CITY OF FORT BRAGG
Incorporated August 5, 1889
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RECIRCULATED
INITIAL STUDY AND
MITIGATED NEGATIVE DECLARATION

PROJECT TITLE:	AutoZone
APPLICATION NO.:	Coastal Development Permit 9-18 (CDP 9-18) Design Review 3-18 (DR 3-18) Minor Sub-Division 1-18 (DIV 1-18)
LEAD AGENCY:	City of Fort Bragg 416 N Franklin Street Fort Bragg, CA 95437
CONTACT:	Sarah McCormick, Assistant Planner Community Development Department (707) 961-2827 x113
PROJECT LOCATION:	1151 S Main Street
PROJECT APN:	APN 018-440-58 (2.5 acres)
PROPERTY OWNER:	Wayne Mayhew
PROJECT APPLICANT:	AutoZone Parts, Inc. – Mitch Bramlitt
PROJECT AGENT:	LACO Associates
COASTAL LAND USE AND DEVELOPMENT CODE DESIGNATION:	Highway Visitor Commercial (CH)
COASTAL GENERAL PLAN DESIGNATION:	Highway Visitor Commercial (CH)

OBJECTIVE
The objective of this Initial Study and Mitigated Negative Declaration (MND) is to determine if there are significant adverse environmental impacts associated with the planning and construction of a 7,500 SF AutoZone retail store with a 26-space parking lot and associated improvements and infrastructure. The proposed project includes a minor subdivision of an existing 2.5-acre parcel to create two individual lots. Lot 1 on the northern portion of the site is the location of the proposed retail store. The southernmost parcel would remain undeveloped as part of this project, however future commercial development is anticipated. The report also recommends appropriate mitigation measures, as necessary, to reduce environmental impacts to less than significant levels.

The Initial Study and MND have been prepared in compliance with California Environmental Quality Act (CEQA). The City of Fort Bragg is the Lead Agency for the project and consulted with trustee and responsible agencies in preparation of this environmental document. A CEQA Initial Study checklist was prepared and concluded that, with implementation of mitigation measures, the project would not have significant effect on the environment.

Environmental issues as identified by the Initial Study are analyzed in this MND. This MND concludes that this project, as proposed and mitigated, will not have long term significant adverse effects on the environment.

PUBLIC AGENCIES CONSULTED

- California Department of Fish and Wildlife
- California Coastal Commission
- Sherwood Valley Band of Pomo
- Caltrans
- Fort Bragg Fire Department
- Mendocino County Planning and Building
- Fort Bragg Public Works Department

PROJECT LOCATION & SURROUNDING LAND USES
The subject parcel is located in the Coastal Zone within the City of Fort Bragg in the Highway Visitor Commercial (CH) zoning district. The site is located adjacent to S Main Street (CA Hwy 1) on the unnamed frontage road that runs between Ocean View Drive and the Noyo River Bridge. The 2.5-acre parcel is currently undeveloped and the surrounding land uses are:

SOUTH:	Lodging: Motel
EAST:	CA Hwy 1 / Vacant Lot / Drive-thru Restaurant
NORTH:	General Retail / Auto Repair Service
WEST:	Vacant Lot / Single Family Residential Dwelling

Map 1: Project Location

PROJECT SETTING

The project site is primarily vegetated with non-native grasses and contains coastal scrub and several species of conifer. There are established commercial developments to the north and south, single family residences to the west, and an unnamed frontage road immediately east that runs parallel to S Main Street / CA Hwy 1. The images below illustrate: 1) existing site looking west from S Main Street / CA Hwy 1; 2) proposed southern and eastern elevations and parking lot looking west from S Main Street / CA Hwy1; and 3) color renderings of the current elevations. At the request of City staff, the applicant revised the building design (original design submission shown in Image 2) to bring the design more into compliance with the Citywide Design Guidelines.

Image 1: Proposed AutoZone Retail Store from CA Hwy 1, looking west

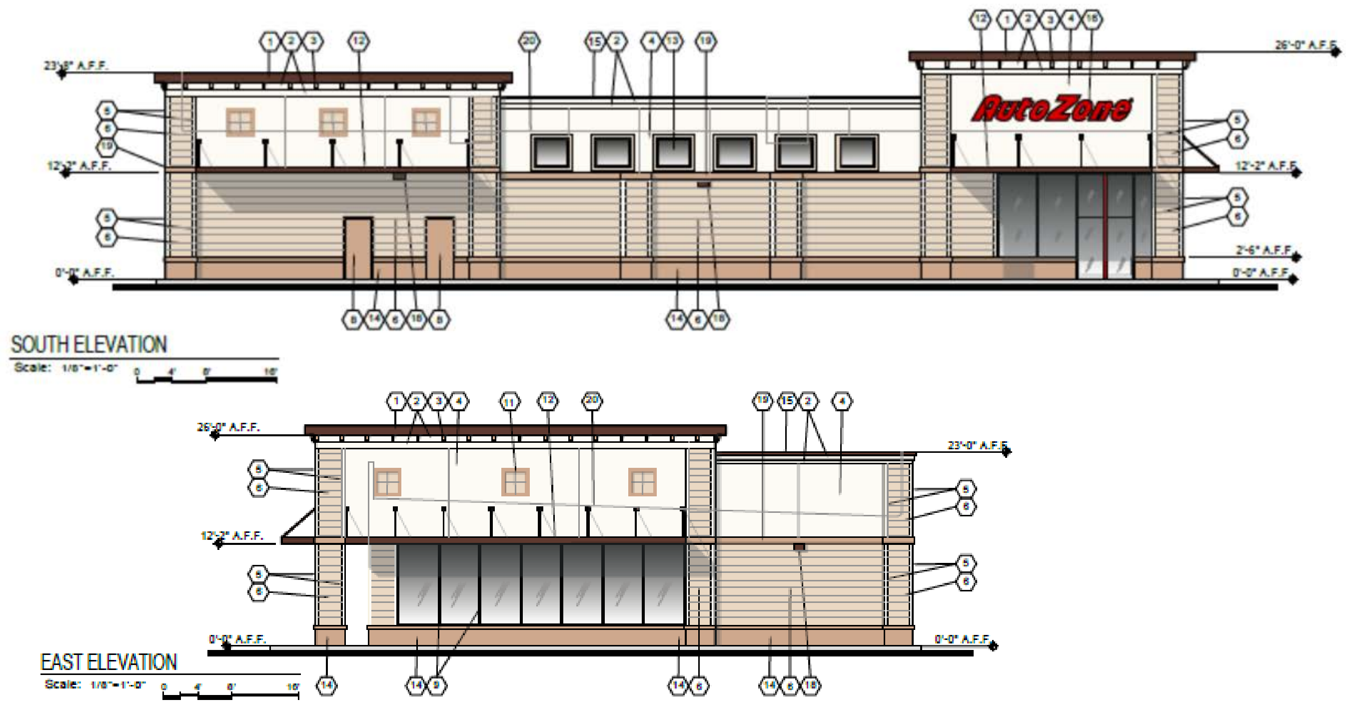


Image 2: Proposed Design for Planning Commission Consideration

DESCRIPTION OF PROJECT

The proposed project involves a Coastal Development Permit, Design Review and Minor-Subdivision to create two individual parcels from an undeveloped 2.5-acre parcel in Highway Visitor Commercial Zoning District in the Coastal Zone. The newly created parcel to the north would be 1.1-acres in size and is the proposed site for the construction of a 7,500 SF AutoZone retail store. The store would be served by two driveways off the unnamed frontage road and includes sidewalk, curb and gutter frontage improvements. No development is proposed at this time on the southern parcel.

PROJECT CHARACTERISTICS

<u>Design</u>

This project is subject to both a Visual Analysis (Coastal General Plan Policy CD-1.3) and Design Review (Coastal General Plan Policy CD-2.1) to ensure visual compatibility. Special attention will be given LCP policies regarding protecting coastal resources and Policy LU-4.1 regarding Formulas Business:

> Policy LU-4.1 Formula Businesses and Big Box Retail: Regulate the establishment of formula businesses and big box retail to ensure that their location, scale, and appearance do not detract from the economic vitality of established commercial businesses and are consistent with the small town, rural character of Fort Bragg.

Grading

The project grading plan includes both cuts and fills to develop a level pad for the proposed retail store. Site prep would also include removal of six mature trees.[1] A 13,773 SF self-retaining drainage management area would be installed along the north west portion of the property, which would allow storm water runoff to follow the natural grade, flowing west to this infiltration area on the site.

Pedestrian & Auto Access

The proposed retail store would be accessed by two ingress/egress points from the unnamed frontage road that allow vehicular circulation around the rear of structure. The proposed parking lot would include 26 spaces containing two ADA accessible spaces and a bicycle rack. The project also includes a parking area for delivery trucks. Sidewalks, curb and gutter would be installed on the entire eastern portion of the site, along the unnamed road frontage and some asphalt work to widen a portion of the road would be necessary. Utilities / Service Systems and Land Use / Planning will be discussed and mitigated as part of this MND.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a **"Potentially Significant Impact"** or "**Potentially Significant Unless Mitigation Incorporated**" as indicated by the checklists on the following pages.

An explanation for all checklist responses is included, and all answers take into account the whole action involved and the following types of impacts: off-site and on-site; cumulative and project-level; indirect and direct; and construction and operational. The explanation of each issue identifies the mitigation measure identified, if any, to reduce the impact to less than significance. All mitigation measures are provided in the Mitigation Monitoring and Reporting Program (MMRP) (**Appendix A - MMRP**).

In the checklist the following definitions are used:

"**Potentially Significant Impact**" means there is substantial evidence that an effect may be significant.

"**Potentially Significant Unless Mitigation Incorporated**" means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.

"**Less Than Significant Impact"** means that the effect is less than significant and no mitigation is necessary to reduce the impact to a lesser level.

[1] The existing site is primarily vegetated with non-native grasses and contains coastal scrub and several species of conifer: Monterey pine, Bishop pine and Douglas fir trees.

"**No Impact"** means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the proposed project.

DETERMINATION

On the basis of this evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

______________________________ ______________________________

Signature Date

Sarah Million McCormick, Assistant Planner City of Fort Bragg

Printed Name Agency

ENVIRONMENTAL ISSUES

I. AESTHETICS.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☒	☐	☐
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

DISCUSSION OF AESTHETICS

The project site is currently undeveloped with non-native grasses, coastal scrub vegetation and several species of coniferous trees. The site has an open space character and there are partial blue water views of the Pacific Ocean from the unnamed frontage road, Ocean View Drive and S Main Street / CA Hwy 1.

There are several policies in the City's Coastal General Plan to ensure development is sited and designed so that the project does not have negative impacts on aesthetics and visual resources, including:

> Policy CD-1.1: Visual Resources: Permitted development shall be designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance scenic views in visually degraded areas.
>
> Policy CD-1.4: New development shall be sited and designed to minimize adverse impacts on scenic areas visible from scenic roads or public viewing areas to the maximum feasible extent.
>
> Policy CD-2.5 Scenic Views and Resource Areas: Ensure that development does not adversely impact scenic views and resources as seen from a road and other public rights-of-way.

In addition, the City's Coastal Land Use and Development Code (CLUDC) Section 15.50.070 requires commercial development west of CA Hwy 1 to be "designed and constructed in a manner that maintains scenic views of the coast by providing sufficient separation between buildings" in order to prevent a continuous façade of buildings that would block scenic views of the coastline.

Furthermore, all commercial development is subject to Design Review in order to ensure that a project is compatible with the community character of Fort Bragg, as defined in the Citywide Design Guidelines.

Finally, the project requires a Visual Analysis as part of the Coastal Development Permit, in order to protect the scenic and visual qualities of coastal areas and ensure development is consistent with the character of its surroundings. To ensure findings for approval are made and necessary permits are obtained, the following mitigation measure has been drafted:

> **AESTH-1:** Prior to issuance of Building Permit, a Coastal Development Permit, including Visual Analysis, and Design Review Permit must be approved by the Planning Commission.

a & c) A scenic vista can be defined as a viewpoint that is visually or aesthetically pleasing, which often provides expansive views of a highly valued landscape for the benefit of the general public. A development can negatively impact visual resources by blocking or diminishing the scenic quality. For this reason, a Visual Analysis is required when considering a Coastal Development Permit for a project west of CA Hwy 1, or within the area identified as potentially scenic by the Local Coastal Program (LCP). The proposed project site is not designated by the LCP as a "potentially scenic area", however, it is located on the west side of CA Hwy 1 and therefore, the project requires a Visual Analysis. The applicant has submitted the following images to inform the visual analysis for the CDP:

Image 3a: Existing view of proposed site from CA Hwy 1, looking west.

Image 3b: Proposed AutoZone retail store from CA Hwy 1, looking west

Image 4a: Existing view of proposed site from CA Hwy 1, looking southwest

Image 4b: Proposed AutoZone re tail store site from CA Hwy 1, looking southwest

Image 5a: Existing view of proposed site from CA Hwy 1, looking northwest

Image 5b: Proposed AutoZone retail store site from CA Hwy 1, looking northwest

In order to approve the subject Coastal Development Permit, the Planning Commission must first find that the proposed project:

1. Minimize the alterations of natural landforms;
2. Is visually compatible with the character of the surrounding area;
3. Is sited and designed to protect views to an along the ocean and scenic coastal areas; and
4. Restores and enhances visual quality in visually degraded areas, where feasible.

Each of these is analyzed in turn below:

1. In order to minimize the alterations of natural landforms, the driveway sited in the middle of the site should be designed such that potential future development on the newly created parcel to the south can utilize the same approach. The existing parcel is relatively flat and sits at grade or lower than the unnamed frontage road, except along the southeast edge where an earthen berm, or step, is elevated to grade of the unnamed frontage road. A shared driveway would limit alterations to landforms by protecting the earthen berm/step on the south end of parcel. The shared drive would also help preserve views to the ocean. Mitigation measure AETH-2 is included to this effect:

    AESTH-2: A shared driveway shall be utilized to access Lot 2 through Lot 1 of the proposed minor subdivision. Lot 1 shall provide an access agreement for the benefit of Lot 2, which shall be created on the Parcel Map. Furthermore, abutters rights of access along the public street frontage on Lot 2 shall be dedicated to the City of Fort Bragg. Shared maintenance agreements over the mutual driveway shall be recorded prior to issuance of a building permit. This shared access requirement will be included as a special condition of the Coastal Development Permit.

2. When considering if the project is visually compatible with the character of the surrounding area, the adjacent land uses include lodging, restaurants and retail outlets. The proposed project and adjacent businesses are all permitted land uses and appropriate for CH zoning. The proposed project design is similar to the design of the adjacent buildings and appears to be compatible with these buildings.

    The Design Review process will allow the Planning Commission to determine if the proposed design preserves and enhances the aesthetic character of its setting in a manner consistent with the Citywide Design Guidelines. City staff worked with the applicant to modify and revise the initial project design to better comply the Citywide Design Guidelines and to improve compliance with Policy LU-4.1.

    Policy LU-4.1 Formula Businesses and Big Box Retail: Regulate the establishment of formula businesses and big box retail to ensure that their location, scale, and appearance do not detract from the economic vitality of established commercial businesses and are consistent with the small town, rural character of Fort Bragg.

    Transom windows were added to the southern façade, a corner gable architectural element was removed, and the color palette changed from dark greys to earth-toned browns. A Public Hearing will be held to allow the community and Planning Commission to further evaluate the proposed design and, if desired, to further modify the design to improve compatibility with the character of Fort Bragg.

3. In terms of whether the proposed project is sited and designed to protect views to and along the ocean and scenic coastal areas, there is a trade-off between preserving blue water views and preserving the native trees and vegetation. Photo Sets A, B and C depict the existing site looking west, from the southern portion of site (Photo Set A), center of site (Photo Set B) and northern portion of site (Photo Set C) along the unnamed frontage road and CA Hwy 1. Additional views from the intersection of CA Hwy 1 / Ocean View Drive are included in Photo Set D.

Photo Set A: Views from southern portion of site:

Photo Set B: Views for middle section of site, looking west:






Photo Set C: Views of northern portion of site, looking west:






Photo Set D: Views from intersection CA Hwy 1 / Ocean View Drive

Views on the south end of the site are partially obstructed by tall vegetation and there is a step in grade, where the southern portion of the site sits lower than the unnamed frontage road. Views on the north end of the site are also partially obstructed, with several coniferous trees. The majority of open space and blue water views are situated in the center portion of the site, however, site lines cross vacant residential parcels on Todd Point, which are likely to be developed. Siting the proposed development to the north (Photo Set C), adjacent to the Fort Bragg Outlet retail business and locating the parking in the middle of the site (Photo Set B) would have the least environmental impact on visual resources.

However, siting the structure to the north would also include the removal of six mature coniferous trees: four Monterey pine and two Bishop pine. California Department of Fish and Wildlife (CDFW) were consulted about the removal of these six identified trees and CDFW determined the subject trees did not warrant protection as a biological resource. However, several polices within the Coastal General Plan, specifically, Policy CD-1.11, OS-5.1 and OS-5.2 require that existing native trees and vegetation should be preserved and protected, as feasible. In order for the project to remove trees and have a less than significant impact on the visual character of the area, mitigation measures AESTH-3 and AESTH-4 are included:

ASETH-3: Prior to issuance of Building Permit, a detailed Landscaping Plan shall be submitted, in accordance with CLUDC Chapter 17.34. The plan shall utilize attractive native and drought tolerant plants and shall depict the location of six native trees to be planted to replace the six conifers removed as part of the project. Tree placement should take scenic areas into consideration and should not block views.

ASETH-4: A Tree Mitigation Monitoring Plan shall be submitted along with the Final Landscaping Plan demonstrating a 10-year plan to: 1) prevent net loss of canopy; 2) maintain aesthetics associated with existing trees; 3) maintain habitat value. If tree(s) perish during this monitoring period, new tree(s) will be planted as replacement and with a new 10-year monitoring plan timeline.

4. The fourth finding for the Visual Analysis is that the project <u>restores and enhances visual quality in visually degraded areas, where feasible</u>. This site is not visually degraded. However visual quality of the project site post development would be improved somewhat through mitigation measures AESTH-3 and AESTH-4, which require removed trees to be replaced and monitored to ensure successful establishment. In addition, mitigation measure BIO-3 requires the removal of invasive plants on site, namely the existing pampas grass scotch broom to be removed, which will further enhance the visual quality of the site.

   Refer to mitigation measure: BIO-3, under Section IV. Biological Resources, below.

b) According to the California Scenic Highway Mapping System, the proposed project is not located within a state scenic highway. Therefore, the project will have no impact on a scenic highway.

d) The outdoor lighting for the proposed project includes two 25-foot double light poles and six building mounted lights. All proposed outdoor lighting would be downward facing, recessed, energy efficient LED lighting. The proposed signage is internally illuminated in accordance with City sign regulations and does not include a white background, blinking or reflective materials, thereby creating a less than significant impact on nighttime views in the area.

FINDINGS
The proposed project would have a <u>Less Than Significant Impact with Mitigation Incorporated</u> on Aesthetics.

II. AGRICULTURE AND FORESTRY RESOURCES.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

DISCUSSION OF AGRICULTURE AND FORESTRY RESOURCES

The proposed project area is commercial in nature and does not currently contain agricultural or forestry uses. The land use designation under both the City of Fort Bragg Coastal Land Use and Development Code and Coastal General Plan is Highway Visitor Commercial (CH). No agricultural uses exist or are planned for the site, however, all zoning in the City of Fort Bragg, with the exception of the Harbor District, allows crop production.

a) The subject parcel is considered "Urban and Built-up Land" according to the California Department of Conservation Farmland Mapping and Monitoring Program. No Prime Farmland, Farmland of Statewide Importance, or Unique Farmland will be impacted.

b) The site is not under a Williamson Act contract. "Crop production, horticulture, orchard, vineyard" is an allowable land use in all zoning in the City of Fort Bragg, with the exception of the Harbor District.

c) The proposed site is not forest land and therefore will not be converted to non-forest use.

d) Although the project will not result on the conversion of farmland or forestland, the proposed project would require the removal of six mature trees. Mitigation Measure AESTH-1 ensures new native trees are planted at a ratio of 1:1 to replace the trees removed.

