g_c), s	5.7	9.5	13.5	8.4	13.3	13.4	8.4	0.0	4.6	5.4	0.0	8.4
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	0.16		1.00
Lane Grp Cap(c), veh/h	140	1870	565	186	1369	733	457	0	241	195	0	158
V/C Ratio(X)	0.79	0.36	0.48	0.83	0.46	0.46	0.59	0.00	0.34	0.57	0.00	0.86
Avail Cap(c_a), veh/h	219	1870	565	210	1369	733	853	0	450	195	0	158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.0	19.7	20.9	41.5	19.0	19.0	36.8	0.0	35.2	40.5	0.0	41.9
Incr Delay (d2), s/veh	13.0	0.5	2.9	23.3	0.9	1.6	1.7	0.0	1.2	4.8	0.0	35.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.2	5.7	5.2	5.9	6.5	3.4	0.0	2.0	3.0	0.0	5.1
LnGrp Delay(d),s/veh	56.0	20.2	23.8	64.8	19.9	20.6	38.6	0.0	36.4	45.4	0.0	77.5
LnGrp LOS	E	C	C	E	B	C	D		D	D		E
Approach Vol, veh/h		1045			1118			350			247	
Approach Delay, s/veh		24.9			26.3			38.1			63.1	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.7	43.8		15.0	12.8	46.6		20.6
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	11.6	23.6		9.9	11.6	23.6		28.9
Max Q Clear Time (g_c+I1), s	10.4	15.5		10.4	7.7	15.4		10.4
Green Ext Time (p_c), s	0.1	7.6		0.0	0.1	7.8		1.8

Intersection Summary		
HCM 2010 Ctrl Delay		30.6
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	399	105	223	589	20	189	226	230	36	200	77
Future Volume (veh/h)	62	399	105	223	589	20	189	226	230	36	200	77
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1776	1624	1743	1793	1900	1652	1863	1810	1845	1858	1900
Adj Flow Rate, veh/h	72	464	122	259	685	23	220	263	267	42	233	90
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	10	7	17	9	6	6	15	2	5	3	2	2
Cap, veh/h	90	1450	592	227	1721	58	291	352	283	165	381	142
Arrive On Green	0.05	0.43	0.43	0.14	0.51	0.51	0.10	0.19	0.19	0.05	0.15	0.15
Sat Flow, veh/h	1645	3374	1378	1660	3363	113	3053	1863	1496	3408	2492	930
Grp Volume(v), veh/h	72	464	122	259	347	361	220	263	267	42	163	160
Grp Sat Flow(s),veh/h/ln	1645	1687	1378	1660	1703	1773	1526	1863	1496	1704	1765	1657
Q Serve(g_s), s	4.1	8.6	5.3	13.0	11.9	11.9	6.7	12.7	12.0	1.1	8.2	8.6
Cycle Q Clear(g_c), s	4.1	8.6	5.3	13.0	11.9	11.9	6.7	12.7	12.0	1.1	8.2	8.6
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		0.56
Lane Grp Cap(c), veh/h	90	1450	592	227	872	907	291	352	283	165	270	253
V/C Ratio(X)	0.80	0.32	0.21	1.14	0.40	0.40	0.76	0.75	0.94	0.25	0.60	0.63
Avail Cap(c_a), veh/h	190	1450	592	227	872	907	418	451	362	466	435	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	17.9	16.9	41.0	14.2	14.2	41.9	36.4	19.4	43.5	37.6	37.7
Incr Delay (d2), s/veh	5.9	0.6	0.8	102.6	1.1	1.0	6.3	6.0	30.6	1.1	3.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.1	2.1	12.4	5.8	6.1	3.1	7.1	7.3	0.6	4.2	4.2
LnGrp Delay(d),s/veh	50.3	18.5	17.7	143.6	15.3	15.2	48.2	42.4	50.0	44.7	40.6	41.4
LnGrp LOS	D	B	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		658			967			750			365	
Approach Delay, s/veh		21.8			49.7			46.8			41.5	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	45.8	13.1	19.1	9.2	53.6	9.2	23.0
Change Period (Y+Rc), s	4.0	5.0	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	13.0	28.0	13.0	23.4	11.0	30.0	13.0	* 23
Max Q Clear Time (g_c+I1), s	15.0	10.6	8.7	10.6	6.1	13.9	3.1	14.7
Green Ext Time (p_c), s	0.0	13.1	0.4	2.1	0.0	12.3	1.8	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	41.1
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	819	215	172	628	24	332	36	138	29	66	68
Future Volume (veh/h)	185	819	215	172	628	24	332	36	138	29	66	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1583	1881	1796	1900	1759	1785	1827	1900	1900	1845
Adj Flow Rate, veh/h	191	844	222	177	647	25	368	0	142	30	68	70
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	5	20	1	6	6	8	0	4	0	0	3
Cap, veh/h	223	2039	543	210	1963	76	627	0	280	42	95	102
Arrive On Green	0.12	0.41	0.41	0.12	0.41	0.41	0.19	0.00	0.19	0.07	0.07	0.07
Sat Flow, veh/h	1792	4940	1317	1792	4843	186	3351	0	1496	573	1298	1396
Grp Volume(v), veh/h	191	844	222	177	436	236	368	0	142	98	0	70
Grp Sat Flow(s),veh/h/ln	1792	1647	1317	1792	1635	1760	1675	0	1496	1871	0	1396
Q Serve(g_s), s	10.4	12.1	11.9	9.7	9.2	9.2	10.0	0.0	8.5	5.1	0.0	4.9
Cycle Q Clear(g_c), s	10.4	12.1	11.9	9.7	9.2	9.2	10.0	0.0	8.5	5.1	0.0	4.9
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	0.31		1.00
Lane Grp Cap(c), veh/h	223	2039	543	210	1325	713	627	0	280	136	0	102
V/C Ratio(X)	0.85	0.41	0.41	0.84	0.33	0.33	0.59	0.00	0.51	0.72	0.00	0.69
Avail Cap(c_a), veh/h	244	2039	543	244	1325	713	1069	0	477	185	0	138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	20.8	20.7	43.2	20.4	20.4	37.1	0.0	36.5	45.4	0.0	45.2
Incr Delay (d2), s/veh	24.2	0.6	2.3	21.8	0.5	1.0	1.2	0.0	2.0	10.8	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	5.6	4.7	6.0	4.2	4.7	4.8	0.0	3.7	3.1	0.0	2.2
LnGrp Delay(d),s/veh	67.1	21.4	23.0	65.1	20.9	21.4	38.4	0.0	38.5	56.2	0.0	56.7
LnGrp LOS	E	C	C	E	C	C	D		D	E		E
Approach Vol, veh/h		1257			849			510			168	
Approach Delay, s/veh		28.6			30.3			38.4			56.4	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.1	46.7		12.4	17.9	45.9		23.8
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	13.6	23.6		9.9	13.6	23.6		31.9
Max Q Clear Time (g_c+I1), s	11.7	14.1		7.1	12.4	11.2		12.0
Green Ext Time (p_c), s	0.1	8.7		0.2	0.1	11.2		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	831	85	116	452	17	139	206	266	35	189	84
Future Volume (veh/h)	89	831	85	116	452	17	139	206	266	35	189	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1681	1759	1829	1900	1792	1881	1863	1900	1856	1900
Adj Flow Rate, veh/h	94	875	89	122	476	18	146	217	280	37	199	88
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	13	8	4	4	6	1	2	0	3	3
Cap, veh/h	117	1097	436	432	1724	65	217	393	322	106	439	186
Arrive On Green	0.07	0.31	0.31	0.26	0.50	0.50	0.07	0.21	0.21	0.03	0.18	0.18
Sat Flow, veh/h	1675	3574	1421	1675	3415	129	3312	1881	1540	3510	2390	1012
Grp Volume(v), veh/h	94	875	89	122	242	252	146	217	280	37	144	143