FINDINGS

The proposed project would have <u>No Impact</u> on Agricultural and Forestry Resources

III. AIR QUALITY.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b) Violate any air quality standard or result in a cumulatively considerable net increase in an existing or projected air quality violation?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in substantial emissions (such as odors or dust) adversely affecting a substantial number of people?	☐	☒	☐	☐

DISCUSSION OF AIR QUALITY

The City of Fort Bragg is located in the North Coast Air Basin (NCAB) and is within the jurisdiction of the Mendocino Air Quality Management Basin (MCAQMD). The MCAQMD is responsible for monitoring and enforcing local, state, and federal air quality standards in the County of Mendocino and is one of 35 local Air Districts in California. Air Districts in California must develop regulations based on the measures identified in the Clean Air Act and its Clean Air Plan, as well as state regulations to ensure reduced emissions in compliance with these federal and state regulations. The table below displays MCAQMD adopted air quality CEQA thresholds of significance:

Criteria Pollutant and Precursors	Construction Related		Operational Related	
	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tons/year)[1]	Indirect Source Average Daily Emissions (lb/day)	Project/Stationary Source Maximum Annual Emissions (tons/year)
ROG	54	10	180	40
NOx	54	10	42	40
PM_{10}	82	15	82	15
$PM_{2.5}$	54	10	54	10
Fugitive Dust (PM_{10}/$PM_{2.5}$)	Best Management Practices	--	same as above	
Local CO	--	--	125 tons/year	
SO_2*	--	--	80	40

Notes:
[1] = Specific maximum allowable annual emissions related to construction was not provided by MCAQMD and was calculated based on the maximum average daily emissions thresholds.
** = Since MCAQMD does not specify thresholds for SO_2, the threshold for SO_2* utilized by NCUAQMD *is used for this analysis.*

Source: MCAQMD, 2010, and North Coast Unified Air Quality Management District (NCUAQMD) Rules and Regulations. Regulation 1, Rule 110. Best Available Control Technology (BACT). July 9, 2015. Available at: http://www.ncuaqmd.org/files/rules/reg%201/Rule%20110.pdf.

Table 1: Adopted Air Quality CEQA Thresholds of Significance

Air quality impacts anticipated under the proposed development of the site were modeled using the California Emissions Estimator Model (CalEEMod) to quantify potential criteria pollution and greenhouse gas (GHG) emissions associated with both construction and operation of the proposed project. The model quantifies direct emissions from construction and operational activities, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal. Further, the model identifies mitigation measures to reduce criteria pollutants and GHG emissions along with calculating the benefits achieved from measures chosen by the user (CalEEMod).

The CalEEMod model assumes default assumptions for retail construction (particularly, for an automobile care center, although repair or servicing would not occur), including a parking lot. No demolition would be required for the proposed development at the site, since the site is currently undeveloped and vacant. The analysis assumes construction over an approximately 5-month period (assuming 5 work days per week). Additionally, the CalEEMod analysis includes basic construction and operation-level mitigation measures, including watering exposed areas and reducing vehicle speeds on unpaved roads. The results of the CalEEMod analysis are shown in Table 3 below, which represents the total amount of emissions anticipated over the 5-month site preparation and grading period and under operation of the project. The CalEEMod results in their entirety are included in **Appendix B – CalEEMod**.

Pollutant	Construction Emissions (tons/year)			Operational Emissions (tons/year)		
	Modeled Unmitigated Construction Emissions	Modeled Mitigated Construction Emissions (including % reduction)	Annual Thresholds	Modeled Unmitigated Operational Emissions	Modeled Mitigated Operational Emissions (including % reduction)	Annual Thresholds
Carbon monoxide (CO)	0.4445	0.4445 (no change)	--	0.6211	0.6211 (no change)	125
Nitrogen oxides (NOx)	0.5530	0.5530 (no change)	10	0.3762	0.3762 (no change)	40
Particulate matter (PM_{10}) (fugitive)	1.8954	1.8954 (no change)	--	18.1249	18.1249 (no change)	15
Particulate matter (PM_{10}) (exhaust)	0.0327	0.0327 (no change)	15	0.0018	0.0018 (no change)	15
Particulate matter ($PM_{2.5}$) (fugitive)	0.1901	0.1901 (no change)	--	1.8128	1.8128 (no change)	10
Particulate matter ($PM_{2.5}$) (exhaust)	0.0301	0.0301 (no change)	10	0.0017	0.0017 (no change)	10
Reactive organic gases (ROG)	0.1461	0.1461 (no change)	10	0.1133	0.1111 (-1.91%))	40
Sulfur dioxide (SO_2)	0.0007	0.0007 (no change)	--	0.0011	0.0011 (no change)	40
Source: CalEEMod Model Results, July 16, 2018, Appendix B__						

Table 2: CalEEMod Results for Construction and Operation for Proposed AutoZone

As shown in the table above, the anticipated emissions associated with construction of the proposed retail development would be below MCAQMD's annual thresholds of significance for the six listed criteria pollutants, including carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM_{10} and $PM_{2.5}$), reactive organic gases (ROG) and sulfur oxides (SO_2), without any mitigation. Regarding operational emissions associated with the proposed project, all operational emissions, except for PM_{10} (fugitive) would also be below MCAQMD's annual thresholds of significance. Operational PM_{10} (fugitive) emissions are anticipated to exceed MCAQMD's annual thresholds of significance. However, the CalEEMod analysis classifies the potential retail development as a "Automobile Care Center", which allows for repair and servicing of automobiles (the closest, most suitable classification). No repair or servicing of automobiles would occur at the site under the project, so it is likely the CalEEMod analysis may overestimate the anticipated emissions associated with the project.

a)/b) The MCAQMD adopted a PM_{10} Attainment Plan (the Plan) in 2005, which identified cost effective control measures that can be implemented to reduce ambient PM_{10} levels to within California standards. As such, any use or activity that generates unnecessary airborne particulate matter may be of concern to MCAQMD and has the potential to create significant project-specific and cumulative effects to air quality. The proposed project would be required to include air quality protective measures and comply with MCAQMD "non-attainment" for PM_{10} and 24-hour PM_{10} standard regulations. Air Quality Management District Regulation 1 Rule 430 requires dust control during construction activities, as well as municipal standards outlined in CLUDC Section 17.30.080.D. To ensure the project does not conflict or obstruct implementation of applicable air quality plans the following mitigation measure has been drafted:

AIR-1: In order to minimize dust, Dust Prevention and Control Plan measures shall be incorporated into Final Storm Water Pollution Prevention Plan (SWPPP) and submitted with final grading plan for approval of the Public Works Director per CLUDC 17.62.020. This plan shall include information and provisions:

- The plan shall address site conditions during construction operations, after normal working hours, and during various phases of construction.
- The plan shall include the name and 24-hour contact of responsible person in case of an emergency.
- Grading shall be designed and grading activities shall be scheduled to ensure that repeat grading will not be required, and that completion of dust-generating activity will occur in shortest feasible timeframe.
- Sediment shall be prevented from flowing into waterways on site.
- All visibly dry disturbed areas shall be controlled by watering, covering, and/or other dust preventive measures.
- The plan shall include the procedures necessary to keep the adjacent public streets and private properties free of dirt, dust and other debris when importing or exporting of material as demonstrated by cut and fill quantities on the grading plan.
- Graded areas shall be revegetated as soon as possible, but within no longer than 30-days. Disturbed areas that are to remain inactive longer than 30-days shall be seeded (with combination of terminal barley and native seed) and watered until vegetative cover is established.
- All earthmoving activities shall cease when sustained winds exceed over 15 miles per hour. Wind speed shall be measured on-site by project manager with a handheld anemometer.

AIR-2: At all times, construction vehicle and equipment utilized on-site shall be maintained in good condition to minimize excessive exhaust emissions.

c) According to the United States Environmental Protection Agency, sensitive receptors are children, elderly, asthmatics and others who are at a heightened risk of negative health outcomes due to exposure to air pollution, and located in the vicinity of hospitals, schools, daycare facilities and convalescent facilities. A motel is directly to the south, Harbor Mobile Home Park is the second parcel to the north, and there are several nearby residences. Temporary emissions expected from construction equipment and grading at the site would occur for only a short period of time and may slightly impact potential sensitive receptors in the vicinity of the site. With the implementation of Mitigation Measures AIR-1 and AIR-2, a less than significant impact would occur.

d) Temporary odors and dust, typical of a construction site and equipment use are expected during the construction phase of development. Anticipated operational emissions would be comprised of direct and indirect emissions, including exhaust associated with passenger and delivery vehicles. With the implementation of Mitigation Measures AIR-1 and AIR 2.

FINDINGS

The proposed project would have a <u>Less Than Significant Impact with Mitigation Incorporated</u> on Air Quality.

IV. BIOLOGICAL RESOURCES.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Game 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, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

DISCUSSION OF BIOLOGICAL RESOURCES

A biological survey was conducted by a Senior Environmental Scientist at LACO Associates and a technical memorandum prepared for the proposed site (**Appendix E - Biological Survey**). The grassland habitat is dominated by non-native grasses with widely scattered non-native and native perennials. Tree species include Bishop pine, Monterey pine and Douglas fir. These conifers are scattered individuals and are not considered a forest community or special habitat, per California Fish and Wildlife staff. A constructed earthen berm with several native species of coastal scrub vegetation is located in the southwest corner, however these are not special status species

a) The biological survey detected no special status plant species and no special status animal species at the site. The mature brush and trees provide nesting habitat for a variety of common bird species and there is a potential for special status birds to be present. Mitigation Measure BIO-1 has been drafted to avoid the breeding season and AESTH-1 ensures the six trees to be removed would be replanted with native trees 1:1.

BIO-1: Minimize Potential Disturbance of Breeding Birds through the following techniques:

- Work Windows. Conduct ground disturbance and vegetation (tree and shrub) removal before or after the assumed bird breeding season (March 1 – September 1).
- Preconstruction Surveys. If ground disturbance or removal of vegetation occurs between January 16 and August 31, preconstruction surveys will be performed prior to such disturbance to determine the presence and location of nesting bird species.

- <u>Buffers</u>. If nests are present, establishment of temporary protective breeding season buffers will avoid direct mortality of these birds. The appropriate buffer distance is species specific and will be determined by a qualified biologist as appropriate to prevent nest abandonment and direct mortality during construction.

In addition, refer to mitigation measures: AESTH-2 and AESTH-3, under Section I. Aesthetics, above.

b) No special habitats are present on site, including riparian habitat.

c) No special habitats are present on site, including wetlands.

d) Wildlife corridors are used by species to migrate, breed and feed. The proposed project will not interfere substantially with wildlife corridors. The area is bounded to the North and West by the Pacific Ocean and on the east by CA Hwy 1. The Todd's Point area is developed with a variety of single family residential and commercial development. Birds, small ground mammals, reptiles and insects will not be entirely displaced, as landscaping will be installed, all trees that might be removed will be replaced, and the rear of property will maintain a large bio retention area to treat storm water. There are no fish nor fish habitat on site.

e) The site is not habitat to any botanical or animal resources protected by the Coastal Act. However, as discussed in Section I. Aesthetics, subsection a) the Coastal General Plan Policy contains several policies to protect and preserve existing native vegetation and trees. The proposed development would involve the removal of six mature conifers. Mitigation Measure AESTH-1 ensures the six trees would be replaced on site with native trees to reduce the environmental impact to less than significant. Additionally, a mitigation measure requiring a grading permit implementing Best Management Practices (BMPs) and requiring the removal of invasive species to protect existing and future impacts to biological resources on site are included below:

BIO-2: A grading permit, including Best Management Practices (BMPs) to be implemented, shall be submitted and approved by the Public Works Director, prior to building permit issuance and ground breaking activities. BMPs shall include, but not be limited to: 1) utilization of straw bales, fiber rolls, and/or silt fencing structures to assure the minimization of erosion and to avoid storm water runoff; 2) shall limit ground disturbance to the minimum necessary; and 3) shall stabilize disturbed soil areas as soon as feasible after construction is completed.

BIO-3: Plant species listed as invasive (High, Moderate, or Limited) on the California Invasive Plant Inventory (Cal-IPC Inventory) shall not be installed anywhere in the project area as they would pose a risk to the surrounding plant communities. Existing invasive scotch broom and pampas grass shall be removed from the site, and the site shall be kept free of these invasive plants into the future

f) There is no habitat conservation plan associated with this site and/or the habitat of the site, so there is no conflict between the proposed project and any conservation plans.

FINDINGS
The proposed project would have a <u>Less Than Significant Impact with Mitigation Incorporated</u> on Biological Resources.

V. CULTURAL RESOURCES

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

DISCUSSION OF CULTURAL RESOURCES

The project site is not listed in, or determined to be eligible by the State Historical Resources Commission, for the listing in the California Register of Historical Resources, nor listed in a local register or survey as historically significant. The City has not determined this area to be historically significant, and therefore, it is highly unlikely archeological resources will be encountered during development. Tribal cultural resources will be discussed separately under Section XVIII.

a) The site is undeveloped, and there are no known historical resources on the site.

b) The site is undeveloped, and there are no known historical resources on the site.

c) There are no known human remains on this site, however excavation activities can uncover human remains. If such a discovery is made Mitigation Measure CULT-1 ensures a less than significant impact.

> **CULT-1:** If human remains are identified during project construction, the applicant shall follow the following procedures: 1) The Director, the County Corner, and the Mendocino County Archaeological Commission shall be notified immediately; 2) All development shall cease immediately and shall not commence until so directed by the Community Development Director 3) An applicant seeking to recommence construction following a discovery shall submit a supplemental archaeological plan for review and approval of the permit review authority.

FINDINGS

The proposed project would have a <u>Less Than Significant Impact with Mitigation Incorporated</u> on Cultural Resources.

VI. ENERGY

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

DISCUSSION OF ENERGY

The proposed development at the site would be subject to Part 5 (California Energy Code) of Title 24 of the California Code of Regulations (CCR), which contains performance and prescriptive compliance approaches for achieving energy efficiency for residential and non-residential buildings throughout California. A less than significant impact would occur.

FINDINGS
The proposed project would have a <u>Less Than Significant Impact</u> on Energy.

VII. GEOLOGY AND SOILS

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

DISCUSSION OF GEOLOGY AND SOILS

A Geotechnical Engineering Investigation was prepared by Salem Engineering Group, Inc., on March 6, 2018 (**Appendix F – Geotechnical Report**). The Geotechnical Report describes the site conditions, geologic and seismic setting of the site vicinity and subsurface soil and groundwater conditions encountered at the exploration locations. Additionally, the Geotechnical Report evaluates potential engineering geologic- and geotechnical-related hazards for the site, including faulting and seismicity, surface fault rupture, ground shaking, liquefaction, lateral spreading, and landslides.

a) The City of Fort Bragg is located in an area that is known for seismic activity, however, the site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. Map SF-1 of the Coastal General Plan illustrates an inactive fault, however there are no known active fault traces in the immediate project vicinity. Potentially active faults in the vicinity include: 1) the North San Andreas Fault system located approximately 6 miles west of the site, which is the most likely source of earth shaking; 2) the Maacama Fault zone located approximately 21 miles to the east of the City; 3) the Mendocino Fault zone located approximately 60 miles to the northwest; and 4) the Pacific Star Fault located between the towns of Fort Bragg and Westport, all of which could potentially cause earth shaking activity. Mitigation Measure GEO-1 would ensure a less than significant impact by seismic activity. There are no landslides on site, nor is the site in the path of a potential landslide.

GEO-1: Development of the proposed project at the site shall comply with the design standards included in the latest version of the California Building Code (CBC), as well as the recommendations and expertise provided in the report, Geotechnical Engineering Investigation by Salem Engineering Group, Inc. (March 6, 2018).

b) The proposed development would require grading for the foundation of a 7,500 SF structure, parking lot, driveway, sidewalk/curb and gutter and related infrastructure. Mitigation Measure BIO-2 and HYDRO-1 ensures an approved grading plan with BMPs in place, prior to building permit approval.

Refer to mitigation measure: BIO-1, under Section IV. Biological Resources, above; and HYDRO-1, under Hydrology and Water Quality, below.

c) According to the Geotechnical Report, the subsurface conditions encountered appear typical of those found in the geologic region of the site and the near surface soils were identified to have slight collapse potential, moderate compressibility characteristics, and very low expansion potential. The proposed project would be regulated by the California Building Code, as well as expertise of licensed engineer, as stated in Mitigation Measure GEO-1. With mitigation incorporated, a less than significant impact would occur.

d) According to the Geotechnical Report, the soil underlying the site is classified as Site Class D and generally consists of silty and clay-like sand with gravel underlain by interbedded layers of sandy silty clay, sand with silt, silty sands and sandy sits to the maximum depth explored of 20.5 feet below ground surface. As required by Mitigation Measure GEO-1 engineered fill will be utilized.

e) The project site will be served by City water and sewer. No septic system is included.

f) The site is currently undeveloped and it is possible a unique paleontological resource or site could be discovered during grading. In this instance, mitigation measure GEO-2 would ensure a less than significant impact would occur:

GEO-2: In the event that fossils or fossil-bearing deposits are discovered during project construction, the contractor shall notify the Community Development Director and a qualified paleontologist to examine the discovery and excavations within 50 feet of the find shall be temporarily halted. The area of discovery shall be protected to ensure that fossil are not removed, handled, altered, or damaged until the site is properly evaluated and further action is determined. The paleontologist shall document the discovery as needed, in accordance with Society of Vertebrate Paleontology standards (Society of Vertebrate Paleontology 1995), evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important. The plan shall be submitted to the City of Fort Bragg for review and approval prior to implementation.

VIII. GREENHOUSE GAS EMISSIONS.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions (GHG), either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

DISCUSSION OF GREENHOUSE GAS EMMISSIONS

The project site is located within the North Coast Air Basin (NCAB) and is subject to the Mendocino County Air Quality Management District (MCAQMD) requirements. The MCAQMD is responsible for monitoring and enforcing federal, State, and local air quality standards in the County of Mendocino. In accordance with Assembly Bill 32, also known as The Global Warming Solutions Act of 2006, California is taking action to reduce greenhouse gas emissions (GHG).

Common GHG include Carbon dioxide, Methane, Nitrous oxide and Fluorinated gases. According to the EPA, human activities are responsible for almost all of the increase in GHG in the atmosphere over the last 150 years; the largest source of greenhouse gas emissions in the United States is from burning fossil fuels for electricity, heat and transportation.

a) The site is currently undeveloped and emissions at and in the vicinity of the project would increase. The California Emissions Estimator Model (CalEEMod) was utilized to quantify potential criteria pollution and GHG emissions associated with site preparation, grading, and construction of the proposed 7,380 square foot AutoZone retail store (**Appendix E – CalEEMod**). The model quantifies direct emissions from construction and operational activities, as well as direct emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water.

The approximate quantity of annual GHG emissions generated by the project is shown below in Table 1.