Grp Sat Flow(s),veh/h/ln	1675	1787	1421	1675	1738	1806	1656	1881	1540	1755	1763	1639
Q Serve(g_s), s	5.5	22.5	3.6	5.8	8.0	8.0	4.3	10.3	17.6	1.0	7.3	7.8
Cycle Q Clear(g_c), s	5.5	22.5	3.6	5.8	8.0	8.0	4.3	10.3	17.6	1.0	7.3	7.8
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	117	1097	436	432	877	912	217	393	322	106	324	301
V/C Ratio(X)	0.80	0.80	0.20	0.28	0.28	0.28	0.67	0.55	0.87	0.35	0.45	0.47
Avail Cap(c_a), veh/h	184	1180	469	432	877	912	464	433	354	491	413	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	31.8	15.4	29.7	14.2	14.2	45.7	35.4	38.3	47.5	36.3	36.5
Incr Delay (d2), s/veh	5.7	6.1	1.1	0.5	0.6	0.6	5.1	1.7	19.9	2.7	1.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	12.0	1.5	2.8	4.0	4.1	2.1	5.6	9.3	0.5	3.7	3.7
LnGrp Delay(d),s/veh	51.6	37.9	16.5	30.2	14.9	14.8	50.8	37.1	58.2	50.3	37.7	38.1
LnGrp LOS	D	D	B	C	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1058			616			643			324	
Approach Delay, s/veh		37.3			17.9			49.4			39.3	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.8	35.7	10.6	23.0	11.0	55.5	7.6	25.9
Change Period (Y+Rc), s	5.0	* 5	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	12.0	* 33	14.0	23.4	11.0	34.0	14.0	* 23
Max Q Clear Time (g_c+I1), s	7.8	24.5	6.3	9.8	7.5	10.0	3.0	19.6
Green Ext Time (p_c), s	1.9	6.2	0.4	1.9	0.0	7.3	1.7	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	566	229	130	777	41	202	37	68	15	78	114
Future Volume (veh/h)	92	566	229	130	777	41	202	37	68	15	78	114
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1696	1652	1810	1734	1900	1473	1563	1792	1900	1884	1900
Adj Flow Rate, veh/h	110	674	273	155	925	49	271	0	81	18	93	136
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	1	12	15	5	10	10	29	5	6	1	1	0
Cap, veh/h	140	1868	565	186	1994	105	458	0	242	32	163	158
Arrive On Green	0.08	0.40	0.40	0.11	0.43	0.43	0.16	0.00	0.16	0.10	0.10	0.10
Sat Flow, veh/h	1792	4631	1400	1723	4601	243	2805	0	1479	303	1566	1520
Grp Volume(v), veh/h	110	674	273	155	634	340	271	0	81	111	0	136
Grp Sat Flow(s),veh/h/ln	1792	1544	1400	1723	1578	1689	1403	0	1479	1869	0	1520
Q Serve(g_s), s	5.7	9.7	13.7	8.4	13.5	13.6	8.5	0.0	4.6	5.4	0.0	8.4
Cycle Q Clear(g_c), s	5.7	9.7	13.7	8.4	13.5	13.6	8.5	0.0	4.6	5.4	0.0	8.4
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	0.16		1.00
Lane Grp Cap(c), veh/h	140	1868	565	186	1367	732	458	0	242	195	0	158
V/C Ratio(X)	0.79	0.36	0.48	0.83	0.46	0.46	0.59	0.00	0.34	0.57	0.00	0.86
Avail Cap(c_a), veh/h	219	1868	565	210	1367	732	853	0	450	195	0	158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.0	19.8	21.0	41.5	19.1	19.1	36.8	0.0	35.2	40.5	0.0	41.9
Incr Delay (d2), s/veh	13.0	0.5	2.9	23.3	0.9	1.7	1.7	0.0	1.2	4.8	0.0	35.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.2	5.8	5.2	6.1	6.7	3.4	0.0	2.0	3.0	0.0	5.1
LnGrp Delay(d),s/veh	56.0	20.3	24.0	64.8	20.0	20.8	38.5	0.0	36.3	45.4	0.0	77.5
LnGrp LOS	E	C	C	E	B	C	D		D	D		E
Approach Vol, veh/h		1057			1129			352			247	
Approach Delay, s/veh		25.0			26.4			38.0			63.1	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.7	43.7		15.0	12.8	46.6		20.6
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	11.6	23.6		9.9	11.6	23.6		28.9
Max Q Clear Time (g_c+I1), s	10.4	15.7		10.4	7.7	15.6		10.5
Green Ext Time (p_c), s	0.1	7.5		0.0	0.1	7.6		1.8

Intersection Summary		
HCM 2010 Ctrl Delay		30.6
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	399	112	226	589	20	198	226	234	36	200	77
Future Volume (veh/h)	62	399	112	226	589	20	198	226	234	36	200	77
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1776	1624	1743	1793	1900	1652	1863	1810	1845	1858	1900
Adj Flow Rate, veh/h	72	464	130	263	685	23	230	263	272	42	233	90
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	10	7	17	9	6	6	15	2	5	3	2	2
Cap, veh/h	90	1439	588	227	1710	57	301	353	283	176	381	142
Arrive On Green	0.05	0.43	0.43	0.14	0.51	0.51	0.10	0.19	0.19	0.05	0.15	0.15
Sat Flow, veh/h	1645	3374	1378	1660	3363	113	3053	1863	1496	3408	2492	930
Grp Volume(v), veh/h	72	464	130	263	347	361	230	263	272	42	163	160
Grp Sat Flow(s),veh/h/ln	1645	1687	1378	1660	1703	1773	1526	1863	1496	1704	1765	1657
Q Serve(g_s), s	4.1	8.7	5.7	13.0	11.9	11.9	7.0	12.7	12.2	1.1	8.2	8.6
Cycle Q Clear(g_c), s	4.1	8.7	5.7	13.0	11.9	11.9	7.0	12.7	12.2	1.1	8.2	8.6
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		0.56
Lane Grp Cap(c), veh/h	90	1439	588	227	866	901	301	353	283	176	270	253
V/C Ratio(X)	0.80	0.32	0.22	1.16	0.40	0.40	0.76	0.75	0.96	0.24	0.60	0.63
Avail Cap(c_a), veh/h	190	1439	588	227	866	901	418	451	362	466	435	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	18.1	17.2	41.0	14.4	14.4	41.7	36.4	19.5	43.3	37.6	37.7
Incr Delay (d2), s/veh	5.9	0.6	0.9	108.9	1.1	1.0	6.9	6.0	34.4	1.0	3.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	4.2	2.3	12.8	5.8	6.1	3.2	7.1	7.8	0.6	4.2	4.2
LnGrp Delay(d),s/veh	50.3	18.7	18.1	149.9	15.5	15.5	48.6	42.4	53.9	44.3	40.6	41.4
LnGrp LOS	D	B	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		666			971			765			365	
Approach Delay, s/veh		22.0			51.9			48.4			41.4	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	45.5	13.4	19.1	9.2	53.3	9.5	23.0
Change Period (Y+Rc), s	4.0	5.0	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	13.0	28.0	13.0	23.4	11.0	30.0	13.0	* 23
Max Q Clear Time (g_c+I1), s	15.0	10.7	9.0	10.6	6.1	13.9	3.1	14.7
Green Ext Time (p_c), s	0.0	13.1	0.4	2.1	0.0	12.3	1.8	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	828	217	172	635	24	334	36	138	29	66	68
Future Volume (veh/h)	185	828	217	172	635	24	334	36	138	29	66	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1583	1881	1796	1900	1759	1785	1827	1900	1900	1845
Adj Flow Rate, veh/h	191	854	224	177	655	25	370	0	142	30	68	70
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	5	20	1	6	6	8	0	4	0	0	3
Cap, veh/h	223	2037	543	210	1961	75	629	0	281	42	95	102
Arrive On Green	0.12	0.41	0.41	0.12	0.40	0.40	0.19	0.00	0.19	0.07	0.07	0.07
Sat Flow, veh/h	1792	4940	1316	1792	4845	184	3351	0	1496	573	1298	1396