Table 1- Project-Related Greenhouse Gas Emissions (Metric Tons Per Year)	
Emissions Source	**CO2e**
Construction (amortized over 30 years)	8.9
Area Source (landscaping, hearth)	0
Energy	131.9
Mobile	510.1
Waste	15,6
Water	11.7

Total	**678.2**
MCAQMD Screening Threshold	1,100
Exceed MCAQMD Screening Threshold?	**No**
Source: CalEEMod version 2016.3.2 See Appendix B for emission model outputs. Note: Emissions projections account for VMT analysis (above) and trip distribution from the traffic impact analysis (Appendix).	

Potential GHG emissions associated with construction activities is primarily due to transportation of construction materials and the use of heavy equipment during construction. This is mitigated by measures AIR and AIR , which ensure construction equipment and machinery are properly maintained in good working condition and that an emergency spill response plan is in place should it be needed.

Potential GHG emissions associated with operation of the proposed retail business involve vehicular emissions associated with customer visits. In accordance with Table 1 VMT analysis and guidance from the OPR, the trip distances in CalEEMod associated with retail customers arriving at the site from the north and south were identified as a no net change over trips to existing large format retailers and thus were set to 0. The number of trips and the distances associated with project employees and vendors were adjusted to match the VMT analysis above. The total estimated construction GHG emissions are amortized over 30 years and included in the project emissions.

There would also be project related GHG emissions from indirect sources, such as electricity consumption, water demand and solid waste generation.

Refer to mitigation measure: AIR-2, under Section III. Air Quality, above.

b) The City of Fort Bragg adopted a Climate Action Plan (CAP) in 2012. The plan sets greenhouse gas reduction goals including a 30% reduction in greenhouse gasses for the municipality by 2020, and a 7% reduction goal for the community by 2020. According to the CAP, nearly 70% of the City's GHG emissions were produced by vehicles, primarily automobiles. Transportation emissions are high because we are a rural and because the majority of visitors travel to Fort Bragg in personal vehicles. In order to reduce GHG emissions improvements to the public transportation system would be required, as well as improved walking and bicycle facilities. The proposed project does not conflict with these efforts and the frontage improvements would support them. There is also the possibility that the proposed auto parts retail store could help maintain vehicles in good working condition.

Additionally, the installation of sidewalks will improve pedestrian access to the Noyo Bridge and Coastal Trail, which is supported by Policy LU-10.3:

> Policy LU-10.3: The location and amount of new development shall maintain and enhance public access to the coast by: (2) providing non-automobile circulation within the development that includes circulation connections outside of the development linearly.

FINDINGS

The proposed project would have a <u>Less Than Significant Impact with Mitigation Incorporated</u> on Greenhouse Gas Emissions.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

DISCUSSION OF HAZARDS AND HAZARDOUS MATERIALS

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or has characteristics defined as hazardous by a federal, State, or local agency. Chemical and physical properties such as toxicity, ignitability, corrosiveness, and reactivity cause a substance to be considered hazardous. These properties are defined in the California Code of Regulations (CCR), Title 22, §66261.20-66261.24. A "hazardous waste" includes any hazardous material that is discarded, abandoned, or will be recycled. Therefore, the criteria that render a material hazardous also cause a waste to be classified as hazardous (California Health and Safety Code, §25117).

a) The proposed AutoZone retail store would require the routine transport, use and disposal of hazardous materials both during construction activities and during operations. Construction processes involve heavy machinery utilizing gasoline, diesel fuel, hydraulic fluids, oils, and lubricants. The potential hazard is not significant if these materials are properly stored on site and disposed at an approved collection facility. Daily operations of the proposed auto parts retail store include the sales and storage of hazardous materials, such as batteries, motor oil, lubricants and cleaning supplies. Retail of this sort are subject to the California Environmental Reporting System.

b) The proposed project does not 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. In the case of accidental contamination of soils from fuels, oils or lubricants from heavy equipment operation during construction, a notification and remediation of pollutant spills is a required component of the Stormwater Pollution Prevention Plan as outlined in mitigation measure HYDRO-2. Additionally, mitigation measure AIR-2 requires that equipment shall be maintained in good working order.

Refer to mitigation measures: AIR-2 in Section III. Air Quality, above; and HYDRO-1 in Section X. Hydrology and Water Quality, below.

c) Sprouts Montessori Children Preschool is located within one-quarter mile of the project site, approximately 270 feet (0.05 miles) west of the southwestern corner of the site and approximately 395 feet (0.07 miles) from the southwestern corner of Lot 1, the location of the proposed AutoZone retail store. Aside from construction activities which is discussed and mitigated in the above paragraph, all hazardous materials transported, stored and sold on site would be in accordance with federal and State regulations.

d) The project site is currently undeveloped and does not include any known hazardous waste sites, as mapped by the State Water Resources Quality Control Board (SWRQCB) GeoTracker database.

e) The project is not located within an airport land use plan or within two miles of a public airport or public use airport.

f) The project would not impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan. The Fort Bragg Fire Marshal and Mendocino County Building Inspectors will ensure installation of fire sprinklers, emergency vehicle access and ADA compliance during building permit application review and inspections, prior to final.

g) The proposed development is not located in an area at significant risk of wildfire and is not meet the State standards for defensible space. Potential fires on site are likely to begin on site or spread from adjacent property.

FINDINGS

The proposed project would have a **<u>Less Than Significant Impact with Mitigation Incorporated</u>** on Hazards or Hazardous Materials.

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Flo
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:	☐	☐	☒	☐	

i) Result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
iv) Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

DISCUSSION OF HYDROLOGY AND WATER QUALITY

Topics addressed in this section include water quality, groundwater, stormwater and drainage, and flooding and inundation. All construction and grading will be completed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP) and registered with the State Water Resources Control Board (SWRCB). Protection and prevention measures incorporated into the SWPPP include Best Management Practices (BMP's) for the protection of biota, air quality, and water quality during construction.

a) The proposed project would be served by municipal water and sewer services and the City is required to operate in compliance with all water quality standards and waste discharge requirements. However, the potential for the project to degrade surface or groundwater quality could occur from runoff during construction or during operations. A Storm Water Pollution Prevention Plan (SWPPP) is required for projects with over 1-acre of disturbance. A SWPPP requires a number of standard practices (BMPs) to prevent stormwater contamination, control sedimentation and erosion on site, and comply with requirements of the Clean Water Act.

> **HYDRO-1:** Prior to issuance of building permit, a Storm Water Pollution Prevention Plan (SWPPP) shall be submitted with the building permit application, and shall be approved by City engineer prior to issuance of a building permit. The SWPPP shall require BMPs to be implemented in order to minimize construction impacts, including erosion and sedimentation.

In addition to addressing potential effects of construction activities regarding stormwater addressed in HYDRO-1, the proposed development requires capture of the 85th percentile storm, post development. A Preliminary Drainage Report and Stormwater Control Plan was prepared by LACO Associates and submitted with planning application (**Appendix G – Stormwater**). This report includes preliminary storm water calculations, which will be refined with grading, drainage and erosion control design plans, and final stormwater and drainage calculations. Mitigation measure HYDRO-2 ensures the project would capture the 85th percentile storm on-site by requiring a Final Drainage Report and Stormwater Control Plan to be submitted and approved by City engineer.

> **HYDRO-2:** Prior to issuance of building permit, the submitted SWPPP shall contain a Final Drainage and Stormwater Control Plan, in compliance with CLUDC Chapter 17.64, shall be submitted and approved by City engineer to ensure that increases in stormwater runoff volume and peak runoff rate remain unchanged.

b) The proposed development is required to provide water infiltration on-site such that pre and post construction stormwater runoff from the site is unchanged. With the implementation of mitigation measures HYDRO-1 and HYDRO-2, the project will have no net effect on groundwater recharge rates nor impede sustainable groundwater management.

c) The existing drainage pattern on-site flows in a westerly direction following the grade of the site. Storm water runoff from the site, including runoff from the building, driveway and parking lot would continue to flow primarily to the west into drainage infiltration basins. A Preliminary Storm Water Control Plan prepared by LACO Associates was submitted with the application and a SWPPP will be submitted and approved by City Engineer prior to issuance of building permit. Please see discussion above and refer to mitigation measures HYDRO-1.

d) The project site is located on an undeveloped site in the Coastal Zone about 107 feet above mean sea level, with the Noyo River approximately 530 feet to the east, and 730 feet to the northwest of the site. According to the FEMA Flood Map 0604C1016G, the site is located in Zone X, an area of minimal flood hazard. Considering the project site elevation (=/- 107 MSL), seismic sea waves, or tsunamis are not considered a significant hazard at the site (Tsunami Assessment Memo, PWA 2010).

e) Proper storm water management is essential to minimize pollutant loading and erosive runoff flows, which are intended to protect and enhance the quality of watercourses, water bodies and the ocean in compliance with the Federal Clean Water Act, as well as groundwater management. The project design and implementation in compliance with an approved SWPPP, will ensure compliance with the City's Phase II Municipal Separate Storm Sewer System Permit (MS4). In an effort to limit the impact development could have on surface and underground water quality to less than significant, the city requires a SWPPP, which is discussed and mitigated above through the implementation of Mitigation Measures: HYDRO-1, HYDRO-2, AIR-1 and BIO-2.

Refer to mitigation measures: AIR-1, under Section III. Air Quality; BIO-2 under Section IV. Biological Resources; HYDRO-1, above.

FINDINGS
The proposed project would have a **<u>Less Than Significant Impact with Mitigation Incorporated</u>** on Hydrology and Water Quality.

XI. LAND USE AND PLANNING.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐

DISCUSSION OF LAND USE AND PLANNING
The project site is currently undeveloped. The land use designation is Highway Visitor Commercial (CH) under the City of Fort Bragg's Coastal General Plan and Coastal Land Use and Development Code (CLUDC). As such, commercial development is anticipated for this parcel and no changes

to the site's current land use or zoning designations are proposed under the project. Development would occur in accordance to City policies, regulations, and development standards.

The proposed project involves a minor subdivision to divide a 2.5-acre site into two individual lots (**Appendix I – Tentative Map**). Lot 1, where the proposed AutoZone retail development is proposed would be 1.1-acres in size and would comprise the northern portion of the property. Lot 2 would be 1.4-acres in size and comprise the southern portion of the site. Both proposed parcels would meet the City's minimum parcel dimensions and comply with provisions of the California Map Act per the Public Works Director.

a) Established commercial developments are adjacent to the subject parcel on both the north and south. The project is situated along Main Street / CA Hwy 1 in a vehicle oriented commercial zoning district. A number of single family homes, located in Mendocino County, are situated to the west, however, the project will not divide this established community as its located on the edge. Additionally, a vegetated screen and split rail fence is proposed along the western border to screen the retail store from the residential neighborhood.

b) The proposed project includes a minor subdivision to accommodate an auto parts retail store on Lot 1 and a future unknown commercial development on Lot 2 in Highway Visitor Commercial (CH) zoning district in the Coastal Zone. Highway Visitor Commercial is applied to sites along CA Hwy 1 and are generally vehicle oriented. General retail is consistent with the purposes of CH zoning, and the City prioritizes visitor serving amenities in this district as stated in the following policy:

> Policy LU-5.2: Ensure that there are adequate sites for visitor-serving land uses by: a) Maintaining existing areas designated for Highway-Visitor Commercial uses; b) Maintaining the Highway Visitor Commercial land use designation as one allowing primarily recreational and visitor-serving uses; and c) Reserving adequate infrastructure capacity to accommodate existing, authorized, and probable visitor serving uses.

Visitor serving retail typically include those businesses selling goods and merchandise to tourists and visitors, such as art, handcrafted items, jewelry, sporting goods, toys, specialty foods and the like. As most visitors to Fort Bragg arrive by motor vehicle, a retail store providing items to maintain vehicles could be considered both visitor serving and retail for local residents. Land uses in the immediate vicinity of the project site include lodging, restaurant, café, which are all visitor serving.

The project as proposed complies with site development standards for the zoning district, however, may conflict with several policies in the Coastal General Plan unless mitigated. The following policies are provided to this effect:

> Policy LU-4.1 Formula Businesses and Big Box Retail: Regulate the establishment of formula businesses and big box retail to ensure that their location, scale, and appearance do not detract from the economic vitality of established commercial businesses and are consistent with the small town, rural character of Fort Bragg.

> Policy LU-10.3: The location and amount of new development shall maintain and enhance public access to the coast by: (2) providing non-automobile circulation within the development that includes circulation connections outside of the development

> Policy CD-1.1: Visual Resources: Permitted development shall be designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to

be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance scenic views in visually degraded areas.

Policy CD-1.4: New development shall be sited and designed to minimize adverse impacts on scenic areas visible from scenic roads or public viewing areas to the maximum feasible extent.

Policy CD-1.6: Fences, walls, and landscaping shall minimize blockage of scenic areas from roads, parks, beaches, and other public viewing areas.

Policy CD-2.1 Design Review: All development that has the potential to affect visual resources shall be subject to Design Review, unless otherwise exempt from Design Review pursuant to Coastal Land Use & Development Code Section 18.71.050. Design Review approval requirements shall not replace, supersede or otherwise modify the independent requirement for a coastal development permit approved pursuant to the applicable policies and standards of the certified LCP. Ensure that development is constructed in a manner consistent with the Citywide Design Guidelines.

Policy CD-2.5 Scenic Views and Resource Areas: Ensure that development does not adversely impact scenic views and resources as seen from a road and other public rights-of-way.

Policy CD-2.7 Landscaping: Encourage attractive native and drought-tolerant landscaping in residential and commercial developments.

Policy CD-2.8 Strip Development: Discourage further strip development along Main Street. Strip development is typically characterized by street frontage parking lots serving individual or strips of stores or restaurants, with no provisions for pedestrian access between individual uses and buildings arranged linearly.

Many of the policies listed (Policy: CD-1.1, CD-1.3, CD-1.4, CD-2.1, CD-2.5, CD-2.7), have been analyzed and mitigated in Section I. Aesthetics to ensure the project has a less than significant impact. Policy 1-2 was also discussed in Section I. and is relevant again with regard to the City's regulations about fencing, walls and screening. Policy 1-2 states:

Policy 1-2: Where policies in the Coastal General Plan overlap or conflict, the policy which is the most protective of coastal resources shall take precedence.

For example, CLUDC Section 17.30.050 establishes standards to separate adjoining residential and nonresidential land uses. These regulations require screening – specifically, a decorative, solid wall of masonry – between different land uses. However, a six-foot tall solid masonry wall would impede on the open space character of the site and blue water views. In consideration that land use and development decisions in the Coastal Zone must be consistent with the Local Coastal Program, a split rail fence with vegetation is proposed. This screen shall be installed along the entire western length of the existing parcel (both Lot A and Lot B). Landscaping shall be comprised of native and drought tolerant plants as stated in mitigation measure AESTH-3, BIO-3 and expressed again in LAND-2:

LAND-1: Wooden fencing, such as split rail fencing, with a maximum height of 48 inches and native and drought tolerant landscaping shall be installed along the entire western length of the property. The fencing and landscaping shall be included as part of the final Landscaping Plan to be approved by the Community Development Department, prior to issuance of building permit.

Additionally, when considering the implications of the proposed minor subdivision, analysis is required for the potential future development of the newly created parcel. Policy CD-1.10 states:

> Policy CD-1.10: All proposed divisions of land and boundary line adjustments shall be analyzed for consistency of potential future development with the visual resource protection policies of the LCP, and no division of land or boundary line adjustment shall be approved if development of resulting parcel(s) would be inconsistent with these policies.

The proposed subdivision would divide a single Highway Visitor zoning district parcel into two lots approximately 1.1–acres in size (**Appendix I – Tentative Map**). The site of the proposed AutoZone (Lot 1) is the subject of this document, thus far. With regard to how potential future development on Lot 2 could impact visual resources, the following analysis is provided:

<u>Impact of Potential Future Development of Lot 2 on Visual Resources</u>

> Policy CD-1.1 Visual Resources: Permitted development shall be designed and sited to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance scenic views in visually degraded areas.
>
> Policy CD-1.4 New development shall be sited and designed to minimize adverse impacts on scenic areas visible from scenic roads or public viewing areas to the maximum feasible extent.
>
> Policy CD-1.5: All new development shall be sited and designed to minimize alteration of natural landforms by: 1) Conforming to the natural topography; 2) Preventing substantial grading or configuration of the project site; 3) Minimizing flat building pads on slopes. Building pads on loping sites shall utilize split level or stepped-pad designs; 4) Requiring that man-made contours mimic the natural contours; 5) Ensuring that graded slopes blend with the existing terrain of the site and surrounding area; 6) Minimizing grading permitted outside of the building footprint; 7) Clustering structures to minimize site disturbance and to minimize development area; 8) Minimizing height and length of cut and fill slopes; 9) Minimizing the height and length of retaining walls; and 10) Cut and fill operations may be balanced on-site, where the grading does not substantially alter the existing topography and blends with the surrounding area. Export of cut material may be required to preserve the natural topography.
>
> Policy CD-2.5 Scenic Views and Resource Areas: Ensure that development does not adversely impact scenic views and resources as seen from a road and other public rights-of-way.

Photo Sets A, B, C and D in Section I. Aesthetics illustrate views of the site, looking west from a variety of vantage points. The analysis concludes that siting the proposed retail store on the north end, adjacent to the existing retail store, Fort Bragg Outlet, to be preferred in order to protect coastal blue water visual resources. The center of the parcel, has an open space character with blue water views. When considering where potential future commercial development would best be sited, the south end, situated behind the tall vegetation, where the site steps down in grade would have the less significant impact on visual resources.

In order to preserve blue water views through the site, a "view easement" would be recorded as part of the subdivision process. In selecting the most protected view easement, the adjacent parcels were considered because many existing views cross through vacant lots. The aerial image below depicts several view points from the unnamed frontage road. The red lines offer expansive blue water views today, however cross through vacant parcels that are zoned for residential units and will likely be developed. The white corridor crosses through the center of site and stretches toward Noyo Harbor. Although there could be additional development on these lots, they are more protected than views through vacant lots.

> **LAND-2:** Demarcation of a visual easement, clearly illustrated on plat(s) for proposed subdivision shall be recoded as a deed restriction and as a permanent exhibit to the deeds for the new parcels. The view easement shall be 50 feet wide at widest measurement on the northwest corner of Lot 1 and 24 feet wide at the narrowest point on the southeast corner or Lot 2, as illustrated in Image 6 and Image 7. View blocking development is not permitted within the visual easement, excluding split rail fencing along western property line, driveways and low-lying landscape vegetation (<4 ft.); no trees shall be planted within the view easement.