Grp Volume(v), veh/h	191	854	224	177	441	239	370	0	142	98	0	70
Grp Sat Flow(s),veh/h/ln	1792	1647	1316	1792	1635	1760	1675	0	1496	1871	0	1396
Q Serve(g_s), s	10.4	12.3	12.0	9.7	9.3	9.3	10.1	0.0	8.5	5.1	0.0	4.9
Cycle Q Clear(g_c), s	10.4	12.3	12.0	9.7	9.3	9.3	10.1	0.0	8.5	5.1	0.0	4.9
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	0.31		1.00
Lane Grp Cap(c), veh/h	223	2037	543	210	1323	713	629	0	281	136	0	102
V/C Ratio(X)	0.85	0.42	0.41	0.84	0.33	0.34	0.59	0.00	0.51	0.72	0.00	0.69
Avail Cap(c_a), veh/h	244	2037	543	244	1323	713	1069	0	477	185	0	138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	20.9	20.8	43.2	20.5	20.5	37.1	0.0	36.5	45.4	0.0	45.2
Incr Delay (d2), s/veh	24.2	0.6	2.3	21.8	0.5	1.0	1.3	0.0	2.0	10.8	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	5.7	4.7	6.0	4.3	4.7	4.8	0.0	3.7	3.1	0.0	2.2
LnGrp Delay(d),s/veh	67.1	21.5	23.1	65.1	21.0	21.5	38.4	0.0	38.5	56.2	0.0	56.7
LnGrp LOS	E	C	C	E	C	C	D		D	E		E
Approach Vol, veh/h		1269			857			512			168	
Approach Delay, s/veh		28.7			30.2			38.4			56.4	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.1	46.6		12.4	17.9	45.9		23.9
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	13.6	23.6		9.9	13.6	23.6		31.9
Max Q Clear Time (g_c+I1), s	11.7	14.3		7.1	12.4	11.3		12.1
Green Ext Time (p_c), s	0.1	8.6		0.2	0.1	11.1		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	831	94	120	452	17	146	206	269	35	189	84
Future Volume (veh/h)	89	831	94	120	452	17	146	206	269	35	189	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1681	1759	1829	1900	1792	1881	1863	1900	1856	1900
Adj Flow Rate, veh/h	94	875	99	126	476	18	154	217	283	37	199	88
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	13	8	4	4	6	1	2	0	3	3
Cap, veh/h	117	1098	436	430	1720	65	226	395	324	106	435	184
Arrive On Green	0.07	0.31	0.31	0.26	0.50	0.50	0.07	0.21	0.21	0.03	0.18	0.18
Sat Flow, veh/h	1675	3574	1421	1675	3415	129	3312	1881	1540	3510	2390	1012
Grp Volume(v), veh/h	94	875	99	126	242	252	154	217	283	37	144	143
Grp Sat Flow(s),veh/h/ln	1675	1787	1421	1675	1738	1806	1656	1881	1540	1755	1763	1639
Q Serve(g_s), s	5.5	22.5	4.0	6.0	8.0	8.1	4.5	10.3	17.8	1.0	7.3	7.8
Cycle Q Clear(g_c), s	5.5	22.5	4.0	6.0	8.0	8.1	4.5	10.3	17.8	1.0	7.3	7.8
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	117	1098	436	430	875	909	226	395	324	106	321	299
V/C Ratio(X)	0.80	0.80	0.23	0.29	0.28	0.28	0.68	0.55	0.87	0.35	0.45	0.48
Avail Cap(c_a), veh/h	184	1180	469	430	875	909	464	433	354	491	413	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	31.8	15.4	29.9	14.3	14.3	45.5	35.3	38.2	47.5	36.4	36.6
Incr Delay (d2), s/veh	5.7	6.0	1.2	0.5	0.6	0.6	5.1	1.7	20.5	2.7	1.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	12.0	1.7	2.9	4.0	4.1	2.2	5.6	9.4	0.5	3.7	3.7
LnGrp Delay(d),s/veh	51.6	37.8	16.6	30.4	14.9	14.9	50.6	37.0	58.8	50.3	37.8	38.3
LnGrp LOS	D	D	B	C	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1068			620			654			324	
Approach Delay, s/veh		37.1			18.1			49.6			39.5	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.6	35.7	10.8	22.8	11.0	55.4	7.6	26.0
Change Period (Y+Rc), s	5.0	* 5	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	12.0	* 33	14.0	23.4	11.0	34.0	14.0	* 23
Max Q Clear Time (g_c+I1), s	8.0	24.5	6.5	9.8	7.5	10.1	3.0	19.8
Green Ext Time (p_c), s	1.6	6.3	0.4	1.9	0.0	7.4	1.7	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	588	239	137	807	43	210	39	71	16	82	120
Future Volume (veh/h)	97	588	239	137	807	43	210	39	71	16	82	120
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1696	1652	1810	1734	1900	1473	1563	1792	1900	1884	1900
Adj Flow Rate, veh/h	115	700	285	163	961	51	283	0	85	19	98	143
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	1	12	15	5	10	10	29	5	6	1	1	0
Cap, veh/h	146	1828	553	194	1961	104	469	0	248	32	163	158
Arrive On Green	0.08	0.39	0.39	0.11	0.43	0.43	0.17	0.00	0.17	0.10	0.10	0.10
Sat Flow, veh/h	1792	4631	1400	1723	4601	244	2805	0	1480	304	1566	1520
Grp Volume(v), veh/h	115	700	285	163	659	353	283	0	85	117	0	143
Grp Sat Flow(s),veh/h/ln	1792	1544	1400	1723	1578	1689	1403	0	1480	1869	0	1520
Q Serve(g_s), s	6.0	10.2	14.7	8.8	14.4	14.4	8.9	0.0	4.8	5.7	0.0	8.8
Cycle Q Clear(g_c), s	6.0	10.2	14.7	8.8	14.4	14.4	8.9	0.0	4.8	5.7	0.0	8.8
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	0.16		1.00
Lane Grp Cap(c), veh/h	146	1828	553	194	1345	720	469	0	248	195	0	158
V/C Ratio(X)	0.79	0.38	0.52	0.84	0.49	0.49	0.60	0.00	0.34	0.60	0.00	0.90
Avail Cap(c_a), veh/h	219	1828	553	210	1345	720	853	0	450	195	0	158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.8	20.5	21.8	41.3	19.8	19.8	36.6	0.0	34.9	40.7	0.0	42.1
Incr Delay (d2), s/veh	13.9	0.6	3.4	24.8	1.0	1.9	1.8	0.0	1.2	6.0	0.0	45.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.4	6.1	5.5	6.4	7.1	3.5	0.0	2.0	3.3	0.0	5.7
LnGrp Delay(d),s/veh	56.8	21.1	25.3	66.1	20.8	21.7	38.4	0.0	36.1	46.7	0.0	87.2
LnGrp LOS	E	C	C	E	C	C	D		D	D		F
Approach Vol, veh/h		1100			1175			368			260	
Approach Delay, s/veh		25.9			27.3			37.9			68.9	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	42.9		15.0	13.1	45.9		21.0
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	11.6	23.6		9.9	11.6	23.6		28.9
Max Q Clear Time (g_c+I1), s	10.8	16.7		10.8	8.0	16.4		10.9
Green Ext Time (p_c), s	0.0	6.6		0.0	0.1	6.9		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	419	110	234	619	21	199	238	242	38	210	81
Future Volume (veh/h)	65	419	110	234	619	21	199	238	242	38	210	81
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1776	1624	1743	1793	1900	1652	1863	1810	1845	1858	1900
Adj Flow Rate, veh/h	76	487	128	272	720	24	231	277	281	44	244	94
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	10	7	17	9	6	6	15	2	5	3	2	2
Cap, veh/h	95	1425	582	227	1686	56	302	363	292	171	391	146
Arrive On Green	0.06	0.42	0.42	0.14	0.50	0.50	0.10	0.19	0.19	0.05	0.16	0.16
Sat Flow, veh/h	1645	3374	1378	1660	3364	112	3053	1863	1497	3408	2493	929