Image 6: Aerial of View Corridor (white)

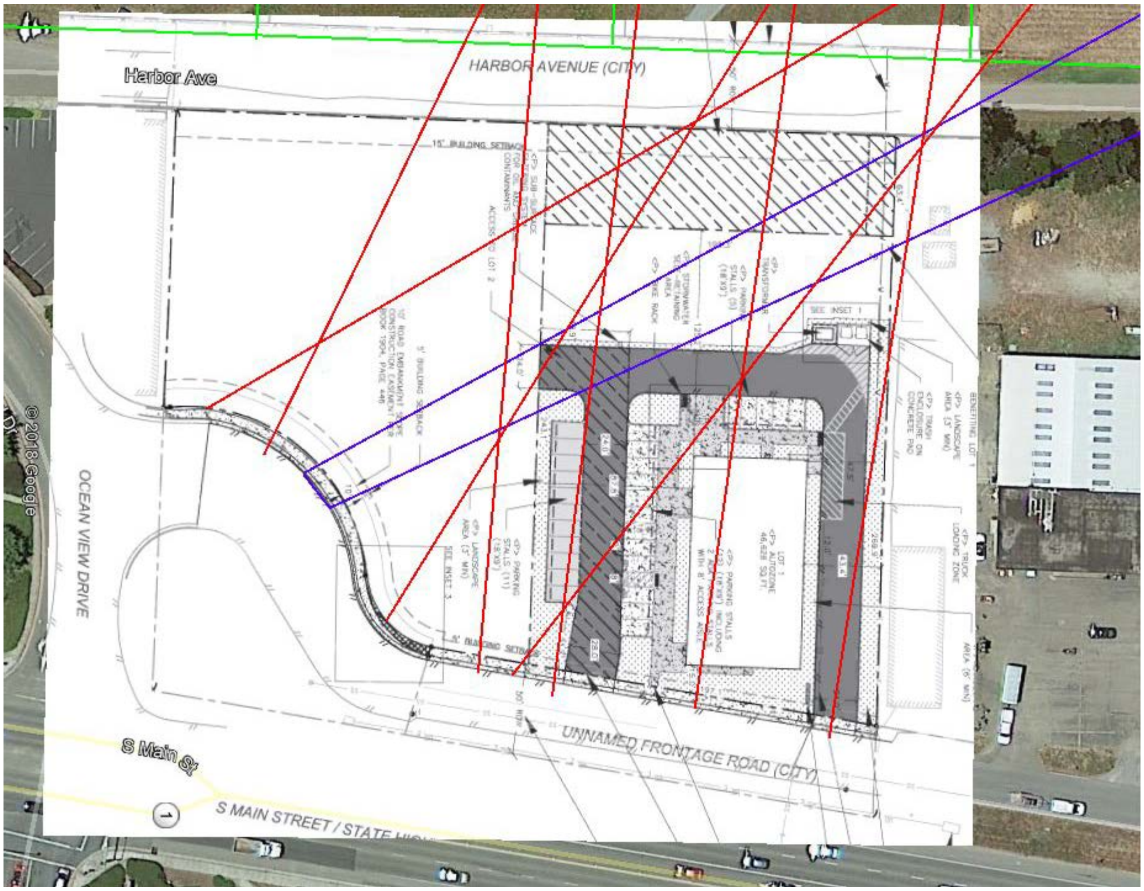


Image 7: Aerial of View Corridor with Proposed AutoZone (purple)

The City has determined the site could accommodate the increased intensity of development of a potential future commercial development and has determined there is a sufficient developable envelope to construct a structure and retain blue water views from the site. This potential future development, would utilize a shared driveway access point, as discussed in Section I. Aesthetics and mitigated by AESTH-2. In addition, any future development would require a Visual Analysis and Design Review to analyze a specific project.

Photo Set A: Views on southern portion of site, looking west:

The project, as mitigated complies with CLUDC, Citywide Design Guidelines and Coastal General Plan Policies: CD-1.1, CD-1.4, CD-2.5, LU-4.1, OS-5.1, OS-5.2, OS-5.4, OS-11.8, see Section I. Aesthetics for analysis.

The project, as mitigated complies with CLUDC and Coastal General Plan Policies: OS-5.1, OS-5.2, OS-5.4, OS-10.3, see Section IV. Biological Resources for analysis.

The project, as mitigated complies with CLUDC and Coastal General Plan Policy OS-4.3, see Section V. Cultural Resources for analysis.

The project, as mitigated complies with CLUDC and Coastal General Plan Policies: SF-2.1, SF-2.2, VII. Geology and Soils for discussion.

The project, as mitigated complies with CLUDC and Coastal General Plan Policies: OS-3.1, OS-9.1, OS-9.2, OS-9.5, OS-10.1, OS-10.2, OS-10.3, OS-10.5, OS-10.6, OS-11.1, OS-11.2, OS-11.4, OS-11.5, OS-11.10, OS-14.1, OS-14.3, OS-14.4, OS-14.5, see Section X. Hydrology and Water Quality and Section VII. Geology and Soils for discussion.

The project, as mitigated complies with CLUDC and Coastal General Plan Policies: OS-4.1, OS-4.2, OS-4.3, OS-4.4, OS-4.5, see Section XVIII. Tribal Cultural Resources for analysis.

FINDINGS
The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Land Use and Planning.

XII. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

DISCUSSION OF MINERAL RESOURCES

a)b) The proposed project is not located in an area of known rock, aggregate, sand, or other mineral resource deposits of local, regional, or State residents, and does not contain mineral resources that are of value locally, to the region, or to residents. The project area is not identified as a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Furthermore, the parcel is not utilized for Surface Mining and Reclamation Act (SMARA) activities. Therefore, the proposed project would not interfere with materials extraction or otherwise cause a short-term or long-term decrease in the availability of mineral resources. No impact would occur.

FINDINGS
The proposed project would have **No Impact** on Mineral Resources.

XIII. NOISE.

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standard established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐

DISCUSSION OF NOISE
Noise is defined as unwanted sound. The objective of the Noise Element in the City's Coastal General Plan is "to protect the health and welfare of the community by promoting development which is compatible with established noise standards". Main Street / CA Hwy 1 is identified as a principle area affected by excessive noise, especially the segment between Cypress Street and Ocean View Drive. What is considered 'normally acceptable' exterior noise levels for commercial is 70 to 80 dB and the proposed project is anticipated to be located within an area of generally acceptable exterior noise levels.

a) With the exception of short-term construction related noise, the proposed retail development is not anticipated to create significant noise. The primary source of operational noise associated with the proposed project will be vehicles traveling to and from the store. Within the City, noise restrictions are set between 11:00 p.m. and 7:00 a.m., per Section 9.44.020 of the Municipal Code, where it is unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to create, cause to be created or maintain sources of noise which cause annoyance or discomfort to a reasonable person of normal sensitivities in the neighborhood. The City's Noise Ordinance will ensure a less than significant impact would occur.

b) Construction of the proposed project requires the use of heavy equipment, which would cause temporary ground borne vibration and ground borne noise exceeding normally allowable limits. However, these impacts would be temporary in nature. Construction associated with the proposed project will generally occur between the hours of 8:00am to 5:00pm Monday through Friday and adhere to the City's Noise Ordinance discussed in the previous paragraph.

However, two sensitive receptors are located in close proximity to the site, including the Harbor RV Park (located 213 feet to the north) and Mendocino College (located approximately 1.4 miles to the southwest). In order to mitigate the effect of noise on theses sensitive receptors, the following measure is drafted:

> **NOISE-1:** Mendocino College and the Noyo Harbor RV park shall be provided with a copy of the anticipated construction schedule prior to commencement of construction activities.

FINDINGS
The proposed project would have a **<u>Less Than Significant Impact with Mitigation Incorporated</u>** on Noise.

XIV. POPULATION AND HOUSING

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

DISCUSSION OF POPULATION AND HOUSING

The primary limitation on population growth in the area is the lack of affordable housing and limited job opportunities and this project is not a significant growth inducement for the community on either account.

a) The proposed project would result in one additional commercial retail business and a vacant commercial lot for potential future development. The AutoZone retail store is anticipated to create about twelve (12) jobs, as the standard ratio of jobs per square foot of retail space is one job per 500 to 700 square feet. This is not a significant growth in jobs and it is anticipated employees will reside locally.

b) The site is currently undeveloped and would not involve the displacement of existing people or housing.

FINDINGS

The proposed project would have a **<u>Less Than Significant</u>** on Population and Housing.

XV. PUBLIC SERVICES.

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

DISCUSSION OF PUBLIC SERVICES

a) The City is served by the Fort Bragg Fire Protection Authority (FBFPA), referred to as, Fort Bragg Fire Department. It is a volunteer fire department with approximately 36 firefighters and four auxiliary members who actively dedicate themselves to protect life and property. The fire department operates out of three facilities: Main Street Fire Station (141 N. Main Street), Highway 20 Substation (32270 Highway 20), and Little Valley Fire Company (33680 Little Valley Road). Annually, the fire department responds to 500 to 600 calls, which vary from structure fires to public assists. Although the project would result in the addition of a commercial building, the structure would be equipped with automatic fire sprinkler systems and can be adequately served with proper fire flows.

b) Police protection services within the City of Fort Bragg are provided by the City of Fort Bragg Police Department (FBPD), located at 250 Cypress Street. The proposed development could result in more calls for service, however it would not result in any increased need for additional staff or stations.

c) The proposed project is not anticipated to result in significant job or population growth and will not have a significant impact on schools.

d) The proposed project is not anticipated to result in significant job or population growth and will not have a significant impact on parks.

e) There are no elements of the proposed project that would significantly impact other public facilities, such as waste water, water supply, regional hospitals or libraries, since significant population growth is not anticipated as a result of the proposed project.

FINDINGS
The proposed project would have **Less Than Significant Impact** on Public Services.

XVI. RECREATION

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

DISCUSSION OF RECREATION
The proposed development is in the vicinity of the City's coastal trail, which borders the coastline from Pomo Bluffs on Todd Point, along the Noyo Headlands to Pudding Creek Trestle, where it continues along California State Park land to MacKerricher Park. This coastal park and trail is a popular recreation area for both locals and visitors and can be accessed at the terminus of the unnamed frontage road on which the proposed development would be located.

a) The project includes a 26-space parking lot to serve the proposed business, which is intended for customers and employees of the proposed AutoZone, not public parking for the trail access. The project does however include the installation of sidewalk, curb and gutter along the unnamed frontage road, which will improve safe pedestrian access to the trail. The coastal trail is intended for passive public use and the project will not negatively impact its capacity to provide recreational opportunities.

b) The project does not include recreational facilities nor would it require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

FINDINGS
The proposed project would have a **Less Than Significant Impact** on Recreation.

XVII. TRANSPORTATION.

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?	☐	☐	☒	☐
b) For a land use project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?	☐	☐	☒	☐
c) For a transportation project, would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(2)?	☐	☐	☐	☒
d) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☐	☐	☒

DISCUSSION OF TRANSPORTATION
A *Traffic Impact Analysis* was prepared by LACO on October 8, 2018 in order to evaluate the potential traffic and circulation impacts anticipated under the proposed project (**Appendix G – Traffic Analysis**). Caltrans was consulted prior to the traffic study and provided recommendations of study area. The study areas were evaluated for four scenarios: 1) existing conditions; 2) existing conditions with project; 3) future conditions; and 4) future conditions with project (this analysis also includes the cumulative potential future traffic generation from the proposed Hare Creek Center).
Five intersections were identified as the locations most likely to experience impacts due to the project-generated trips and analyzed:

1. S Main Street / CA Hwy 1 at access drive to unnamed frontage road near bridge;
2. S Main Street / CA Hwy 1 at Ocean View Drive
3. S Main Street / CA Hwy 1 at Hwy 20
4. Hwy 20 at Boatyard Drive
5. Ocean View Drive at unnamed frontage road

Most of the selected intersections are under the jurisdiction of Caltrans, with the exception of the intersection of Ocean View Drive and the unnamed frontage road. Caltrans reviewed the proposed project on three occasions: 1) pre-development review; 2) initial draft site plan review; 3) proposed site plan review. Applicant revised site plan and conducted traffic analysis for intersections outlined in comment letters. The use of a shared driveway access as discussed above in Section I. Aesthetics and mitigated with AESTH-2, above is supported by Caltrans. Any potential future development of Lot 2 would require additional traffic impact analysis, as part of a Coastal Development Permit.

The traffic analysis concluded that the proposed project would not be expected to contribute significantly to the potential deterioration of traffic operations in the study area for the conditions analyzed based on Length of Stay (LOS). In terms of vehicle miles traveled (VMT) the study concludes VMT will remain the same or decrease. Recommendation are provided to address potential impacts with regard to queuing and are included as mitigation measures TRANS-1 and TRANS-2, below.

a) Site planning and project design standards of the proposed development would comply with Article 2 of the City's Coastal General Plan Policy C-1-1 which sets a lowest performance standard of Level of Service D for the Ocean View Drive Intersection with Highway 1. The *Traffic Impact Analysis* found the proposed development would not be expected to contribute significantly to the potential deterioration of traffic operations in the study area for conditions based on Level of Service (LOS). It also stated that Vehicle Miles Traveled (VMT) would remain the same or decrease with construction of the project, since the distance a customer would need to travel to reach an auto parts retail store could decrease for travelers. With respect to queuing, there is the potential to significantly impact the intersection of Ocean View Drive at S Main Street / CA Hwy 1, and Ocean View Drive at the unnamed frontage road; therefore, Mitigation Measure TRANS-1 and TRANS-2 are provided:

TRANS-1: CA Hwy 1 / Ocean View Drive (Intersection 2) and Ocean View Drive / unnamed frontage road (Intersection 5) - The project must include installation of appropriate Keep Clear signage and street markings at the intersection of Ocean View Drive and the unnamed frontage road. This will allow southbound traffic on the frontage road to merge with eastbound traffic on Ocean View Drive, without impacting the operations of the traffic signal at Highway 1 and Ocean View Drive. There is sufficient additional stacking room between the Ocean View/Frontage Road intersection and the Ocean View/Harbor Avenue intersection to the west to accommodate the anticipated additional queue length for eastbound left and eastbound through traffic.

TRANS-2: CA Hwy 1 / CA Hwy 20 (Intersection 3) - As conditions warrant and concurrent with regular maintenance, the westbound north lane striping could be extended by approximately 100 feet to provide an earlier separation between left turning and right turning traffic.

In addition, the *Traffic Impact Analysis* recommends that as conditions warrant and concurrent with regular maintenance, the westbound north lane striping could be extended by approximately 100 feet to provide an earlier separation between left turning and right turning traffic. It is noted that no mitigation is necessary for northbound through-traffic, as there is ample queuing length south of the northbound split into two lanes.

b) CEQA Guidelines Section 15064.3(b)(1) states that "generally projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact". Mendocino Transit Authority's major bus stop in Fort Bragg is located about 950 feet from the project site at the Mendocino College Campus, which is less than one half mile. This transit stop serves all three active bus routes in Fort Bragg: Route 5, Route 60 and Route 65. Therefore, per Section 15064.3b1 a less than significant impact would occur.

c) The proposed development is not a transportation project and therefore, CEQA Guidelines 15064.3(b)(2) does not apply.

d) The existing roadway of the unnamed road is under-designed as it is narrow and includes no pedestrian facilities. The proposed project would increase both pedestrian and vehicular traffic on this road. In order to facilitate proper circulation and frontage improvements, the proposed project would widen the unnamed frontage road to full width and add sidewalk, curb and gutter along the eastern portion of the project site, which is illustrated in site plan. These roadway and frontage improvements would increase safe traveling of both pedestrians and vehicles and result in a less than significant impact on hazards associated with geometrical design of a roadway.

e) The project was routed to the Fort Bragg Fire Department and the Mendocino County Department of Planning & Building to review for emergency accessibility. The Fire Marshall is satisfied with the emergency access of the development and the project results in no impact on emergency access.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Transportation.

XVIII. TRIBAL CULTURAL RESOURCES.

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

DISCUSSION OF TRIBAL CULTURAL RESOURCES

A confidential archaeological study was performed for the project by Alta Archaeological Consulting. In accordance with Assembly Bill 52, the City of Fort Bragg initiated tribal consultation to request input regarding any specific areas within the Area of Potential Effect (APE) which may be likely to harbor culturally valuable resources and may therefore merit additional protection or require a cultural monitor to be on-site during future development. Sherwood Valley Band of Pomo requested an additional study to be performed, which has been conducted and tribal monitoring during development.

a) Tribal cultural resources were not discovered by archaeologists; however, development could uncover resources during grading activities. As such, Sherwood Valley Band of Pomo request Tribal Monitoring during ground disturbing activities and in response, the following mitigation measures have been drafted:

TRIBAL-1: Tribal Monitoring is required during ground disturbing activities. Please contact Sherwood Valley Band of Pomo Tribal Historic Preservation Office representative, Tina Sutherland at (707) 459-9690 or tsutherland@sherwoodband.com at least ten days prior to construction for scheduling.

TRIBAL-2: If archaeological resources are encountered during construction**,** work on-site shall be temporarily halted in the vicinity of the discovered materials and workers shall avoid altering the materials and their context until a qualified professional archaeologist and tribal monitor has evaluated the situation and provided appropriate recommendations. Project personnel shall not collect cultural resources.

TRIBAL-3: If human remains are discovered during project construction, work within 20 meters (66 feet) of the discovery location, and within any nearby area reasonably suspected to overlie human remains, will cease (Public Resources Code, Section 7050.5). The Mendocino County Coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the California Native American Heritage Commission (NAHC) (Public Resources Code, Section 5097). In this case, the coroner will contact NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or person responsible for excavation work with direction regarding appropriate means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

a-i) Public Resources Code 5020.1(k) defines *a local register of historical resource* as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution". The City does not consider the site as historically significant and consulted Sherwood Valley Band of Pomo regarding the proposed AutoZone retail development. Tribal Monitoring during all ground disturbing activities has been requested by the Tribe and is included in mitigation measure TRIBAL-1, above.

a-ii) Public Resources Code 5024.1(c) states that "a resource may be listed as an historical resource in the California Register if it meets any of the following National Register of Historic Places criteria:1) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; 2) is associated with the lives of persons important in our past; 3) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or 4) has yielded, or may be likely to yield, information important in prehistory or history". The City does not consider the project location to be a historical resource. The archaeology report did not identify the site as a historical resource; application materials and this MND have been referred to Sherwood Valley Band of Pomo and the tribe requested Tribal Monitoring during all ground disturbing activities, as stated in mitigation measure TRAIBAL-1, above.

FINDINGS
The proposed project would have **Less than Significant Impact with Mitigation Incorporated** on Tribal Cultural Resources.

XVIX. UTILITIES AND SERVICE SYSTEMS

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

DISCUSSION OF UTILITIES AND SERVICE SYSTEMS

The City of Fort Bragg Public Works Department Water Enterprise Division is responsible for raw water collection, treatment, and distribution of treated water to customers within and outside of the city limits. Additionally, the City owns and operates a water treatment plant (WTP), located at 31301 Cedar Street in Fort Bragg.

a) The project site is currently undeveloped and does not receive water, wastewater, or solid waste services. An existing water main is located along N Harbor Avenue and is maintained by the City of Fort Bragg. The project proposes extending the water service from the main in N Harbor Avenue to the project site, via a proposed 10-foot private utility easement across proposed Lot 2 to benefit Lot 1. The sewer line is accessed off Unnamed frontage road, the proposed development will require a standard sewer connection to this Main. Poles would be installed to carry electric power and telecommunication.

During project construction, including connection to utilities and service systems, the project contractor, would be required to implement standard Best Management Practices (BMPs) during build-out of the site to assure the minimization of erosion resulting from construction, to limit ground disturbance to the minimum necessary, and stabilize disturbed soil areas as soon as feasible after construction is completed. With mitigation incorporated, connections to utilities and service systems would not result in significant environmental effects.

UTIL-1: Prior to issuance of Building Permit, the applicant shall pay all water and sewer capacity and connection fees.

UTIL-2: As part of the Minor Subdivision, a 15' private utility easement shall be recorded across Lot 2 benefitting Lot 1. The utility easement shall remain free of all above ground development.

Refer to mitigation measures: AIR-1 and AIR-2, under Section III. Air Quality; BIO-2, under Section IV. Biological Resources; HYDRO-1 under Section X. Hydrology and Water Quality; and TRIBAL-1, under Section XVIII. Tribal Cultural Resources, above.

b) The City completed a water analysis in 2010 and is in the process of updating this analysis to assess future development potential. All known future planned and proposed developments (Hare Creek Center, Danco Affordable Housing project and the Avalon Hotel) were considered by the Public Works Department when it determined that the City also has sufficient water supply available to serve the proposed project and these other approved and proposed projects during normal, dry, and drought years.

c) The Public Works Department has determined that the City's Waste Water Treatment Plant (WWTP) has sufficient capacity available to serve the proposed project and reasonably foreseeable future development of Lot 1. It is also noted that the WWTF is currently undergoing a major upgrade, which will create further capacity and efficiency of the system.

d) Solid waste services would be contracted with Waste Management, which provides weekly garbage, recycling and green-waste collection within the City of Fort Bragg. The proposed retail store is not anticipated to generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, nor interfere with reduction of solid waste attainment goals.

e)f)Fort Bragg Municipal Code Title 15, Section 15.35 includes a Construction and Demolition Recycling ordinance that states fifty percent (50%) of waste tonnage resulting from construction shall be diverted from going to the landfill by using recycling, reuse and diversion programs. Prior to issuance of a building permit, the proposed project will be required to complete a Construction & Demolition Recycling worksheet in order to determine types of materials and amount to be recycled.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Utilities and Service Systems.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage challenges?	☐	☐	☐	☒

DISCUSSION OF WILDFIRE

According to Cal Fire's Mendocino County Fire Hazard Severity Zone Map, the site is located in Local Responsibility Area and categorize the site as moderate. Fire protection services within the City of Fort Bragg is provided by the Fort Bragg Fire Protection Authority (FBFPA) as discussed under Section XV. Public Services, above. The project includes automatic fire sprinklers. No mitigation is required.

FINDINGS

The proposed project would have **No Impact** on Wildfire.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means 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) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF MANDATORY FINDINGS OF SIGNIFICANCE

With the incorporation of the following mitigation measures, all potential impacts would be reduced to a level of less than significant:

AESTH-1: Prior to issuance of Building Permit, a Coastal Development Permit, including Visual Analysis, and Design Review Permit must be approved by the Planning Commission.

AESTH-2: A shared driveway shall be utilized to access Lot 2 through Lot 1 of the proposed minor subdivision. Lot 1 shall provide an access agreement for the benefit of Lot 2, which shall be created on the Parcel Map. Furthermore, abutters rights of access along the public street frontage on Lot 2 shall be dedicated to the City of Fort Bragg. Shared maintenance agreements over the mutual driveway shall be recorded prior to issuance of a building permit. This shared access requirement will be included as a special condition of the Coastal Development Permit.

ASETH-3: Prior to issuance of Building Permit, a detailed Landscaping Plan shall be submitted, in accordance with CLUDC Chapter 17.34. The plan shall utilize attractive native and drought tolerant plants and shall depict the location of six native trees to be planted to replace the six conifers removed as part of the project. Tree placement should take scenic areas into consideration and should not block views.

ASETH-4: A Tree Mitigation Monitoring Plan shall be submitted along with the Final Landscaping Plan demonstrating a 10-year plan to: 1) prevent net loss of canopy; 2) maintain aesthetics associated with existing trees; 3) maintain habitat value. If tree(s) perish during this monitoring period, new tree(s) will be planted as replacement and with a new 10-year monitoring plan timeline.

AIR-1: In order to minimize dust, Dust Prevention and Control Plan measures shall be incorporated into Final Storm Water Pollution Prevention Plan (SWPPP) and submitted with final grading plan for approval of the Public Works Director per CLUDC 17.62.020. This plan shall include information and provisions:

- The plan shall address site conditions during construction operations, after normal working hours, and during various phases of construction.
- The plan shall include the name and 24-hour contact of responsible person in case of an emergency.
- Grading shall be designed and grading activities shall be scheduled to ensure that repeat grading will not be required, and that completion of dust-generating activity will occur in shortest feasible timeframe.
- Sediment shall be prevented from flowing into waterways on site.
- All visibly dry disturbed areas shall be controlled by watering, covering, and/or other dust preventive measures.
- The plan shall include the procedures necessary to keep the adjacent public streets and private properties free of dirt, dust and other debris when importing or exporting of material as demonstrated by cut and fill quantities on the grading plan.
- Graded areas shall be revegetated as soon as possible, but within no longer than 30-days. Disturbed areas that are to remain inactive longer than 30-days shall be seeded (with combination of terminal barley and native seed) and watered until vegetative cover is established.
- All earthmoving activities shall cease when sustained winds exceed over 15 miles per hour. Wind speed shall be measured on-site by project manager with a handheld anemometer.

AIR-2: At all times, construction vehicle and equipment utilized on-site shall be maintained in good condition to minimize excessive exhaust emissions.

BIO-1: Minimize Potential Disturbance of Breeding Birds through the following techniques:

- <u>Work Windows</u>. Conduct ground disturbance and vegetation (tree and shrub) removal before or after the assumed bird breeding season (March 1 – September 1).

- Preconstruction Surveys. If ground disturbance or removal of vegetation occurs between January 16 and August 31, preconstruction surveys will be performed prior to such disturbance to determine the presence and location of nesting bird species.
- Buffers. If nests are present, establishment of temporary protective breeding season buffers will avoid direct mortality of these birds. The appropriate buffer distance is species specific and will be determined by a qualified biologist as appropriate to prevent nest abandonment and direct mortality during construction.

BIO-2: A grading permit, including Best Management Practices (BMPs) to be implemented, shall be submitted and approved by the Public Works Director, prior to building permit issuance and ground breaking activities. BMPs shall include, but not be limited to: 1) utilization of straw bales, fiber rolls, and/or silt fencing structures to assure the minimization of erosion and to avoid storm water runoff; 2) shall limit ground disturbance to the minimum necessary; and 3) shall stabilize disturbed soil areas as soon as feasible after construction is completed.

BIO-3: Plant species listed as invasive (High, Moderate, or Limited) on the California Invasive Plant Inventory (Cal-IPC Inventory) shall not be installed anywhere in the project area as they would pose a risk to the surrounding plant communities. Existing invasive scotch broom and pampas grass shall be removed from the site, and the site shall be kept free of these invasive plants into the future.

CULT-1: If human remains are identified during project construction, the applicant shall follow the following procedures: 1) The Director, the County Corner, and the Mendocino County Archaeological Commission shall be notified immediately; 2) All development shall cease immediately and shall not commence until so directed by the Community Development Director 3) An applicant seeking to recommence construction following a discovery shall submit a supplemental archaeological plan for review and approval of the permit review authority.

GEO-1: Development of the proposed project at the site shall comply with the design standards included in the latest version of the California Building Code (CBC), as well as the recommendations and expertise provided in the report, Geotechnical Engineering Investigation by Salem Engineering Group, Inc. (March 6, 2018).

GEO-2: In the event that fossils or fossil-bearing deposits are discovered during project construction, the contractor shall notify the Community Development Director and a qualified paleontologist to examine the discovery and excavations within 50 feet of the find shall be temporarily halted. The area of discovery shall be protected to ensure that fossil are not removed, handled, altered, or damaged until the site is properly evaluated and further action is determined. The paleontologist shall document the discovery as needed, in accordance with Society of Vertebrate Paleontology standards (Society of Vertebrate Paleontology 1995), evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important. The plan shall be submitted to the City of Fort Bragg for review and approval prior to implementation.

HYDRO-1: Prior to issuance of building permit, a Storm Water Pollution Prevention Plan (SWPPP) shall be submitted with the building permit application, and shall be approved by City engineer prior to issuance of a building permit. The SWPPP shall require BMPs to be implemented in order to minimize construction impacts, including erosion and sedimentation.

HYDRO-2: Prior to issuance of building permit, the submitted SWPPP shall contain a Final Drainage and Stormwater Control Plan, in compliance with CLUDC Chapter 17.64, shall be submitted and approved by City engineer to ensure that increases in stormwater runoff volume and peak runoff rate remain unchanged.

LAND-1: Wooden fencing, such as split rail fencing, with a maximum height of 48 inches and native and drought tolerant landscaping shall be installed along the entire western length of the property. The fencing and landscaping shall be included as part of the final Landscaping Plan to be approved by the Community Development Department, prior to issuance of building permit.

LAND-2: Demarcation of a visual easement, clearly illustrated on plat(s) for proposed subdivision shall be recoded as a deed restriction and as a permanent exhibit to the deeds for the new parcels. The view easement shall be 50 feet wide at widest measurement on the northwest corner of Lot 1 and 24 feet wide at the narrowest point on the southeast corner or Lot 2, as illustrated in Image 6 and Image 7. View blocking development is not permitted within the visual easement, excluding split rail fencing along western property line, driveways and low-lying landscape vegetation (<4 ft.); no trees shall be planted within the view easement.

NOISE-1: Mendocino College and the Noyo Harbor RV park shall be provided with a copy of the anticipated construction schedule prior to commencement of construction activities.

TRANS-1: CA Hwy 1 / Ocean View Drive (Intersection 2) and Ocean View Drive / unnamed frontage road (Intersection 5) - The project must include installation of appropriate Keep Clear signage and street markings at the intersection of Ocean View Drive and the unnamed frontage road. This will allow southbound traffic on the frontage road to merge with eastbound traffic on Ocean View Drive, without impacting the operations of the traffic signal at Highway 1 and Ocean View Drive. There is sufficient additional stacking room between the Ocean View/Frontage Road intersection and the Ocean View/Harbor Avenue intersection to the west to accommodate the anticipated additional queue length for eastbound left and eastbound through traffic.

TRANS-2: CA Hwy 1 / CA Hwy 20 (Intersection 3) - As conditions warrant and concurrent with regular maintenance, the westbound north lane striping could be extended by approximately 100 feet to provide an earlier separation between left turning and right turning traffic.

TRIBAL-1: Tribal Monitoring is required during ground disturbing activities. Please contact Sherwood Valley Band of Pomo Tribal Historic Preservation Office representative, Tina Sutherland at (707) 459-9690 or tsutherland@sherwoodband.com at least ten days prior to construction for scheduling.

TRIBAL-2: If archaeological resources are encountered during construction, work on-site shall be temporarily halted in the vicinity of the discovered materials and workers shall avoid altering the materials and their context until a qualified professional archaeologist and tribal monitor has evaluated the situation and provided appropriate recommendations. Project personnel shall not collect cultural resources.

TRIBAL-3: If human remains are discovered during project construction, work within 20 meters (66 feet) of the discovery location, and within any nearby area reasonably suspected to overlie human remains, will cease (Public Resources Code, Section 7050.5). The Mendocino County Coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the California Native American Heritage Commission (NAHC) (Public Resources Code, Section 5097). In this case, the coroner will contact NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or person responsible for excavation work with direction regarding appropriate means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

UTIL-1: Prior to issuance of Building Permit, the applicant shall pay all water and sewer capacity and connection fees.

UTIL-2: As part of the Minor Subdivision, a 15' private utility easement shall be recorded across Lot 2 benefitting Lot 1. The utility easement shall remain free of all above ground development.

APPENDICES:

A. MMRP – Mitigation Monitoring and Reporting Program
B. Elevations
C. Preliminary Landscape Plan
D. CalEEMod
E. Biological Survey
F. Geotechnical Report
G. Traffic Analysis
H. Stormwater
I. Tentative Map

AUTOZONE RETAIL STORE – 1151 S MAIN STREET
MITIGATION MONITORING & REPORTING PROGRAM

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
Reduce impact to coastal visual resources to a level that is less than significant.	**AESTH-1:** Prior to development, a Coastal Development Permit, including Visual Analysis and Design Review Permit must be granted by the Planning Commission	Submit application materials to the City for review and completeness	Community Development Department	Planning Commission	Prior to approval of building permit.
Reduce impact to coastal visual resources to a level that is less than significant.	**AESTH 2:** A shared driveway shall be utilized to access Lot 2 through Lot 1 of the proposed minor subdivision. Lot 1 shall provide an access agreement for the benefit of Lot 2, which shall be created on the Parcel Map. Furthermore, abutters rights of access along the public street frontage on Lot 2 shall be dedicated to the City of Fort Bragg. Shared maintenance agreements over the mutual driveway shall be recorded prior to issuance of a building permit. This shared access requirement will be included as a special condition of the Coastal Development Permit.	Submit subdivision application materials to City Engineer for review and approval	Public Works Department	Plats and legal descriptions	Prior to approval of building permit
Reduce impact to coastal visual resources to a level that is less than significant.	**ASETH-3:** A detailed Landscaping Plan shall be submitted, in accordance with CLUDC Chapter 17.34. The plan shall utilize attractive native and drought tolerant plants and shall depict the location of six native trees to be planted to replace the six conifers to be removed as part of the project. Tree placement should take scenic areas into consideration, so as to not block views; located instead to help screen views of the development from the public right of way. In order to support the acclimation and establishment of the newly planted trees, trees shall be a minimum 25-gallon in size.	Submit and implement a Final Landscaping Plan	Community Development Department	City review of Final Landscaping Plan prior to approval of building permit application	Prior to final of building permit.
Reduce impact to coastal visual resources to a level that is less than significant.	**ASETH-4:** A Tree Mitigation Monitoring Plan shall be submitted along with the Final Landscaping Plan demonstrating a 10-year plan to: 1) prevent net loss of canopy; 2) maintain aesthetics associated with existing trees; 3) maintain habitat value. If tree(s) perish during this monitoring period, new tree(s) will	Submit and implement a Tree Mitigation Monitoring Plan	Community Development Department	Plan review prior to approval of building permit application	Prior to approval of building permit

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
	be planted as replacement and with a new 10-year monitoring plan timeline.				
Reduce construction impacts on air quality to a level that is less than significant.	**AIR-1:** In order to minimize dust, a Dust Prevention and Control Plan shall be submitted with final grading plan for approval of the Public Works Director. • The plan shall address site conditions during construction operations, after normal working hours, and during various phases of construction. • The plan shall include the name and 24-hour contact of responsible person in case of an emergency. • Grading shall be designed and grading activities shall be scheduled to ensure that repeat grading will not be required, and that completion of dust-generating activity will occur in shortest feasible timeframe. • Sediment shall be prevented from flowing into waterways on site. • All visibly dry disturbed areas shall be controlled by watering, covering, and/or other dust preventive measures. • The plan shall include the procedures necessary to keep the adjacent public streets and private properties free of dirt, dust and other debris when importing or exporting of material as demonstrated by cut and fill quantities on the grading plan. • Graded areas shall be revegetated as soon as possible, but within no longer than 30-days. Disturbed areas that are to remain inactive longer than 30-days shall be seeded (with combination of terminal barley and native seed) and watered until vegetative cover is established. • All earthmoving activities shall cease when sustained winds exceed over 15 miles per hour.	Submit and implement a Dust Prevention and Control Plan	Public Works Department	Plan review prior to approval of building permit application	Prior to construction and inspections for compliance during construction by building inspectors

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
	Wind speed shall be measured on-site by project manager with a handheld anemometer.				
Reduce construction impacts on air quality to a level that is less than significant.	**AIR-2:** At all times, construction vehicle and equipment utilized on-site shall be maintained in good condition and engine idling on the project site shall be limited to less than five minutes.	Project manager oversight during construction activities	On-site project manager	On-site inspection by building inspector	Inspections for compliance during construction
Reduce construction impacts on biological resources and water quality to a less than significant level.	**BIO-1:** Minimize Potential Disturbance of Breeding Birds through the following techniques: • Work Windows. Conduct ground disturbance and vegetation (tree and shrub) removal before or after the assumed bird breeding season (March 1 – September 1). • Preconstruction Surveys. If ground disturbance or removal of vegetation occurs between January 16 and August 31, preconstruction surveys will be performed prior to such disturbance to determine the presence and location of nesting bird species. • Buffers. If nests are present, establishment of temporary protective breeding season buffers will avoid direct mortality of these birds. The appropriate buffer distance is species specific and will be determined by a qualified biologist as appropriate to prevent nest abandonment and direct mortality during construction.	Project manager oversight before and during construction activities	On-site project manager and Mendocino County Building Inspectors	On-site inspection by Mendocino County Building Inspector	Inspections for compliance before and during construction
Reduce impacts on biological resources and water quality to a less than significant level.	**BIO-2:** A grading permit, including Best Management Practices (BMPs) to be implemented, shall be submitted and approved by the Public Works Director, prior to building permit issuance and ground breaking activities. BMPs shall include, but not be limited to: 1) utilization of straw bales, fiber rolls, and/or silt fencing structures to assure the minimization of erosion and to avoid storm water runoff; 2) shall limit ground disturbance to the minimum necessary; and 3) shall stabilize disturbed soil areas as soon as feasible after construction is completed.	Submit Grading Permit Application requirements to Public Works Department	Public Works Department and Mendocino County Building Inspectors	Review and approval of Grading Permit by Public Works Department	Prior to construction and on-site inspections during construction to ensure compliance

AUTOZONE RETAIL STORE – 1151 S MAIN STREET
MITIGATION MONITORING & REPORTING PROGRAM

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
Reduce impacts on biological resources and aesthetics to a less than significant level.	**BIO-3:** Plant species listed as invasive (High, Moderate, or Limited) on the California Invasive Plant Inventory (Cal-IPC Inventory) shall not be installed anywhere in the project area as they would pose a risk to the surrounding plant communities. Existing invasive scotch broom and pampas grass shall be removed from the site, and the site shall be kept free of these invasive plants into the future.	Do not install invasive plants and remove existing scotch broom and pampas grass.	Community Development Department	On-site inspection	Prior to approval for final occupancy
Reduce impacts of project to less than significant level on Cultural Resources.	**CULT-1:** If human remains are identified during project construction, the applicant shall follow the following procedures: 1) The Director, the County Corner, and the Mendocino County Archaeological Commission shall be notified immediately; 2) All development shall cease immediately and shall not commence until so directed by the Community Development Director 3) An applicant seeking to recommence construction following a discovery shall submit a supplemental archaeological plan for review and approval of the permit review authority.	Project manager oversight during ground disturbing construction activities	On-site project manager, Community Development Director, Mendocino County Archeological Commission, County Corner,	On-site inspection	Upon identification of human remains
Reduce impacts of project due to seismic and other hazards to a level of less than significant.	**GEO-1:** Development of the proposed project at the site shall comply with the design standards included in the latest version of the California Building Code (CBC), as well as the recommendations and expertise provided in the report, <u>Geotechnical Engineering Investigation</u> by Salem Engineering Group, Inc. (March 6, 2018).	Follow recommendations of licensed engineer, as approved by building inspector	Mendocino County Building Inspector	Plan review by Mendocino County Building Inspector	Prior to issuance of building permit and inspections for compliance prior to final occupancy
Reduce construction impacts on biological resources to a less than significant level.	**GEO-2**: In the event that fossils or fossil-bearing deposits are discovered during project construction, the contractor shall notify the Community Development Director and a qualified paleontologist to examine the discovery and excavations within 50 feet of the find shall be temporarily halted. The area of discovery shall be protected to ensure that fossil are not removed, handled, altered, or damaged until the site is properly evaluated and further action is	Project manager oversight during ground disturbing construction activities	On-site project manager, Community Development Director, qualified paleontologist, Sherwood Valley Band of Pomo	On-site inspection	Upon identification of fossils or fossil-bearing deposits

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
	determined. The paleontologist shall document the discovery as needed, in accordance with Society of Vertebrate Paleontology standards (Society of Vertebrate Paleontology 1995), evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important. The plan shall be submitted to the City of Fort Bragg for review and approval prior to implementation.				
Reduce construction impacts on biological resources to a less than significant level.	**HYDRO-1:** Prior to issuance of building permit, a Storm Water Pollution Prevention Plan (SWPPP) shall be submitted with the building permit application, and shall be approved by City engineer prior to issuance of a building permit. The SWPPP shall require BMPs to be implemented in order to minimize construction impacts, including erosion and sedimentation.	Submit and implement a SWPPP	On-site project manager, Public Works Department and Mendocino County Building Inspector	SWPPP review and approval by Public Works Department	Prior to issuance of building permit, prior to final occupancy , and periodic inspections for compliance during construction
Ensure storm water management system functions as designed to reduce impacts of project on biological resources, water quality and impacts to City infrastructure to a level that is less than significant.	**HYDRO-2:** Prior to issuance of building permit, the submitted SWPPP shall contain a Final Drainage and Stormwater Control Plan, in compliance with CLUDC Chapter 17.64, shall be submitted and approved by City engineer to ensure that increases in stormwater runoff volume and peak runoff rate remain unchanged.	Submit and implement a Storm Water Runoff Mitigation Plan as part of SWPPP	Public Works Department	City Engineer plan review and approval, prior to approval of building permit application.	Prior to construction activities