Grp Volume(v), veh/h	76	487	128	272	364	380	231	277	281	44	170	168
Grp Sat Flow(s),veh/h/ln	1645	1687	1378	1660	1703	1773	1526	1863	1497	1704	1765	1658
Q Serve(g_s), s	4.3	9.3	5.6	13.0	12.9	12.9	7.0	13.4	12.6	1.2	8.6	9.0
Cycle Q Clear(g_c), s	4.3	9.3	5.6	13.0	12.9	12.9	7.0	13.4	12.6	1.2	8.6	9.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		0.56
Lane Grp Cap(c), veh/h	95	1425	582	227	854	889	302	363	292	171	276	260
V/C Ratio(X)	0.80	0.34	0.22	1.20	0.43	0.43	0.77	0.76	0.96	0.26	0.62	0.65
Avail Cap(c_a), veh/h	190	1425	582	227	854	889	418	451	362	466	435	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	18.5	17.5	41.0	15.0	15.0	41.7	36.2	19.2	43.4	37.4	37.6
Incr Delay (d2), s/veh	5.6	0.7	0.9	123.4	1.2	1.2	7.0	7.0	35.5	1.1	3.2	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.4	2.3	13.7	6.4	6.6	3.2	7.6	8.1	0.6	4.4	4.4
LnGrp Delay(d),s/veh	49.8	19.2	18.3	164.4	16.3	16.2	48.7	43.2	54.7	44.5	40.6	41.4
LnGrp LOS	D	B	B	F	B	B	D	D	D	D	D	D
Approach Vol, veh/h		691			1016			789			382	
Approach Delay, s/veh		22.4			55.9			48.9			41.4	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	45.1	13.4	19.5	9.5	52.6	9.4	23.5
Change Period (Y+Rc), s	4.0	5.0	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	13.0	28.0	13.0	23.4	11.0	30.0	13.0	* 23
Max Q Clear Time (g_c+I1), s	15.0	11.3	9.0	11.0	6.3	14.9	3.2	15.4
Green Ext Time (p_c), s	0.0	13.1	0.4	2.2	0.0	12.0	1.9	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	861	226	181	660	25	349	38	145	30	69	71
Future Volume (veh/h)	194	861	226	181	660	25	349	38	145	30	69	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1583	1881	1796	1900	1759	1785	1827	1900	1900	1845
Adj Flow Rate, veh/h	200	888	233	187	680	26	388	0	149	31	71	73
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	5	20	1	6	6	8	0	4	0	0	3
Cap, veh/h	232	1978	527	220	1906	73	644	0	288	43	98	105
Arrive On Green	0.13	0.40	0.40	0.12	0.39	0.39	0.19	0.00	0.19	0.08	0.08	0.08
Sat Flow, veh/h	1792	4940	1316	1792	4844	185	3351	0	1497	569	1303	1400
Grp Volume(v), veh/h	200	888	233	187	458	248	388	0	149	102	0	73
Grp Sat Flow(s),veh/h/ln	1792	1647	1316	1792	1635	1760	1675	0	1497	1872	0	1400
Q Serve(g_s), s	10.9	13.1	12.9	10.2	9.9	9.9	10.6	0.0	8.9	5.3	0.0	5.1
Cycle Q Clear(g_c), s	10.9	13.1	12.9	10.2	9.9	9.9	10.6	0.0	8.9	5.3	0.0	5.1
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	0.30		1.00
Lane Grp Cap(c), veh/h	232	1978	527	220	1286	692	644	0	288	140	0	105
V/C Ratio(X)	0.86	0.45	0.44	0.85	0.36	0.36	0.60	0.00	0.52	0.73	0.00	0.70
Avail Cap(c_a), veh/h	244	1978	527	244	1286	692	1069	0	478	185	0	139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	21.9	21.8	43.0	21.4	21.4	36.9	0.0	36.2	45.2	0.0	45.1
Incr Delay (d2), s/veh	25.8	0.7	2.7	23.5	0.6	1.1	1.3	0.0	2.1	11.7	0.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	6.1	5.1	6.5	4.6	5.0	5.0	0.0	3.8	3.2	0.0	2.3
LnGrp Delay(d),s/veh	68.5	22.7	24.5	66.5	22.0	22.5	38.2	0.0	38.3	57.0	0.0	57.5
LnGrp LOS	E	C	C	E	C	C	D		D	E		E
Approach Vol, veh/h		1321			893			537			175	
Approach Delay, s/veh		29.9			31.5			38.2			57.2	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.7	45.4		12.6	18.3	44.7		24.3
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	13.6	23.6		9.9	13.6	23.6		31.9
Max Q Clear Time (g_c+I1), s	12.2	15.1		7.3	12.9	11.9		12.6
Green Ext Time (p_c), s	0.1	7.9		0.2	0.1	10.7		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	873	89	122	475	18	146	217	280	37	199	88
Future Volume (veh/h)	94	873	89	122	475	18	146	217	280	37	199	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1681	1759	1829	1900	1792	1881	1863	1900	1856	1900
Adj Flow Rate, veh/h	99	919	94	128	500	19	154	228	295	39	209	93
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	13	8	4	4	6	1	2	0	3	3
Cap, veh/h	123	1119	445	408	1684	64	226	405	331	113	451	192
Arrive On Green	0.07	0.31	0.31	0.24	0.49	0.49	0.07	0.22	0.22	0.03	0.19	0.19
Sat Flow, veh/h	1675	3574	1421	1675	3414	130	3312	1881	1541	3510	2384	1017
Grp Volume(v), veh/h	99	919	94	128	254	265	154	228	295	39	152	150
Grp Sat Flow(s),veh/h/ln	1675	1787	1421	1675	1738	1806	1656	1881	1541	1755	1763	1639
Q Serve(g_s), s	5.8	23.8	3.7	6.3	8.7	8.7	4.5	10.8	18.6	1.1	7.7	8.2
Cycle Q Clear(g_c), s	5.8	23.8	3.7	6.3	8.7	8.7	4.5	10.8	18.6	1.1	7.7	8.2
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	123	1119	445	408	857	891	226	405	331	113	333	310
V/C Ratio(X)	0.80	0.82	0.21	0.31	0.30	0.30	0.68	0.56	0.89	0.34	0.46	0.48
Avail Cap(c_a), veh/h	184	1180	469	408	857	891	464	433	354	491	413	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	31.8	15.0	31.0	15.0	15.0	45.5	35.1	38.1	47.4	36.0	36.2
Incr Delay (d2), s/veh	8.2	6.8	1.1	0.6	0.7	0.7	5.1	2.0	23.1	2.5	1.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	12.8	1.6	3.0	4.3	4.5	2.2	5.9	10.0	0.6	3.8	3.8
LnGrp Delay(d),s/veh	53.8	38.6	16.0	31.6	15.7	15.7	50.6	37.0	61.2	49.9	37.4	37.8
LnGrp LOS	D	D	B	C	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1112			647			677			341	
Approach Delay, s/veh		38.0			18.9			50.6			39.0	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.4	36.3	10.8	23.5	11.3	54.3	7.8	26.5
Change Period (Y+Rc), s	5.0	* 5	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	12.0	* 33	14.0	23.4	11.0	34.0	14.0	* 23
Max Q Clear Time (g_c+I1), s	8.3	25.8	6.5	10.2	7.8	10.7	3.1	20.6
Green Ext Time (p_c), s	1.3	5.5	0.4	2.0	0.0	7.7	1.8	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	595	241	137	816	43	212	39	71	16	82	120
Future Volume (veh/h)	97	595	241	137	816	43	212	39	71	16	82	120
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1696	1652	1810	1734	1900	1473	1563	1792	1900	1884	1900
Adj Flow Rate, veh/h	115	708	287	163	971	51	285	0	85	19	98	143
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	1	12	15	5	10	10	29	5	6	1	1	0
Cap, veh/h	146	1825	552	194	1959	103	471	0	248	32	163	158
Arrive On Green	0.08	0.39	0.39	0.11	0.43	0.43	0.17	0.00	0.17	0.10	0.10	0.10