AUTOZONE RETAIL STORE – 1151 S MAIN STREET
MITIGATION MONITORING & REPORTING PROGRAM

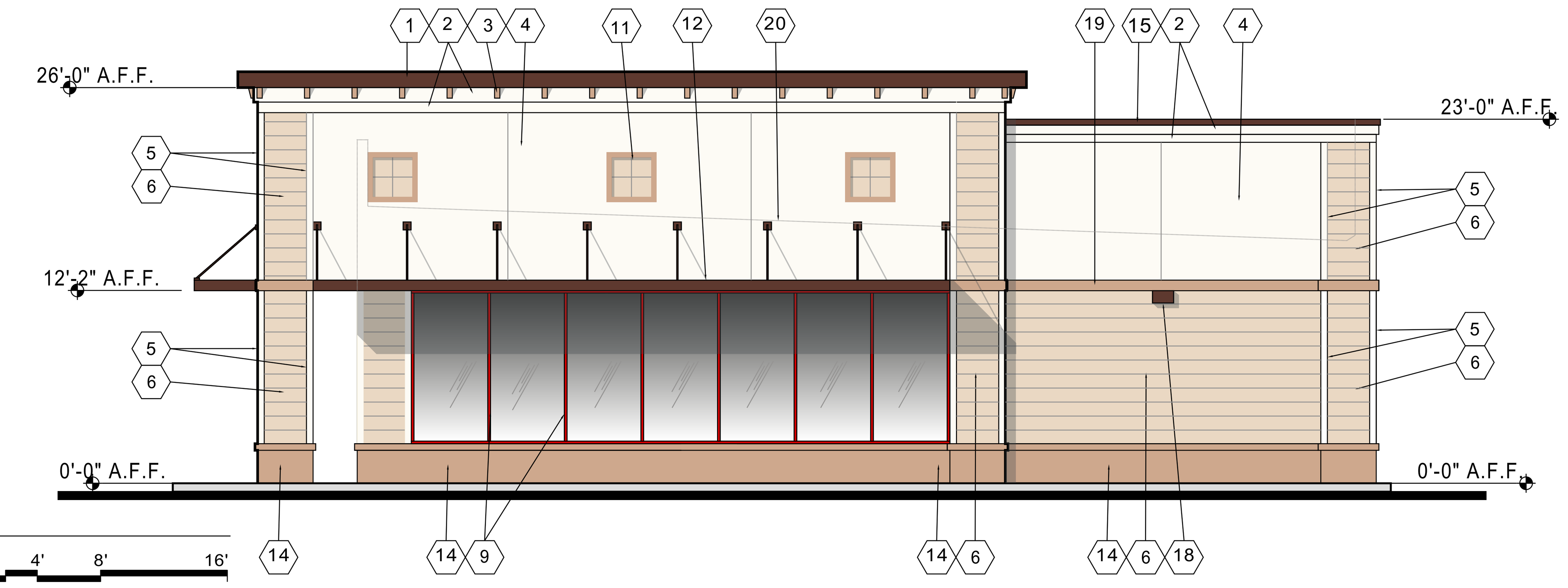
Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
Reduce impacts to visual resources to a level that is less than significant	**LAND-1:** Wooden fencing, such as split rail fencing, with a maximum height of 48 inches and native and drought tolerant landscaping shall be installed along the entire western length of the property. The fencing and landscaping shall be included as part of the final Landscaping Plan to be approved by the Community Development Department, prior to issuance of building permit.	Include fencing and vegetation in Final Landscaping Plan	Community Development Department	Approval of Final Landscaping Plan	Prior to issuance of building permit application
Reduce impacts to visual resources to a level that is less than significant	**LAND-2:** Demarcation of a visual easement, clearly illustrated on plat(s) for proposed subdivision shall be recoded as a deed restriction and as a permanent exhibit to the deeds for the new parcels. The view easement shall be 50 feet wide at widest measurement on the northwest corner of Lot 1 and 24 feet wide at the narrowest point on the southeast corner or Lot 2, as illustrated in Image 6 and Image 7. View blocking development is not permitted within the visual easement, excluding split rail fencing along western property line, driveways and low-lying landscape vegetation (<4 ft.); no trees shall be planted within the view easement.	Submit view easement requirements with subdivision application materials	Public Works Director	Review of subdivision application materials	Prior to issuance of building permit
Reduce impacts of noise to a less than significant level	**NOISE-1:** Mendocino College and the Noyo Harbor RV park shall be provided with a copy of the anticipated construction schedule prior to commencement of construction activities.	Notify adjacent properties in writing of anticipated construction schedule	Applicant	Include Community Development Department in notification	Prior to construction activities
Reduce impacts on traffic and circulation, as well as GHG emissions, to a less than significant level	**TRANS-1:** The project must include installation of appropriate Keep Clear signage and street markings at the intersection of Ocean View Drive and the unnamed frontage road. This will allow southbound traffic on the frontage road to merge with eastbound traffic on Ocean View Drive, without impacting the operations of the traffic signal at Highway 1 and Ocean View Drive. There is sufficient additional stacking room between the Ocean View/Frontage Road intersection and the Ocean View/Harbor	Submit Encroachment Permit and Project Description to Public Works Department	Public Works Department	Plan review and inspection prior to final occupancy	Prior to approval of encroachment permit

AUTOZONE RETAIL STORE – 1151 S MAIN STREET
MITIGATION MONITORING & REPORTING PROGRAM

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
	Avenue intersection to the west to accommodate the anticipated additional queue length for eastbound left and eastbound through traffic.				
Reduce impacts on traffic and circulation, as well as GHG emissions, to a less than significant level	**TRANS 2:** CA Hwy 1 / CA Hwy 20 (Intersection 3) - As conditions warrant and concurrent with regular maintenance, the westbound north lane striping could be extended by approximately 100 feet to provide an earlier separation between left turning and right turning traffic.	Respond to request from City to maintain or update conditions	Public Works Department	Notification by Public Works Department	Prior to approval of encroachment permit
Reduce construction impacts on tribal cultural resources to a less than significant level.	**TRIBAL-1:** Sherwood Valley Band of Pomo have requested Tribal Monitoring during ground disturbing activities. Please contact Tina Sutherland at (707) 459-9690 or tsutherland@sherwoodband.com for scheduling.	Notify Sherwood Valley Band of Pomo two weeks prior to ground disturbing activities to arrange tribal monitoring.	Applicant	Community Development Department will contact SVBP prior to approval of building permit application	Prior to construction activities
Reduce construction impacts on tribal cultural resources to a less than significant level.	**TRIBAL-2:** If archaeological resources are encountered during construction**,** work on-site shall be temporarily halted in the vicinity of the discovered materials and workers shall avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel shall not collect cultural resources.	In the event archaeological resources are encountered, on-site manager will stop work and notify Community Development Director, Sherwood Valley Band of Pomo, Mendocino County Archeological Commission	Qualified professional archaeologist, Sherwood Valley Band of Pomo, Mendocino County Archeological Commission	Community Development Director will coordinate with archaeologist and Sherwood Valley Band of Pomo	Prior to commencement of construction activities
Reduce construction impacts on tribal cultural resources to a less than significant level.	**TRIBAL-3:** If human remains are discovered during project construction, work within 20 meters (66 feet) of the discovery location, and within any nearby area reasonably suspected to overlie human remains, will cease (Public Resources Code, Section 7050.5). The Mendocino County Coroner will be contacted to	In the event archaeological resources are encountered, on-site manager will stop work and notify the	Mendocino County Coroner, Sherwood Valley Band of Pomo, Mendocino County	Community Development Director will coordinate with Mendocino County Coroner,	Prior to commencement of construction activities

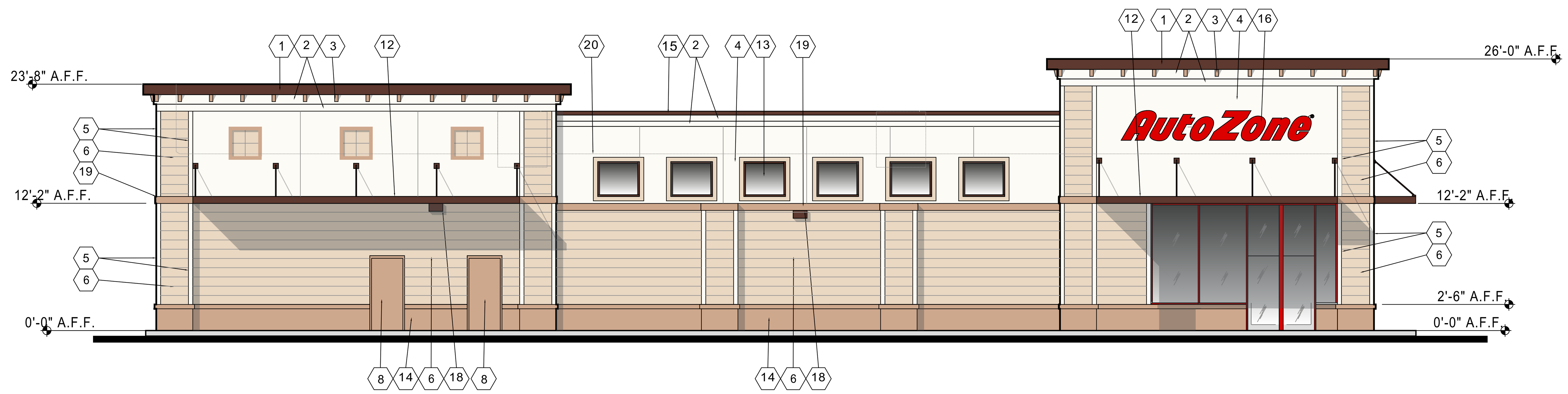
AUTOZONE RETAIL STORE – 1151 S MAIN STREET
MITIGATION MONITORING & REPORTING PROGRAM

Description of Impact	Mitigation Measure	Applicant Responsibilities	Party Responsible for Verification	Method of Verification	Verification Timing
	determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the California Native American Heritage Commission (NAHC) (Public Resources Code, Section 5097). In this case, the coroner will contact NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or person responsible for excavation work with direction regarding appropriate means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.	Mendocino County Coroner and Community Development Director	Archeological Commission, qualified professional archaeologist and	archaeologist and Sherwood Valley Band of Pomo	
Reduce impacts to the City's water and sewer systems to a less than significant level	**UTIL-1:** Prior to issuance of Building Permit, the applicant shall pay all water and sewer capacity and connection fees.	Payment of water/sewer capacity and connection fees	Community Development Department	Receipt from Finance Department	Prior to approval of building permit
Reduce impacts to the City's water and sewer systems to a less than significant level	**UTIL-2:** As part of the Minor Subdivision, a 15' private utility easement shall be recorded across Lot 2 benefitting Lot 1. The utility easement shall remain free of all above ground development	Submit deed to City Engineer for review and completeness	Public Works Department	City Engineer approval	Prior to approval of building permit



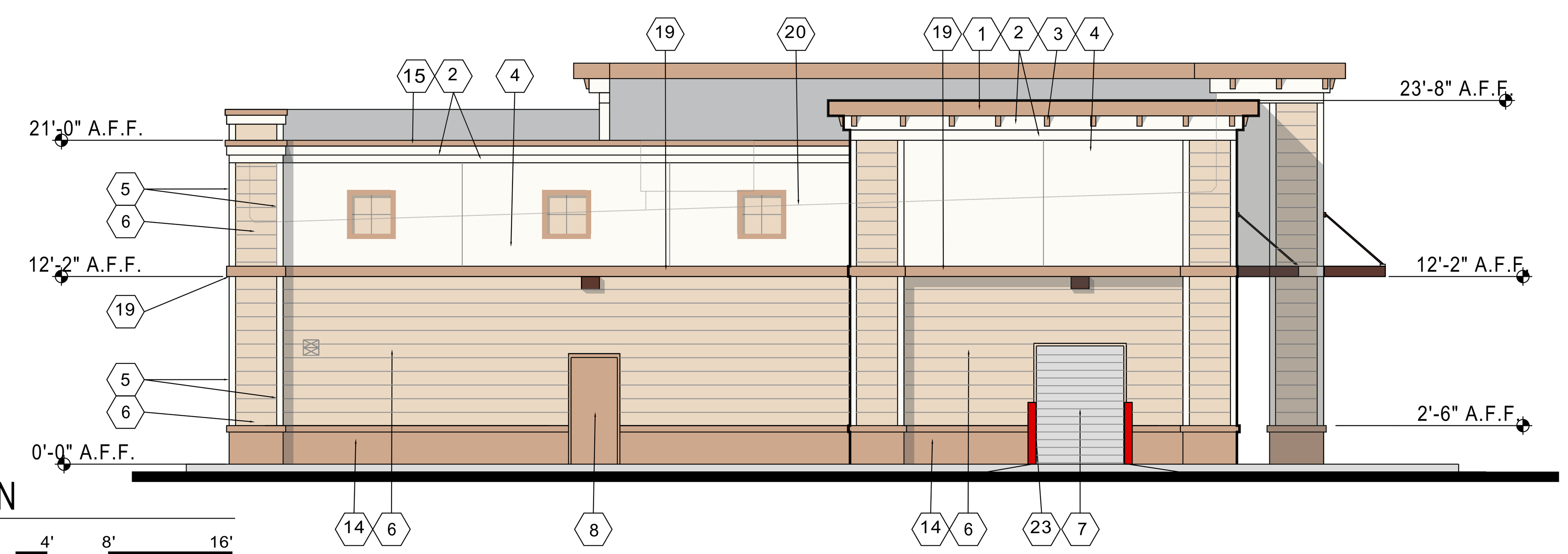
EAST ELEVATION

Scale: 1/8"=1'-0" 0 4' 8' 16'



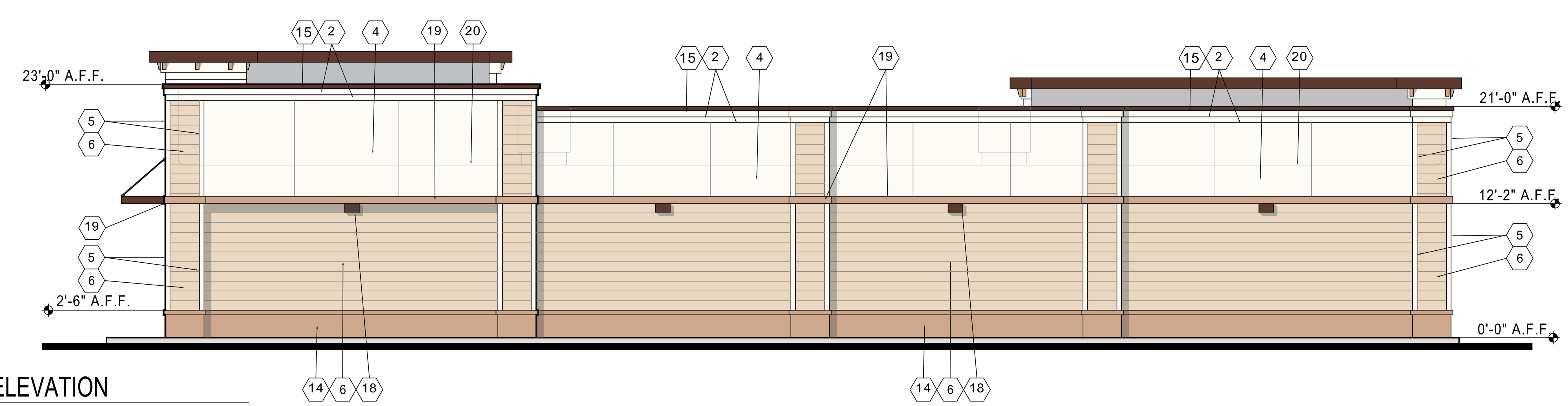
SOUTH ELEVATION

Scale: 1/8"=1'-0" 0 4' 8' 16'



WEST ELEVATION

Scale: 1/8"=1'-0" 0 4' 8' 16'

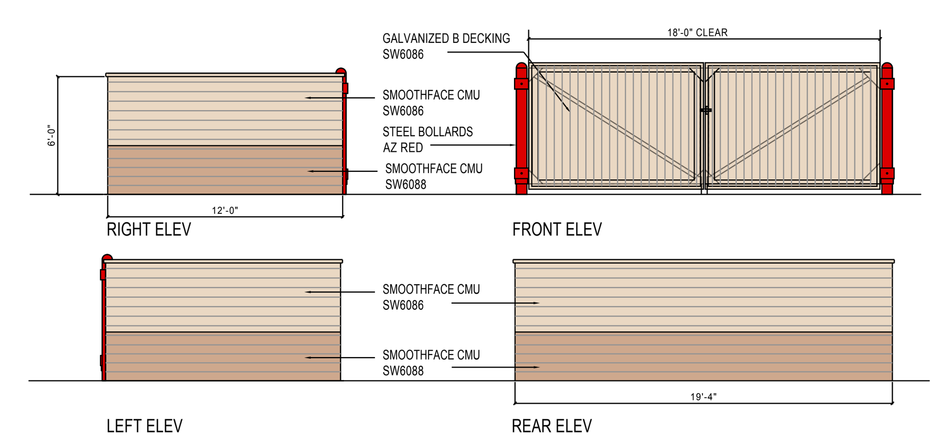


NORTH ELEVATION

1/8"=1'-0" 0 4' 8' 16'

0 4' 8' 16'

1. STUCCO FINISH AT CORNICE- SW6093 SABLE
2. STUCCO FINISH AT CORNICE - SW6091 RELIABLE WHITE
3. CORBELS - SW6088 NUTHATCH
4. STUCCO FINISH - SW6086 SAND DUNE
5. HARDIE TRIM - COLOR: RELIABLE WHITE
6. HARDIE BOARD LAP SIDING TRIM - COLOR: SW6086 SAND DUNE
7. DO NOT PAINT OVERHEAD DOOR PAINT ANGLES RELIABLE WHITE
8. PAINT MAN DOOR & METAL FRAMES NUTHATCH
9. ALUMINUM STOREFRONT - RED FINISH
10. GLASS AND ALUMINUM DOORS - CLEAR ANODIZED FINISH
11. DECORATIVE ACCENT FRAME COLOR SW6088 INSET AREA SW6086
12. METAL AWNING - PAINT SW6093 SABLE
13. CLERESTORY WINDOWS WITH DARK BRONZE FRAMES. HARDIE BOARD TRIM COLOR SW6088 NUTHATCH
14. STUCCO FINISH AT BASE - SW6088 NUTHATCH
15. PREFINISHED METAL COPING - DARK BRONZE
16. WALL SIGN - 34" RED CHANNEL LETTERS
17. STORE ADDRESS - 6" WHITE REFLECTIVE NUMBERS
18. WALL MOUNTED LIGHT FIXTURE
19. STUCCO PROJECTION - SW6088 NUTHATCH
20. ROOF LINE BEYOND
21. HVAC UNITS SCREENED BY PARAPETS
22. MASONRY TRASH ENCLOSURE - FINISHES TO MATCH BUILDING
23. PIPE GUARD WITH RED SLEEVE



TRASH ENCLOSURE

Scale: 1/4"=1'-0"

1	03-15-19
2	
3	
4	

AUTOZONE, INC.
123 South Front Street
Memphis, TN. 38103
901-495-8714

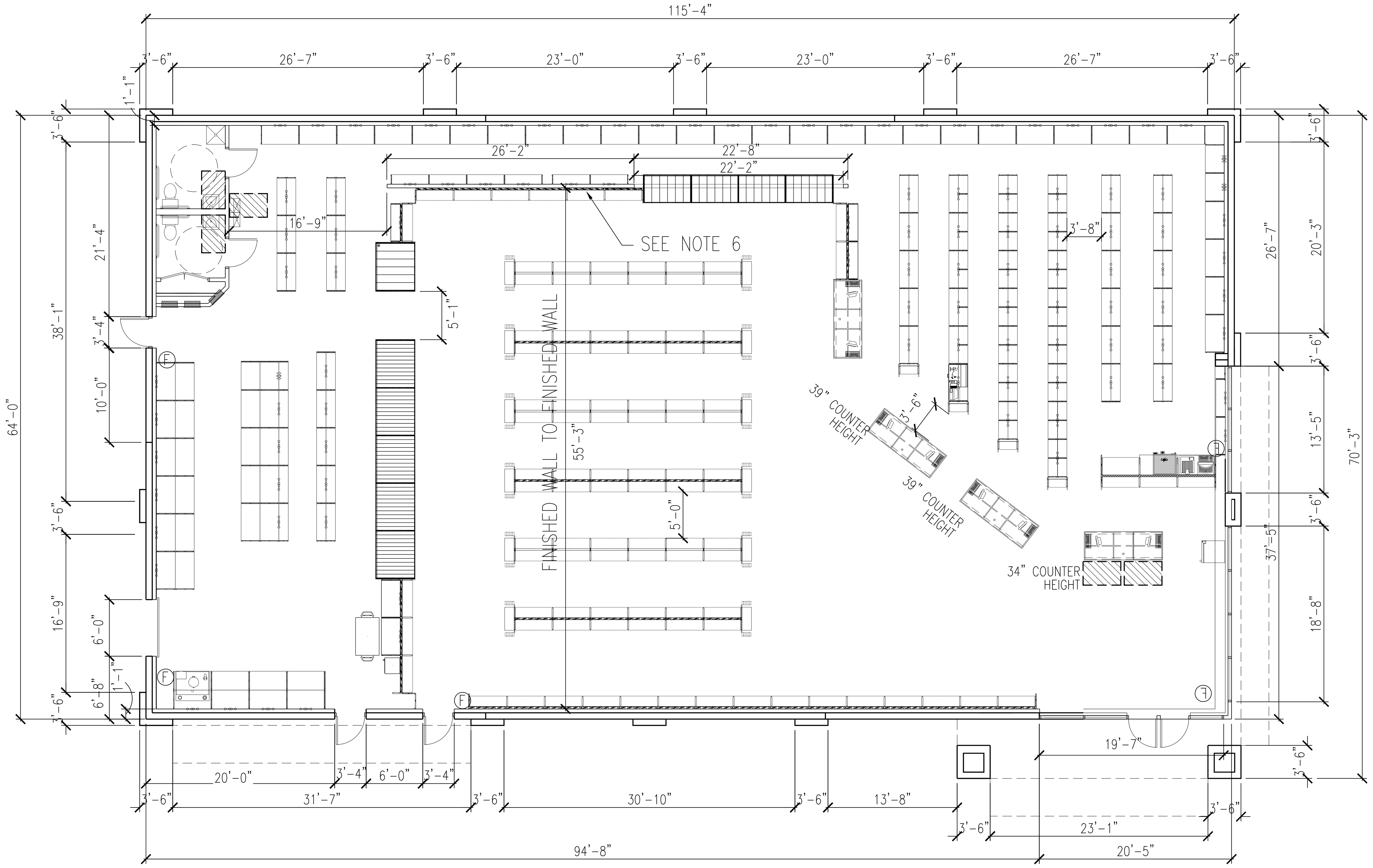
For Bidding & Contractor Information Contact:
F. W. Dodge Plan Room Tel. 615-884-1017

AutoZone Store No. 6713
MAIN STREET
FORT BRAGG, CA 95437

COLOR ELEVATIONS

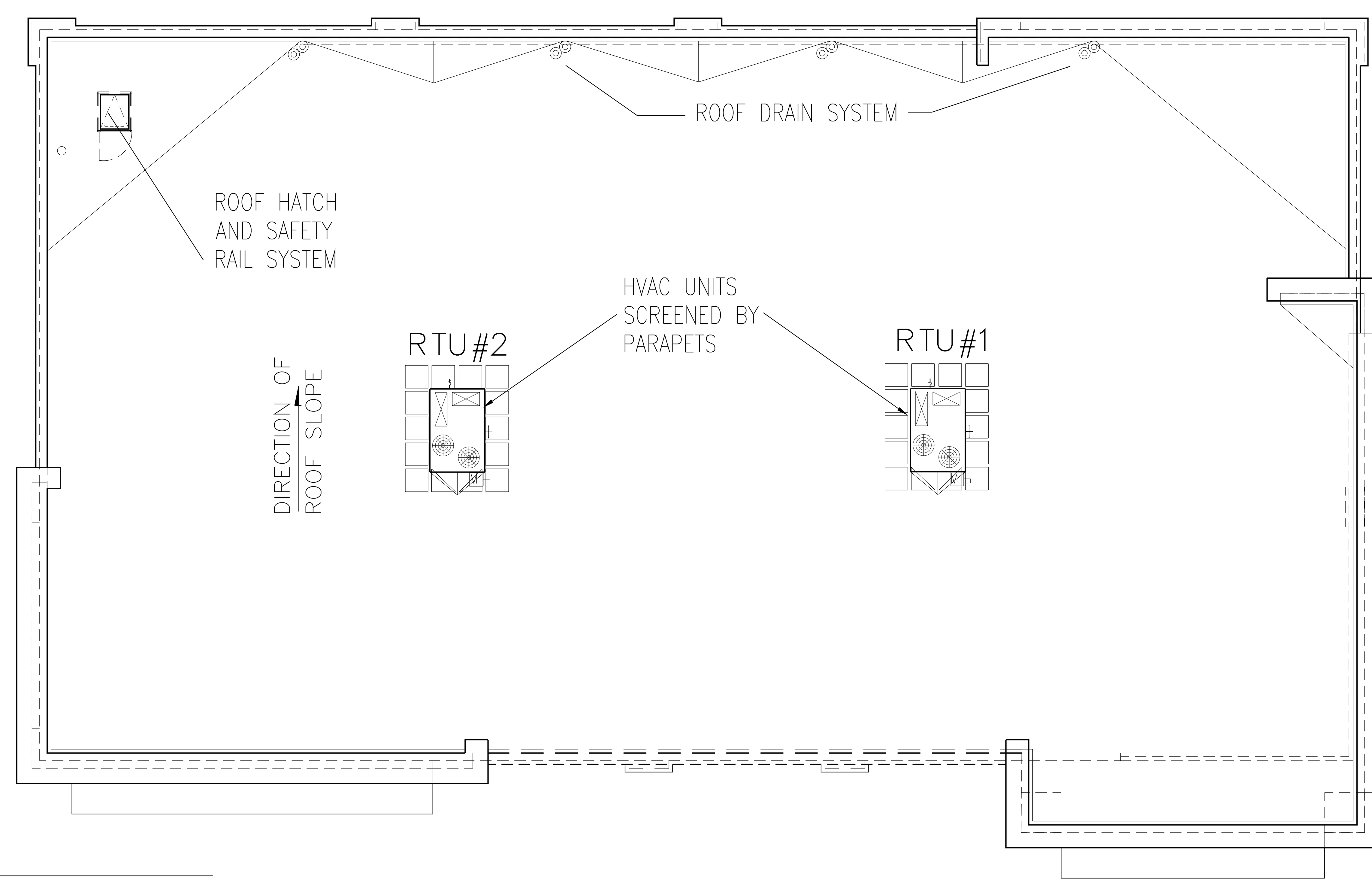
7N2-R

CE1



1 FLOOR PLAN

Scale: 1/8"=1'-0" 0 4' 8' 16'



2 ROOF PLAN

Scale: 1/8"=1'-0" 0 4' 8' 16'

REVISIONS		
1 03-15-19	2	3
4	5	6

AutoZone Store No. 6713
MAIN STREET
FORT BRAGG CA 95437
--

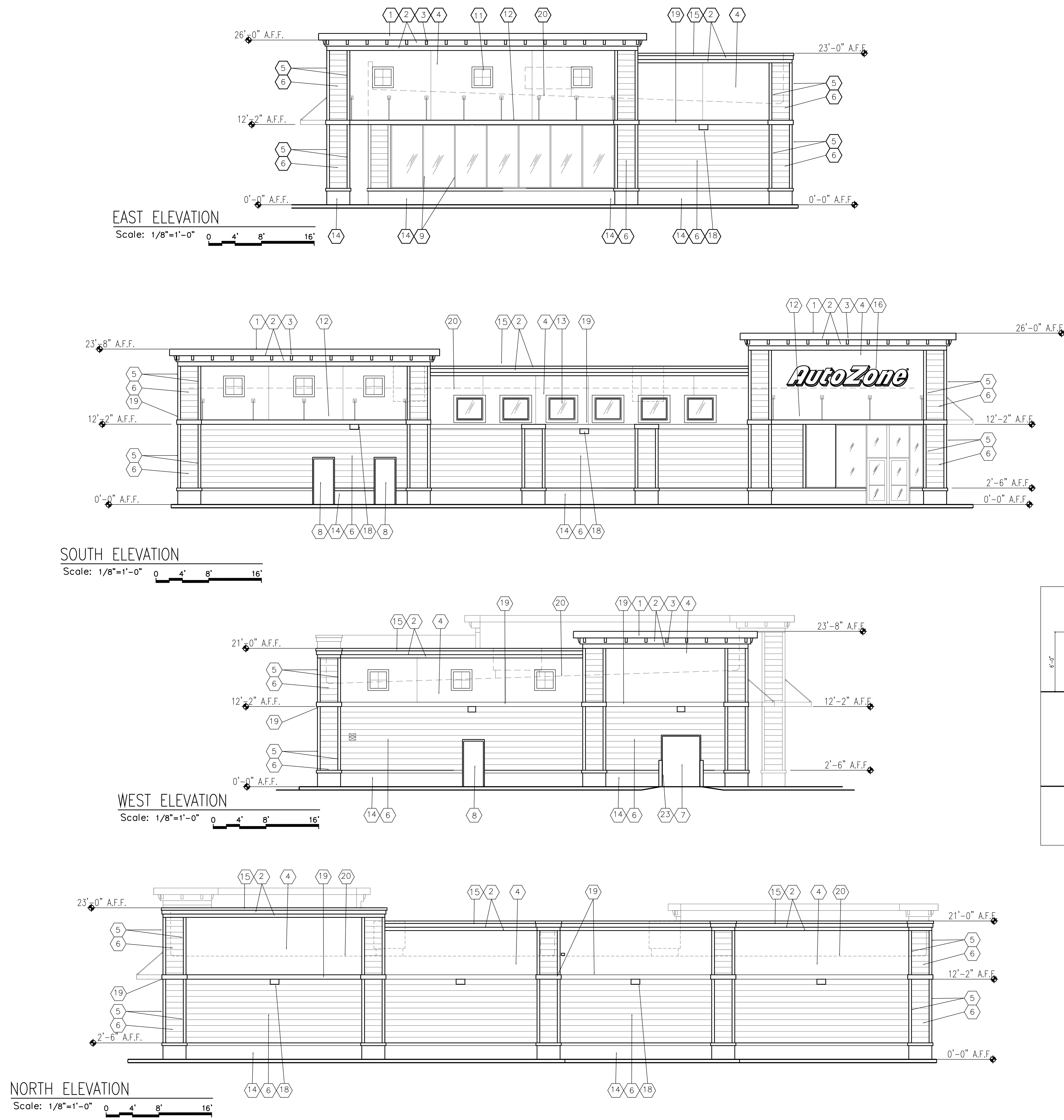
Architect: --
123 South Front Street
Memphis, Tennessee 38103
TEL: 901-495-8714 FAX: (901) 495-8969

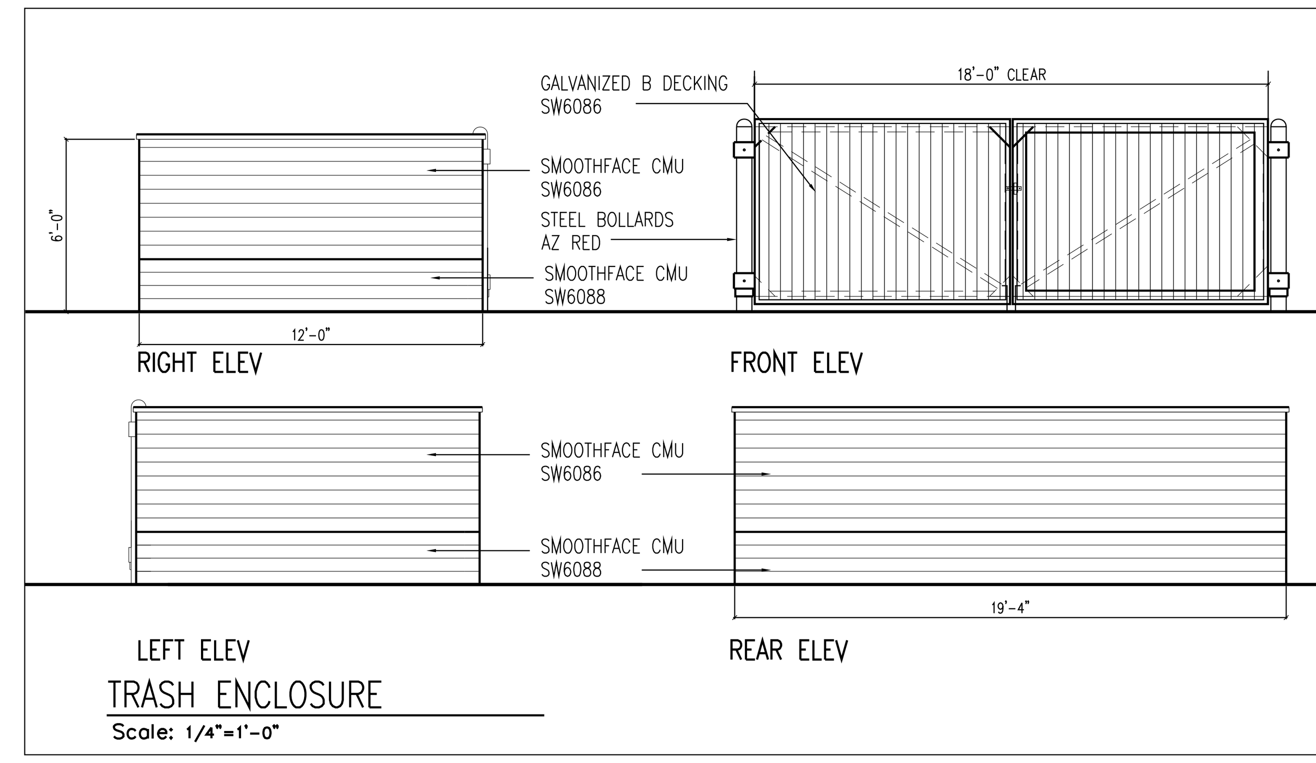
For Bidding & Contractor Information Contact:
McGraw - Hill Construction Tel. 615-884-1017
www.construction.com

04-17-18

7N2-R

PS-1





REVISIONS

1	03-15-19
2	
3	
4	
5	
6	

AutoZone Store No. 6713
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04-17-18

7N2-R

PS-2

REUSE OF DOCUMENTS: This document and the ideas and design incorporated herein, as an instrument of professional service, is the property of LACO Associates and shall not be reused in whole or part for any other project without Laco Associates express written authorization.

NOTES:
1. PROJECT SITE IS CURRENTLY UNDEVELOPED.
2. EXISTING TOPOGRAPHY FROM REPUBLIC NATIONAL DATED FEBRUARY 26, 2018.
3. THE EXISTING PARCELS IN THIS AREA HAVE A LAND USE AND ZONING DESIGNATION OF HIGHWAY VISITOR COMMERCIAL (CH). THE EXISTING COUNTY PARCELS TO THE WEST HAVE THE DESIGNATION OF RURAL RESIDENTIAL AND VARIABLE DENSITY ZONE PER MENDOCINO COUNTY GENERAL PLAN.
4. TREE SPECIES AS SURVEYED:
   4.1. BP – BISHOP PINE
   4.2. MP – MONTEREY PINE
   4.3. DF – DOUGLAS FIR
   4.4. SP – SHORE PINE
5. EIGHT TREES TO BE REMOVED WHERE INDICATED:

May 18,2019–1:52pm
T:\Cadfiles\8900\8978.02 MITCH BRAMLITT\DWG\ 8978.01 COASTAL DEVELOPMENT PERMIT.dwg

LACO
EUREKA • UKIAH • SANTA ROSA
1-800-515-5054 www.lacoassociates.com

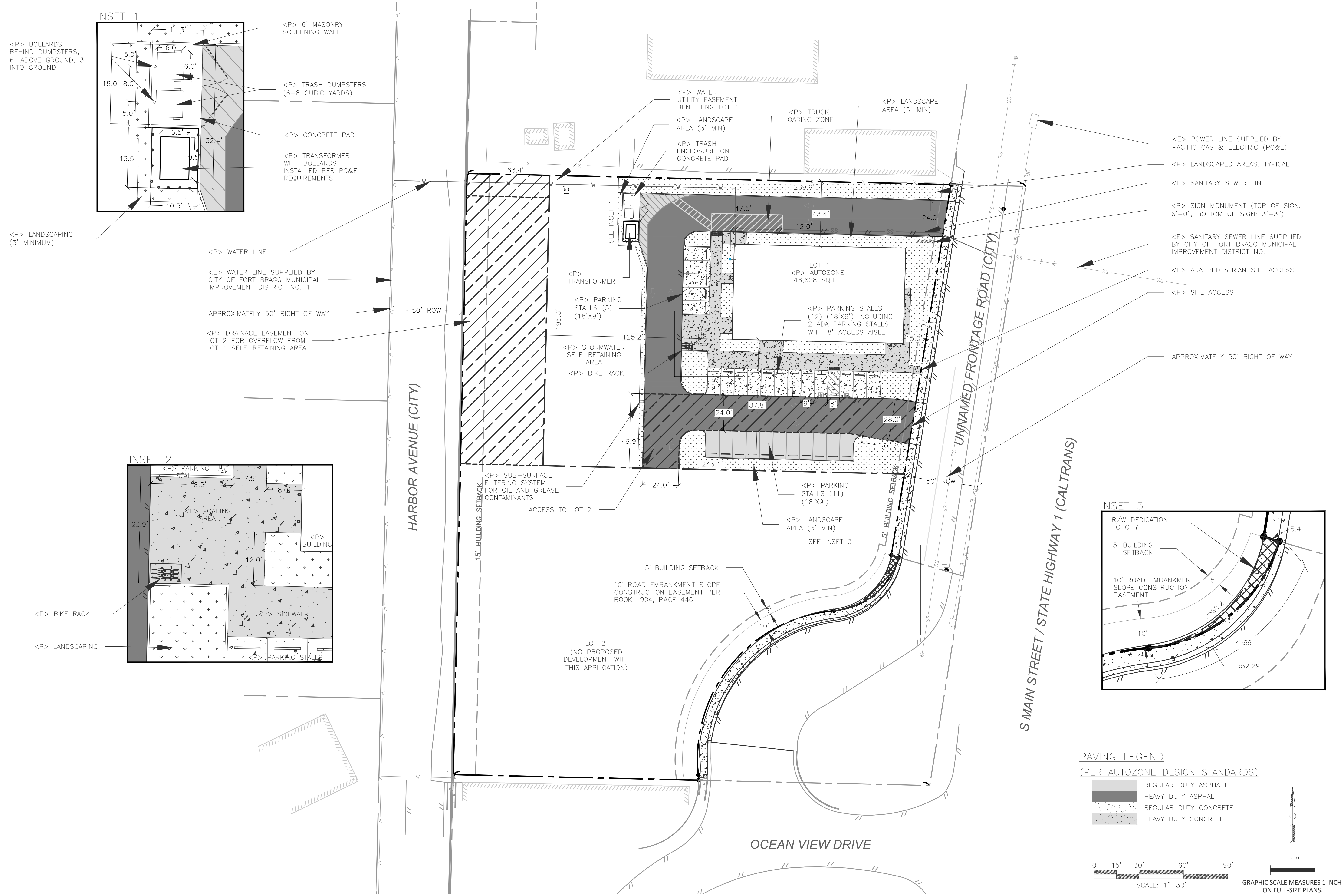
NO.	HISTORY / REVISION	BY	CHK.	DATE

COASTAL DEVELOPMENT PERMIT & DESIGN REVIEW
AUTOZONE RETAIL STORE 1151 S MAIN ST, FORT BRAGG, CA ; APN:018-440-58

EXISTING CONDITIONS

AUTOZONE DEVELOPMENT CORPORATION
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ATW/ASV
CHECK	CMB
APPROVED	DNC
DATE	05/18/2019
JOB NUMBER	8978.01
SHEET	2/3