Sat Flow, veh/h	1792	4631	1400	1723	4603	241	2805	0	1480	304	1566	1520
Grp Volume(v), veh/h	115	708	287	163	665	357	285	0	85	117	0	143
Grp Sat Flow(s),veh/h/ln	1792	1544	1400	1723	1578	1690	1403	0	1480	1869	0	1520
Q Serve(g_s), s	6.0	10.4	14.8	8.8	14.6	14.6	8.9	0.0	4.8	5.7	0.0	8.8
Cycle Q Clear(g_c), s	6.0	10.4	14.8	8.8	14.6	14.6	8.9	0.0	4.8	5.7	0.0	8.8
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	0.16		1.00
Lane Grp Cap(c), veh/h	146	1825	552	194	1343	719	471	0	248	195	0	158
V/C Ratio(X)	0.79	0.39	0.52	0.84	0.50	0.50	0.61	0.00	0.34	0.60	0.00	0.90
Avail Cap(c_a), veh/h	219	1825	552	210	1343	719	853	0	450	195	0	158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.8	20.6	21.9	41.3	19.9	19.9	36.6	0.0	34.9	40.7	0.0	42.1
Incr Delay (d2), s/veh	13.9	0.6	3.5	24.8	1.0	1.9	1.8	0.0	1.2	6.0	0.0	45.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.5	6.3	5.5	6.5	7.1	3.6	0.0	2.0	3.3	0.0	5.7
LnGrp Delay(d),s/veh	56.8	21.2	25.4	66.1	20.9	21.8	38.4	0.0	36.0	46.7	0.0	87.2
LnGrp LOS	E	C	C	E	C	C	D		D	D		F
Approach Vol, veh/h		1110			1185			370			260	
Approach Delay, s/veh		26.0			27.4			37.9			68.9	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	42.8		15.0	13.1	45.8		21.0
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	11.6	23.6		9.9	11.6	23.6		28.9
Max Q Clear Time (g_c+I1), s	10.8	16.8		10.8	8.0	16.6		10.9
Green Ext Time (p_c), s	0.0	6.5		0.0	0.1	6.7		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	419	117	237	619	21	208	238	246	38	210	81
Future Volume (veh/h)	65	419	117	237	619	21	208	238	246	38	210	81
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1776	1624	1743	1793	1900	1652	1863	1810	1845	1858	1900
Adj Flow Rate, veh/h	76	487	136	276	720	24	242	277	286	44	244	94
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	10	7	17	9	6	6	15	2	5	3	2	2
Cap, veh/h	95	1413	577	227	1675	56	312	363	292	182	391	146
Arrive On Green	0.06	0.42	0.42	0.14	0.50	0.50	0.10	0.20	0.20	0.05	0.16	0.16
Sat Flow, veh/h	1645	3374	1378	1660	3364	112	3053	1863	1497	3408	2493	929
Grp Volume(v), veh/h	76	487	136	276	364	380	242	277	286	44	170	168
Grp Sat Flow(s),veh/h/ln	1645	1687	1378	1660	1703	1773	1526	1863	1497	1704	1765	1658
Q Serve(g_s), s	4.3	9.3	6.0	13.0	13.0	13.0	7.3	13.4	12.9	1.2	8.6	9.0
Cycle Q Clear(g_c), s	4.3	9.3	6.0	13.0	13.0	13.0	7.3	13.4	12.9	1.2	8.6	9.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		0.56
Lane Grp Cap(c), veh/h	95	1413	577	227	848	883	312	363	292	182	276	260
V/C Ratio(X)	0.80	0.34	0.24	1.21	0.43	0.43	0.77	0.76	0.98	0.24	0.62	0.65
Avail Cap(c_a), veh/h	190	1413	577	227	848	883	418	451	362	466	435	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	18.7	17.8	41.0	15.2	15.2	41.6	36.2	19.3	43.1	37.4	37.6
Incr Delay (d2), s/veh	5.6	0.7	1.0	130.0	1.3	1.2	7.7	7.0	39.5	1.0	3.2	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.5	2.4	14.1	6.4	6.6	3.4	7.6	8.5	0.6	4.4	4.4
LnGrp Delay(d),s/veh	49.8	19.4	18.8	171.0	16.5	16.4	49.2	43.1	58.8	44.1	40.6	41.4
LnGrp LOS	D	B	B	F	B	B	D	D	E	D	D	D
Approach Vol, veh/h		699			1020			805			382	
Approach Delay, s/veh		22.6			58.3			50.5			41.3	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	44.8	13.7	19.5	9.5	52.3	9.7	23.5
Change Period (Y+Rc), s	4.0	5.0	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	13.0	28.0	13.0	23.4	11.0	30.0	13.0	* 23
Max Q Clear Time (g_c+I1), s	15.0	11.3	9.3	11.0	6.3	15.0	3.2	15.4
Green Ext Time (p_c), s	0.0	13.1	0.4	2.2	0.0	12.0	1.9	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	45.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	870	228	181	667	25	351	38	145	30	69	71
Future Volume (veh/h)	194	870	228	181	667	25	351	38	145	30	69	71
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1583	1881	1796	1900	1759	1785	1827	1900	1900	1845
Adj Flow Rate, veh/h	200	897	235	187	688	26	390	0	149	31	71	73
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	5	20	1	6	6	8	0	4	0	0	3
Cap, veh/h	232	1975	526	220	1905	72	645	0	288	43	98	105
Arrive On Green	0.13	0.40	0.40	0.12	0.39	0.39	0.19	0.00	0.19	0.08	0.08	0.08
Sat Flow, veh/h	1792	4940	1316	1792	4847	183	3351	0	1497	569	1303	1400
Grp Volume(v), veh/h	200	897	235	187	463	251	390	0	149	102	0	73
Grp Sat Flow(s),veh/h/ln	1792	1647	1316	1792	1635	1760	1675	0	1497	1872	0	1400
Q Serve(g_s), s	10.9	13.3	13.0	10.2	10.0	10.1	10.6	0.0	8.9	5.3	0.0	5.1
Cycle Q Clear(g_c), s	10.9	13.3	13.0	10.2	10.0	10.1	10.6	0.0	8.9	5.3	0.0	5.1
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	0.30		1.00
Lane Grp Cap(c), veh/h	232	1975	526	220	1285	692	645	0	288	140	0	105
V/C Ratio(X)	0.86	0.45	0.45	0.85	0.36	0.36	0.60	0.00	0.52	0.73	0.00	0.70
Avail Cap(c_a), veh/h	244	1975	526	244	1285	692	1069	0	478	185	0	139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	22.0	21.9	43.0	21.5	21.5	36.9	0.0	36.2	45.2	0.0	45.1
Incr Delay (d2), s/veh	25.8	0.8	2.7	23.5	0.6	1.2	1.3	0.0	2.0	11.7	0.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	6.2	5.1	6.5	4.6	5.1	5.0	0.0	3.8	3.2	0.0	2.3
LnGrp Delay(d),s/veh	68.5	22.8	24.7	66.5	22.1	22.6	38.2	0.0	38.2	57.0	0.0	57.5
LnGrp LOS	E	C	C	E	C	C	D		D	E		E
Approach Vol, veh/h		1332			901			539			175	
Approach Delay, s/veh		30.0			31.5			38.2			57.2	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.7	45.4		12.6	18.3	44.7		24.4
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	13.6	23.6		9.9	13.6	23.6		31.9
Max Q Clear Time (g_c+I1), s	12.2	15.3		7.3	12.9	12.1		12.6
Green Ext Time (p_c), s	0.1	7.8		0.2	0.1	10.7		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	873	98	126	475	18	153	217	283	37	199	88
Future Volume (veh/h)	94	873	98	126	475	18	153	217	283	37	199	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1681	1759	1829	1900	1792	1881	1863	1900	1856	1900
Adj Flow Rate, veh/h	99	919	103	133	500	19	161	228	298	39	209	93
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	13	8	4	4	6	1	2	0	3	3
Cap, veh/h	123	1120	445	406	1680	64	234	407	333	113	448	191
Arrive On Green	0.07	0.31	0.31	0.24	0.49	0.49	0.07	0.22	0.22	0.03	0.19	0.19
Sat Flow, veh/h	1675	3574	1421	1675	3414	130	3312	1881	1541	3510	2384	1017
Grp Volume(v), veh/h	99	919	103	133	254	265	161	228	298	39	152	150
Grp Sat Flow(s),veh/h/ln	1675	1787	1421	1675	1738	1806	1656	1881	1541	1755	1763	1639
Q Serve(g_s), s	5.8	23.8	4.1	6.5	8.7	8.7	4.7	10.8	18.8	1.1	7.7	8.2
Cycle Q Clear(g_c), s	5.8	23.8	4.1	6.5	8.7	8.7	4.7	10.8	18.8	1.1	7.7	8.2
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	123	1120	445	406	855	888	234	407	333	113	331	308
V/C Ratio(X)	0.80	0.82	0.23	0.33	0.30	0.30	0.69	0.56	0.89	0.34	0.46	0.49
Avail Cap(c_a), veh/h	184	1180	469	406	855	888	464	433	354	491	413	383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	31.7	14.9	31.2	15.1	15.1	45.4	34.9	38.1	47.4	36.1	36.3
Incr Delay (d2), s/veh	8.2	6.8	1.2	0.7	0.7	0.7	5.1	1.9	23.8	2.5	1.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	12.8	1.8	3.1	4.3	4.5	2.3	5.9	10.2	0.6	3.9	3.8
LnGrp Delay(d),s/veh	53.8	38.5	16.1	31.9	15.8	15.8	50.5	36.9	61.8	49.9	37.5	38.0
LnGrp LOS	D	D	B	C	B	B	D	D	E	D	D	D
Approach Vol, veh/h		1121			652			687			341	
Approach Delay, s/veh		37.8			19.1			50.9			39.1	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.2	36.3	11.1	23.4	11.3	54.2	7.8	26.6
Change Period (Y+Rc), s	5.0	* 5	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	12.0	* 33	14.0	23.4	11.0	34.0	14.0	* 23
Max Q Clear Time (g_c+I1), s	8.5	25.8	6.7	10.2	7.8	10.7	3.1	20.8
Green Ext Time (p_c), s	1.0	5.6	0.4	2.0	0.0	7.7	1.8	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	769	410	127	1037	34	200	32	72	21	83	155
Future Volume (veh/h)	124	769	410	127	1037	34	200	32	72	21	83	155
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1696	1652	1810	1731	1900	1473	1552	1792	1900	1885	1900
Adj Flow Rate, veh/h	148	915	488	151	1235	40	265	0	86	25	99	185
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	1	12	15	5	10	10	29	5	6	1	1	0
Cap, veh/h	181	1886	570	182	1937	63	454	0	239	39	155	158
Arrive On Green	0.10	0.41	0.41	0.11	0.41	0.41	0.16	0.00	0.16	0.10	0.10	0.10
Sat Flow, veh/h	1792	4631	1400	1723	4702	152	2805	0	1478	376	1490	1520
Grp Volume(v), veh/h	148	915	488	151	828	447	265	0	86	124	0	185
Grp Sat Flow(s),veh/h/ln	1792	1544	1400	1723	1575	1703	1403	0	1478	1866	0	1520
Q Serve(g_s), s	7.7	13.9	30.1	8.2	19.9	19.9	8.3	0.0	4.9	6.1	0.0	9.9
Cycle Q Clear(g_c), s	7.7	13.9	30.1	8.2	19.9	19.9	8.3	0.0	4.9	6.1	0.0	9.9
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	0.20		1.00
Lane Grp Cap(c), veh/h	181	1886	570	182	1298	702	454	0	239	194	0	158
V/C Ratio(X)	0.82	0.49	0.86	0.83	0.64	0.64	0.58	0.00	0.36	0.64	0.00	1.17
Avail Cap(c_a), veh/h	219	1886	570	210	1298	702	853	0	450	194	0	158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.8	20.8	25.6	41.6	22.3	22.3	36.9	0.0	35.4	40.8	0.0	42.5
Incr Delay (d2), s/veh	19.9	0.9	15.2	22.5	2.0	3.7	1.7	0.0	1.3	7.7	0.0	123.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	6.1	14.1	5.0	9.0	10.0	3.3	0.0	2.1	3.6	0.0	9.6
LnGrp Delay(d),s/veh	61.7	21.7	40.8	64.1	24.3	26.0	38.6	0.0	36.7	48.6	0.0	166.5
LnGrp LOS	E	C	D	E	C	C	D		D	D		F
Approach Vol, veh/h		1551			1426			351			309	
Approach Delay, s/veh		31.5			29.1			38.1			119.2	
Approach LOS		C			C			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	44.1		15.0	15.0	44.5		20.5
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	11.6	23.6		9.9	11.6	23.6		28.9
Max Q Clear Time (g_c+I1), s	10.2	32.1		11.9	9.7	21.9		10.3
Green Ext Time (p_c), s	0.1	0.0		0.0	0.1	1.7		1.8

Intersection Summary		
HCM 2010 Ctrl Delay		38.6
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	604	151	106	779	14	287	256	247	23	189	57
Future Volume (veh/h)	64	604	151	106	779	14	287	256	247	23	189	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1776	1624	1743	1793	1900	1652	1863	1810	1845	1859	1900
Adj Flow Rate, veh/h	74	702	176	123	906	16	334	298	287	27	220	66
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	10	7	17	9	6	6	15	2	5	3	2	2
Cap, veh/h	93	1524	623	152	1667	29	396	378	304	198	379	110
Arrive On Green	0.06	0.45	0.45	0.09	0.49	0.49	0.13	0.20	0.20	0.06	0.14	0.14
Sat Flow, veh/h	1645	3374	1379	1660	3425	60	3053	1863	1498	3408	2676	779
Grp Volume(v), veh/h	74	702	176	123	451	471	334	298	287	27	143	143
Grp Sat Flow(s),veh/h/ln	1645	1687	1379	1660	1703	1782	1526	1863	1498	1704	1766	1689
Q Serve(g_s), s	4.2	13.7	7.6	6.9	17.5	17.5	10.2	14.4	13.8	0.7	7.2	7.5
Cycle Q Clear(g_c), s	4.2	13.7	7.6	6.9	17.5	17.5	10.2	14.4	13.8	0.7	7.2	7.5
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	93	1524	623	152	829	868	396	378	304	198	250	239
V/C Ratio(X)	0.80	0.46	0.28	0.81	0.54	0.54	0.84	0.79	0.95	0.14	0.57	0.60
Avail Cap(c_a), veh/h	190	1524	623	227	829	868	418	451	363	466	435	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	18.0	16.4	42.3	17.0	17.0	40.4	35.9	21.9	42.5	38.1	38.2
Incr Delay (d2), s/veh	5.7	1.0	1.1	15.5	2.1	2.0	14.7	8.7	31.7	0.4	2.9	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.6	3.1	3.8	8.6	9.0	5.1	8.4	8.3	0.3	3.7	3.8
LnGrp Delay(d),s/veh	50.0	19.0	17.5	57.8	19.1	19.0	55.1	44.6	53.7	42.9	41.0	41.6
LnGrp LOS	D	B	B	E	B	B	E	D	D	D	D	D
Approach Vol, veh/h		952			1045			919			313	
Approach Delay, s/veh		21.2			23.6			51.3			41.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	47.9	16.3	18.1	9.4	51.3	10.1	24.3
Change Period (Y+Rc), s	4.0	5.0	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	13.0	28.0	13.0	23.4	11.0	30.0	13.0	* 23
Max Q Clear Time (g_c+I1), s	8.9	15.7	12.2	9.5	6.2	19.5	2.7	16.4
Green Ext Time (p_c), s	0.1	11.3	0.2	1.9	0.0	9.7	1.6	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	1006	258	151	748	30	365	23	103	27	49	72
Future Volume (veh/h)	193	1006	258	151	748	30	365	23	103	27	49	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1583	1881	1796	1900	1759	1775	1827	1900	1900	1845
Adj Flow Rate, veh/h	199	1037	266	156	771	31	393	0	106	28	51	74
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	5	20	1	6	6	8	0	4	0	0	3
Cap, veh/h	231	2075	553	189	1917	77	642	0	287	48	88	102
Arrive On Green	0.13	0.42	0.42	0.11	0.40	0.40	0.19	0.00	0.19	0.07	0.07	0.07
Sat Flow, veh/h	1792	4940	1317	1792	4834	194	3351	0	1497	662	1205	1395
Grp Volume(v), veh/h	199	1037	266	156	521	281	393	0	106	79	0	74
Grp Sat Flow(s),veh/h/ln	1792	1647	1317	1792	1635	1758	1675	0	1497	1867	0	1395
Q Serve(g_s), s	10.9	15.4	14.7	8.5	11.4	11.5	10.7	0.0	6.2	4.1	0.0	5.2
Cycle Q Clear(g_c), s	10.9	15.4	14.7	8.5	11.4	11.5	10.7	0.0	6.2	4.1	0.0	5.2
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	0.35		1.00
Lane Grp Cap(c), veh/h	231	2075	553	189	1297	697	642	0	287	136	0	102
V/C Ratio(X)	0.86	0.50	0.48	0.82	0.40	0.40	0.61	0.00	0.37	0.58	0.00	0.73
Avail Cap(c_a), veh/h	244	2075	553	244	1297	697	1069	0	478	185	0	138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	21.3	21.1	43.8	21.6	21.7	37.0	0.0	35.2	44.9	0.0	45.4
Incr Delay (d2), s/veh	25.6	0.9	3.0	18.3	0.7	1.4	1.4	0.0	1.1	5.5	0.0	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	7.2	5.8	5.2	5.3	5.8	5.1	0.0	2.6	2.3	0.0	2.4
LnGrp Delay(d),s/veh	68.3	22.1	24.1	62.1	22.4	23.0	38.4	0.0	36.3	50.4	0.0	60.5
LnGrp LOS	E	C	C	E	C	C	D		D	D		E
Approach Vol, veh/h		1502			958			499			153	
Approach Delay, s/veh		28.6			29.0			37.9			55.3	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.0	47.4		12.4	18.3	45.1		24.3
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	13.6	23.6		9.9	13.6	23.6		31.9
Max Q Clear Time (g_c+I1), s	10.5	17.4		7.2	12.9	13.5		12.7
Green Ext Time (p_c), s	0.2	6.0		0.2	0.1	8.5		2.7

Intersection Summary		
HCM 2010 Ctrl Delay		31.5
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	840	159	195	618	31	154	157	211	31	186	74
Future Volume (veh/h)	80	840	159	195	618	31	154	157	211	31	186	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1681	1759	1830	1900	1792	1881	1863	1900	1855	1900
Adj Flow Rate, veh/h	84	884	167	205	651	33	162	165	222	33	196	78
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	13	8	4	4	6	1	2	0	3	3
Cap, veh/h	106	1108	441	478	1826	93	235	342	279	95	365	139
Arrive On Green	0.06	0.31	0.31	0.29	0.54	0.54	0.07	0.18	0.18	0.03	0.15	0.15
Sat Flow, veh/h	1675	3574	1421	1675	3367	171	3312	1881	1536	3510	2468	942
Grp Volume(v), veh/h	84	884	167	205	336	348	162	165	222	33	138	136
Grp Sat Flow(s),veh/h/ln	1675	1787	1421	1675	1739	1799	1656	1881	1536	1755	1762	1648
Q Serve(g_s), s	4.9	22.7	7.0	10.0	11.0	11.0	4.8	7.9	13.8	0.9	7.2	7.7
Cycle Q Clear(g_c), s	4.9	22.7	7.0	10.0	11.0	11.0	4.8	7.9	13.8	0.9	7.2	7.7
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	106	1108	441	478	943	976	235	342	279	95	260	244
V/C Ratio(X)	0.80	0.80	0.38	0.43	0.36	0.36	0.69	0.48	0.80	0.35	0.53	0.56
Avail Cap(c_a), veh/h	184	1180	469	478	943	976	464	433	353	491	412	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	31.6	15.9	29.1	13.0	13.0	45.4	36.7	39.2	47.8	39.4	39.6
Incr Delay (d2), s/veh	5.1	6.0	2.5	0.9	0.8	0.8	5.1	1.5	10.9	3.1	2.4	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	12.1	3.0	4.7	5.4	5.6	2.3	4.2	6.7	0.5	3.7	3.7
LnGrp Delay(d),s/veh	51.3	37.6	18.3	30.0	13.8	13.8	50.4	38.2	50.1	50.8	41.7	42.5
LnGrp LOS	D	D	B	C	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1135			889			549			307	
Approach Delay, s/veh		35.8			17.5			46.6			43.0	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.5	36.0	11.1	19.4	10.3	59.2	7.3	23.2
Change Period (Y+Rc), s	5.0	* 5	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	12.0	* 33	14.0	23.4	11.0	34.0	14.0	* 23
Max Q Clear Time (g_c+I1), s	12.0	24.7	6.8	9.7	6.9	13.0	2.9	15.8
Green Ext Time (p_c), s	0.0	6.3	0.4	1.8	0.0	9.9	1.6	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	33.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	776	412	127	1046	34	202	32	72	21	83	155
Future Volume (veh/h)	124	776	412	127	1046	34	202	32	72	21	83	155
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1696	1652	1810	1731	1900	1473	1552	1792	1900	1885	1900
Adj Flow Rate, veh/h	148	924	490	151	1245	40	267	0	86	25	99	185
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	1	12	15	5	10	10	29	5	6	1	1	0
Cap, veh/h	181	1883	569	182	1935	62	456	0	240	39	155	158
Arrive On Green	0.10	0.41	0.41	0.11	0.41	0.41	0.16	0.00	0.16	0.10	0.10	0.10
Sat Flow, veh/h	1792	4631	1400	1723	4703	151	2805	0	1479	376	1490	1520
Grp Volume(v), veh/h	148	924	490	151	834	451	267	0	86	124	0	185
Grp Sat Flow(s),veh/h/ln	1792	1544	1400	1723	1575	1704	1403	0	1479	1866	0	1520
Q Serve(g_s), s	7.7	14.1	30.3	8.2	20.1	20.1	8.4	0.0	4.9	6.1	0.0	9.9
Cycle Q Clear(g_c), s	7.7	14.1	30.3	8.2	20.1	20.1	8.4	0.0	4.9	6.1	0.0	9.9
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	0.20		1.00
Lane Grp Cap(c), veh/h	181	1883	569	182	1296	701	456	0	240	194	0	158
V/C Ratio(X)	0.82	0.49	0.86	0.83	0.64	0.64	0.59	0.00	0.36	0.64	0.00	1.17
Avail Cap(c_a), veh/h	219	1883	569	210	1296	701	853	0	450	194	0	158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.8	20.9	25.7	41.6	22.4	22.4	36.8	0.0	35.4	40.8	0.0	42.5
Incr Delay (d2), s/veh	19.9	0.9	15.6	22.5	2.1	3.8	1.7	0.0	1.3	7.7	0.0	123.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	6.1	14.2	5.0	9.1	10.1	3.3	0.0	2.1	3.6	0.0	9.6
LnGrp Delay(d),s/veh	61.7	21.8	41.4	64.1	24.5	26.2	38.5	0.0	36.7	48.6	0.0	166.5
LnGrp LOS	E	C	D	E	C	C	D		D	D		F
Approach Vol, veh/h		1562			1436			353			309	
Approach Delay, s/veh		31.7			29.2			38.1			119.2	
Approach LOS		C			C			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.4	44.0		15.0	15.0	44.5		20.5
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	11.6	23.6		9.9	11.6	23.6		28.9
Max Q Clear Time (g_c+I1), s	10.2	32.3		11.9	9.7	22.1		10.4
Green Ext Time (p_c), s	0.1	0.0		0.0	0.1	1.5		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	604	158	109	779	14	296	256	251	23	189	57
Future Volume (veh/h)	64	604	158	109	779	14	296	256	251	23	189	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1776	1624	1743	1793	1900	1652	1863	1810	1845	1859	1900
Adj Flow Rate, veh/h	74	702	184	127	906	16	344	298	292	27	220	66
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	10	7	17	9	6	6	15	2	5	3	2	2
Cap, veh/h	93	1506	615	156	1658	29	404	378	304	207	379	110
Arrive On Green	0.06	0.45	0.45	0.09	0.48	0.48	0.13	0.20	0.20	0.06	0.14	0.14
Sat Flow, veh/h	1645	3374	1378	1660	3425	60	3053	1863	1498	3408	2676	779
Grp Volume(v), veh/h	74	702	184	127	451	471	344	298	292	27	143	143
Grp Sat Flow(s),veh/h/ln	1645	1687	1378	1660	1703	1782	1526	1863	1498	1704	1766	1689
Q Serve(g_s), s	4.2	13.8	8.1	7.1	17.6	17.6	10.5	14.4	14.0	0.7	7.2	7.5
Cycle Q Clear(g_c), s	4.2	13.8	8.1	7.1	17.6	17.6	10.5	14.4	14.0	0.7	7.2	7.5
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	93	1506	615	156	825	863	404	378	304	207	250	239
V/C Ratio(X)	0.80	0.47	0.30	0.81	0.55	0.55	0.85	0.79	0.96	0.13	0.57	0.60
Avail Cap(c_a), veh/h	190	1506	615	227	825	863	418	451	363	466	435	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	18.4	16.8	42.2	17.2	17.2	40.3	35.9	21.8	42.2	38.1	38.2
Incr Delay (d2), s/veh	5.7	1.0	1.2	16.2	2.1	2.0	15.6	8.6	35.3	0.4	2.9	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.7	3.3	4.0	8.7	9.1	5.3	8.4	8.7	0.3	3.7	3.8
LnGrp Delay(d),s/veh	50.0	19.4	18.0	58.4	19.3	19.2	55.9	44.6	57.2	42.6	41.0	41.6
LnGrp LOS	D	B	B	E	B	B	E	D	E	D	D	D
Approach Vol, veh/h		960			1049			934			313	
Approach Delay, s/veh		21.5			24.0			52.7			41.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	47.4	16.6	18.1	9.4	51.0	10.4	24.3
Change Period (Y+Rc), s	4.0	5.0	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	13.0	28.0	13.0	23.4	11.0	30.0	13.0	* 23
Max Q Clear Time (g_c+I1), s	9.1	15.8	12.5	9.5	6.2	19.6	2.7	16.4
Green Ext Time (p_c), s	0.1	11.2	0.1	1.9	0.0	9.6	1.6	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	1015	260	151	755	30	367	23	103	27	49	72
Future Volume (veh/h)	193	1015	260	151	755	30	367	23	103	27	49	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1810	1583	1881	1796	1900	1759	1775	1827	1900	1900	1845
Adj Flow Rate, veh/h	199	1046	268	156	778	31	395	0	106	28	51	74
Adj No. of Lanes	1	3	1	1	3	0	2	0	1	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	5	20	1	6	6	8	0	4	0	0	3
Cap, veh/h	231	2073	552	189	1916	76	644	0	288	48	88	102
Arrive On Green	0.13	0.42	0.42	0.11	0.40	0.40	0.19	0.00	0.19	0.07	0.07	0.07
Sat Flow, veh/h	1792	4940	1317	1792	4836	192	3351	0	1497	662	1205	1395
Grp Volume(v), veh/h	199	1046	268	156	525	284	395	0	106	79	0	74
Grp Sat Flow(s),veh/h/ln	1792	1647	1317	1792	1635	1759	1675	0	1497	1867	0	1395
Q Serve(g_s), s	10.9	15.6	14.8	8.5	11.6	11.6	10.8	0.0	6.2	4.1	0.0	5.2
Cycle Q Clear(g_c), s	10.9	15.6	14.8	8.5	11.6	11.6	10.8	0.0	6.2	4.1	0.0	5.2
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	0.35		1.00
Lane Grp Cap(c), veh/h	231	2073	552	189	1295	697	644	0	288	136	0	102
V/C Ratio(X)	0.86	0.50	0.49	0.82	0.41	0.41	0.61	0.00	0.37	0.58	0.00	0.73
Avail Cap(c_a), veh/h	244	2073	552	244	1295	697	1069	0	478	185	0	138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	21.4	21.1	43.8	21.7	21.7	37.0	0.0	35.1	44.9	0.0	45.4
Incr Delay (d2), s/veh	25.6	0.9	3.0	18.3	0.7	1.4	1.4	0.0	1.1	5.5	0.0	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	7.2	5.8	5.2	5.3	5.9	5.1	0.0	2.6	2.3	0.0	2.4
LnGrp Delay(d),s/veh	68.3	22.3	24.2	62.1	22.5	23.1	38.4	0.0	36.2	50.4	0.0	60.5
LnGrp LOS	E	C	C	E	C	C	D		D	D		E
Approach Vol, veh/h		1513			965			501			153	
Approach Delay, s/veh		28.7			29.1			37.9			55.3	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.0	47.4		12.4	18.3	45.0		24.3
Change Period (Y+Rc), s	5.4	5.4		5.1	5.4	5.4		5.1
Max Green Setting (Gmax), s	13.6	23.6		9.9	13.6	23.6		31.9
Max Q Clear Time (g_c+I1), s	10.5	17.6		7.2	12.9	13.6		12.8
Green Ext Time (p_c), s	0.2	5.8		0.2	0.1	8.4		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	31.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	840	168	199	618	31	161	157	214	31	186	74
Future Volume (veh/h)	80	840	168	199	618	31	161	157	214	31	186	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1681	1759	1830	1900	1792	1881	1863	1900	1855	1900
Adj Flow Rate, veh/h	84	884	177	209	651	33	169	165	225	33	196	78
Adj No. of Lanes	1	2	1	1	2	0	2	1	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	1	13	8	4	4	6	1	2	0	3	3
Cap, veh/h	106	1109	441	475	1822	92	243	344	281	95	362	138
Arrive On Green	0.06	0.31	0.31	0.28	0.54	0.54	0.07	0.18	0.18	0.03	0.15	0.15
Sat Flow, veh/h	1675	3574	1421	1675	3367	171	3312	1881	1536	3510	2468	942
Grp Volume(v), veh/h	84	884	177	209	336	348	169	165	225	33	138	136
Grp Sat Flow(s),veh/h/ln	1675	1787	1421	1675	1739	1799	1656	1881	1536	1755	1762	1648
Q Serve(g_s), s	4.9	22.7	7.5	10.2	11.0	11.0	5.0	7.9	14.0	0.9	7.2	7.7
Cycle Q Clear(g_c), s	4.9	22.7	7.5	10.2	11.0	11.0	5.0	7.9	14.0	0.9	7.2	7.7
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	106	1109	441	475	941	973	243	344	281	95	259	242
V/C Ratio(X)	0.80	0.80	0.40	0.44	0.36	0.36	0.70	0.48	0.80	0.35	0.53	0.56
Avail Cap(c_a), veh/h	184	1180	469	475	941	973	464	433	353	491	412	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	31.6	15.8	29.3	13.1	13.1	45.3	36.6	39.1	47.8	39.5	39.7
Incr Delay (d2), s/veh	5.1	6.0	2.7	0.9	0.8	0.8	5.1	1.5	11.3	3.1	2.4	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	12.1	3.3	4.8	5.4	5.6	2.4	4.2	6.8	0.5	3.7	3.7
LnGrp Delay(d),s/veh	51.3	37.6	18.5	30.2	13.9	13.9	50.3	38.1	50.4	50.8	41.9	42.6
LnGrp LOS	D	D	B	C	B	B	D	D	D	D	D	D
Approach Vol, veh/h		1145			893			559			307	
Approach Delay, s/veh		35.6			17.7			46.7			43.2	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.4	36.0	11.3	19.3	10.3	59.1	7.3	23.3
Change Period (Y+Rc), s	5.0	* 5	4.0	4.6	4.0	5.0	4.6	* 5
Max Green Setting (Gmax), s	12.0	* 33	14.0	23.4	11.0	34.0	14.0	* 23
Max Q Clear Time (g_c+I1), s	12.2	24.7	7.0	9.7	6.9	13.0	2.9	16.0
Green Ext Time (p_c), s	0.0	6.4	0.4	1.8	0.0	10.0	1.6	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.