LACO
EUREKA • UKIAH • SANTA ROSA
1-800-515-5054 www.lacoassociates.com

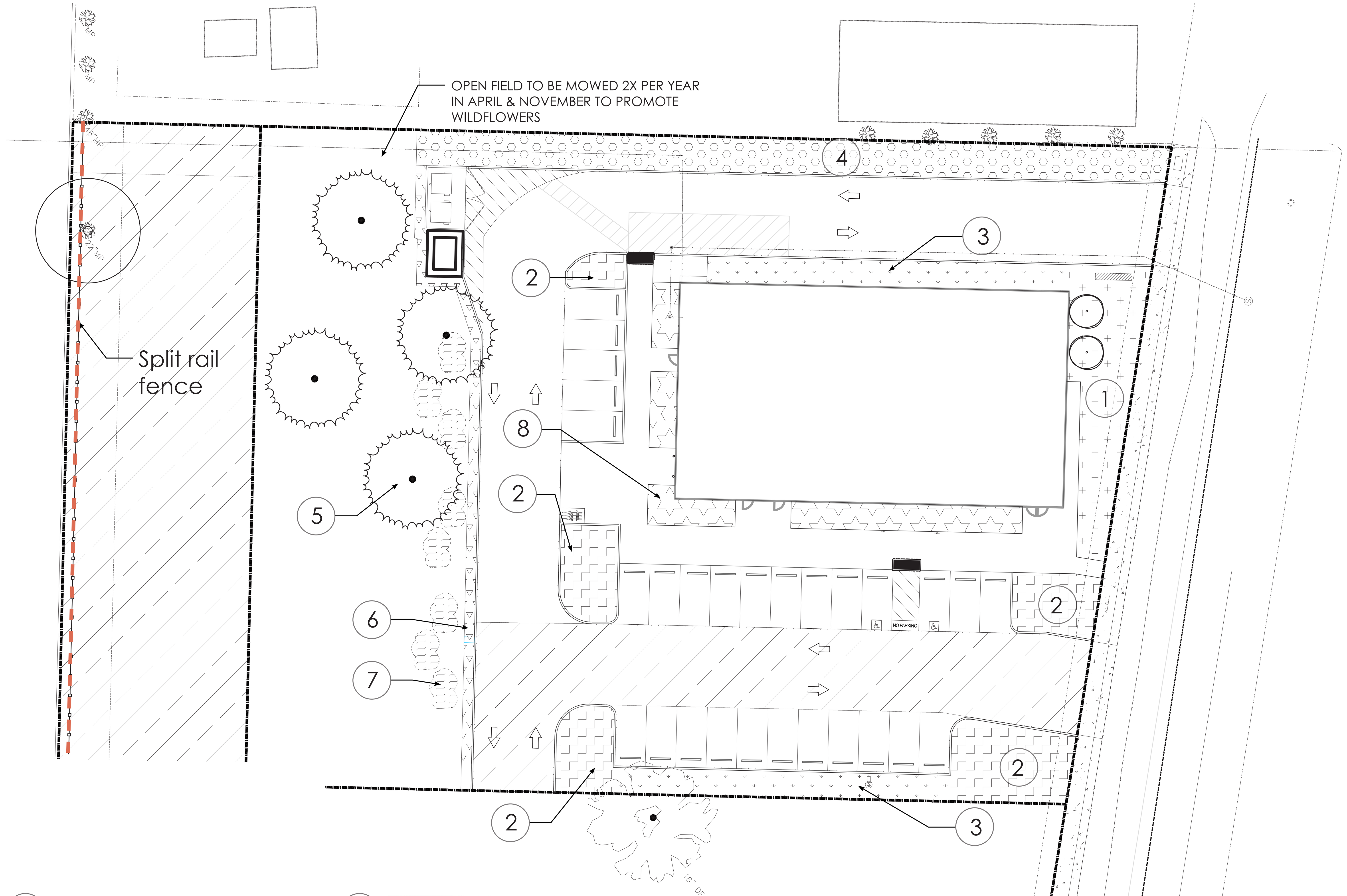
NO.	HISTORY / REVISION	BY	CHK.	DATE

COASTAL DEVELOPMENT PERMIT & DESIGN REVIEW
AUTOZONE RETAIL STORE 1151 S MAIN ST, FORT BRAGG, CA : APN:018-440-58

COASTAL DEVELOPMENT PERMIT SITE PLAN

AUTOZONE DEVELOPMENT CORPORATION
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ATW/ASV
CHECK	CMB
APPROVED	DNC
DATE	05/18/2019
JOB NUMBER	8978.01
SHEET	3/3



1


CEANOTHUS 'RAY HARTMAN'


CALAMAGROSTIS NUTKAENSIS


CISTUS SKANBERGII


ARCTOSTAPHYLOS 'CARMEL SUR'


CEANOTHUS 'YANKEE POINT'

2


CEANOTHUS 'DARK STAR'


FRANGULA 'MOUND SAN BRUNO'


HELIANTHEMUM


ARCTOSTAPHYLOS 'CARMEL SUR'


CISTUS CORBARIENSIS

3

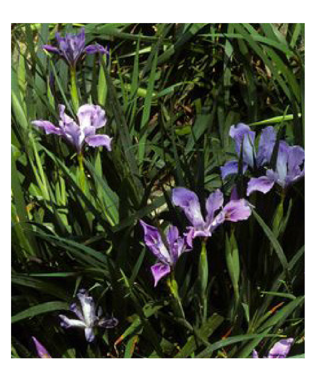

NO MOW FESCUE

4


FRANGULA CALIFORNICA

5


PINUS MURICATA


IRIS DOUGLASIANA


BRACKEN FERN

6


JUNCUS EFFUSUS

7


FRANGULA CALIFORNICA

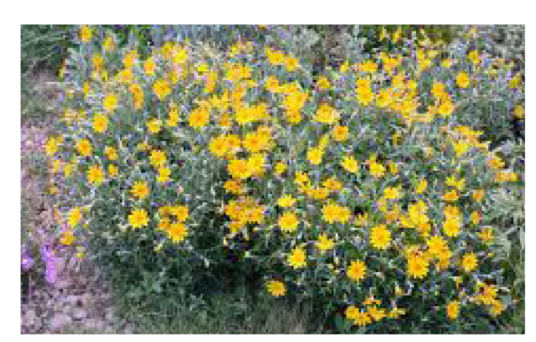

CEANOTHUS 'DARK STAR'

8


CALAMAGROSTIS FOLIOSA


ERIGERON GLAUCUS


ACHILLEA MILLEFOLIUM


ERIOPHYLLUM LANATUM

PLANT LEGEND

AREA	BOTANICAL NAME	(COMMON NAME)	MAX HT	SIZE	SPACING	QUANTITY
	- ARCTOSTAPHYLOS 'CARMEL SUR'	CARMEL SUR MANZANITA	1'	1G	3' O.C.	3
	- CALAMAGROSTIS NUTKAENSIS	PACIFIC REEDGRASS	2 - 3'	1G	3' O.C.	6
	- CEANOTHUS 'RAY HARTMAN'	MOUNTAIN LILAC	12 - 20'	5G	10' O.C.	2
	- CEANOTHUS 'YANKEE POINT'	CALIFORNIA LILAC	2 - 3'	1G	6' O.C.	3
	- CISTUS SKANBERGII	PINK ROCKROSE	2 - 3'	1G	30" O.C.	3
	- ARCTOSTAPHYLOS 'CARMEL SUR'	CARMEL SUR MANZANITA	1'	1G	3' O.C.	8
	- CEANOTHUS 'DARK STAR'	CALIFORNIA LILAC	4 - 8'	5G	6' O.C.	4
	- CISTUS CORBARIENSIS	WHITE ROCKROSE	2 - 4'	1G	3' O.C.	6
	- FRANGULA 'MOUND SAN BRUNO'	CALIFORNIA COFFEEBERRY	6'	5G	5" O.C.	3
	- HELIANTHEMUM	SUNROSE	1'	1G	30" O.C.	6
	- NO MOW FESCUE	NCN		SOD	NA	1,700 SF
	- FRANGULA 'MOUND SAN BRUNO'	CALIFORNIA COFFEEBERRY	6'	5G	5" O.C.	50
	PINUS MURICATA	BISHOP PINE	40'	24" BOX	SEE PLAN	4
	- IRIS DOUGLASIANA	DOUGLAS IRIS	1 - 2'	1G	30" O.C.	24
	- PTERIDIUM AQUILINUM	BRACKEN FERN	1 - 3'	1G	2' O.C.	12
	- JUNCUS EFFUSUS	COMMON RUSH	3 - 4'	1G	3' O.C.	40
	- CEANOTHUS 'DARK STAR'	CALIFORNIA LILAC	4 - 8'	5G	6' O.C.	3
	- FRANGULA 'MOUND SAN BRUNO'	CALIFORNIA COFFEEBERRY	6'	5G	5" O.C.	5
	- ACHILLEA MILLEFOLIUM	COMMON YARROW	2 - 3'	1G	2' O.C.	56
	- CALAMAGROSTIS FOLIOSA	CAPE MENDOCINO GRASS	1'	1G	18" O.C.	226
	- ERIGERON GLAUCUS	SEASIDE FLEABANE	1'	1G	3' O.C.	19
	- ERIOPHYLLUM LANATUM	WOOLY SUNFLOWER	1 - 2'	1G	3' O.C.	25

PRELIMINARY LANDSCAPE PLAN

ABLA MAY, 24 2019

SCALE 1' = 20' - 0"

Fort Bragg AutoZone
Mendocino-Coastal County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	26.00	Space	0.23	10,400.00	0
Automobile Care Center	7.38	1000sqft	0.16	7,380.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	86
Climate Zone	1			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Development of a 7,380 square foot AutoZone commercial facility within Fort Bragg's city limits.

Land Use - The proposed development of a 7,380 square foot commercial facility will take up approximately 0.39 acres

Construction Phase - The project site is currently undeveloped and demolition is not proposed.

Off-road Equipment - Default assumption

Off-road Equipment - Default assumption

Off-road Equipment - Demolition is not proposed.

Off-road Equipment - Default assumption

Off-road Equipment - Default assumption

Off-road Equipment - Default assumption

Trips and VMT - Deafult assumptions, except for demolition. The site is currently undeveloped and will not require demolition.

On-road Fugitive Dust - Default assumption, except for demolition. The site is currently undeveloped and demolition is not required.

Demolition - NA

Grading - Default assumption

Architectural Coating - Default assumption

Vehicle Trips - Default assumption

Vehicle Emission Factors - Default assumption

Vehicle Emission Factors - Default assumption

Vehicle Emission Factors - Default assumption

Road Dust - Default assumption

Woodstoves - NA, the proposed project is a commercial facility.

Consumer Products - Default assumption

Area Coating - Default assumption

Landscape Equipment - Default assumption

Energy Use - Default assumption

Water And Wastewater - Default assumption

Solid Waste - Default assumption

Land Use Change - Grassland area that would change under the proposed development

Sequestration - Existing species include: Shore pine (Pinus contorta ssp. contorta), Bishop pine (Pinus muricata) and Sitka spruce (Picea sitchensis)

Construction Off-road Equipment Mitigation - Default assumptions

Mobile Land Use Mitigation - NA

Mobile Commute Mitigation - NA

Area Mitigation - Default assumption

Energy Mitigation - Default assumption

Water Mitigation - Default assumption

Waste Mitigation - Default assumption

Operational Off-Road Equipment - NA

Stationary Sources - Emergency Generators and Fire Pumps - NA

Stationary Sources - Process Boilers - NA

Stationary Sources - User Defined - NA

Stationary Sources - Emergency Generators and Fire Pumps EF - NA

Stationary Sources - Process Boilers EF - NA

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblLandUse	LotAcreage	0.17	0.16
tblOnRoadDust	HaulingPercentPave	70.00	0.00
tblOnRoadDust	VendorPercentPave	70.00	0.00
tblOnRoadDust	WorkerPercentPave	70.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblSequestration	NumberOfNewTrees	0.00	7.00
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tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
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tblVehicleEF	LDA	0.76	0.84
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tblVehicleEF	LDA	259.16	268.89
tblVehicleEF	LDA	60.75	62.57
tblVehicleEF	LDA	0.48	0.47
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.17	0.20
tblVehicleEF	LDA	2.0160e-003	2.1210e-003
tblVehicleEF	LDA	2.5170e-003	2.6070e-003
tblVehicleEF	LDA	1.8660e-003	1.9650e-003
tblVehicleEF	LDA	2.3140e-003	2.3980e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.17	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.16	0.19
tblVehicleEF	LDA	2.5980e-003	2.6960e-003
tblVehicleEF	LDA	6.5100e-004	6.7500e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.17	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.18	0.21

tblVehicleEF	LDA	7.1100e-003	8.0900e-003
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.79	0.87
tblVehicleEF	LDA	2.10	2.38
tblVehicleEF	LDA	264.74	274.68
tblVehicleEF	LDA	60.75	62.57
tblVehicleEF	LDA	0.48	0.47
tblVehicleEF	LDA	0.08	0.09
tblVehicleEF	LDA	0.15	0.18
tblVehicleEF	LDA	2.0160e-003	2.1210e-003
tblVehicleEF	LDA	2.5170e-003	2.6070e-003
tblVehicleEF	LDA	1.8660e-003	1.9650e-003
tblVehicleEF	LDA	2.3140e-003	2.3980e-003
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.17	0.19
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.15	0.17
tblVehicleEF	LDA	2.6540e-003	2.7540e-003
tblVehicleEF	LDA	6.4400e-004	6.6700e-004
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.17	0.19
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.16	0.19

tblVehicleEF	LDA	6.7510e-003	7.7030e-003
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.76	0.84
tblVehicleEF	LDA	2.91	3.30
tblVehicleEF	LDA	256.53	266.15
tblVehicleEF	LDA	60.75	62.57
tblVehicleEF	LDA	0.48	0.47
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.19	0.21
tblVehicleEF	LDA	2.0160e-003	2.1210e-003
tblVehicleEF	LDA	2.5170e-003	2.6070e-003
tblVehicleEF	LDA	1.8660e-003	1.9650e-003
tblVehicleEF	LDA	2.3140e-003	2.3980e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.18	0.20
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.19	0.22
tblVehicleEF	LDA	2.5720e-003	2.6690e-003
tblVehicleEF	LDA	6.5800e-004	6.8400e-004
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.18	0.20
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.21	0.24

tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	4.44	4.91
tblVehicleEF	LDT1	10.76	11.65
tblVehicleEF	LDT1	340.69	347.70
tblVehicleEF	LDT1	77.72	78.83
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.56	0.61
tblVehicleEF	LDT1	0.57	0.61
tblVehicleEF	LDT1	5.2860e-003	5.6730e-003
tblVehicleEF	LDT1	6.1900e-003	6.6360e-003
tblVehicleEF	LDT1	4.8810e-003	5.2390e-003
tblVehicleEF	LDT1	5.6960e-003	6.1070e-003
tblVehicleEF	LDT1	0.22	0.22
tblVehicleEF	LDT1	0.71	0.73
tblVehicleEF	LDT1	0.16	0.17
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.55	0.56
tblVehicleEF	LDT1	0.75	0.81
tblVehicleEF	LDT1	3.4750e-003	3.5530e-003
tblVehicleEF	LDT1	9.6900e-004	9.9600e-004
tblVehicleEF	LDT1	0.22	0.22
tblVehicleEF	LDT1	0.71	0.73
tblVehicleEF	LDT1	0.16	0.17
tblVehicleEF	LDT1	0.18	0.20
tblVehicleEF	LDT1	0.55	0.56
tblVehicleEF	LDT1	0.82	0.89

tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	4.50	4.97
tblVehicleEF	LDT1	9.00	9.72
tblVehicleEF	LDT1	347.28	354.38
tblVehicleEF	LDT1	77.72	78.83
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.51	0.55
tblVehicleEF	LDT1	0.52	0.55
tblVehicleEF	LDT1	5.2860e-003	5.6730e-003
tblVehicleEF	LDT1	6.1900e-003	6.6360e-003
tblVehicleEF	LDT1	4.8810e-003	5.2390e-003
tblVehicleEF	LDT1	5.6960e-003	6.1070e-003
tblVehicleEF	LDT1	0.36	0.37
tblVehicleEF	LDT1	0.70	0.72
tblVehicleEF	LDT1	0.26	0.26
tblVehicleEF	LDT1	0.12	0.14
tblVehicleEF	LDT1	0.47	0.48
tblVehicleEF	LDT1	0.65	0.70
tblVehicleEF	LDT1	3.5420e-003	3.6210e-003
tblVehicleEF	LDT1	9.3800e-004	9.6300e-004
tblVehicleEF	LDT1	0.36	0.37
tblVehicleEF	LDT1	0.70	0.72
tblVehicleEF	LDT1	0.26	0.26
tblVehicleEF	LDT1	0.18	0.20
tblVehicleEF	LDT1	0.47	0.48
tblVehicleEF	LDT1	0.71	0.77

tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	4.49	4.99
tblVehicleEF	LDT1	12.80	13.87
tblVehicleEF	LDT1	337.58	344.55
tblVehicleEF	LDT1	77.72	78.83
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.64	0.69
tblVehicleEF	LDT1	0.62	0.66
tblVehicleEF	LDT1	5.2860e-003	5.6730e-003
tblVehicleEF	LDT1	6.1900e-003	6.6360e-003
tblVehicleEF	LDT1	4.8810e-003	5.2390e-003
tblVehicleEF	LDT1	5.6960e-003	6.1070e-003
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.77	0.79
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.12	0.14
tblVehicleEF	LDT1	0.66	0.67
tblVehicleEF	LDT1	0.87	0.95
tblVehicleEF	LDT1	3.4450e-003	3.5230e-003
tblVehicleEF	LDT1	1.0050e-003	1.0360e-003
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.77	0.79
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.18	0.20
tblVehicleEF	LDT1	0.66	0.67
tblVehicleEF	LDT1	0.96	1.03

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	1.49	1.65
tblVehicleEF	LDT2	4.28	4.73
tblVehicleEF	LDT2	377.30	387.38
tblVehicleEF	LDT2	87.66	89.58
tblVehicleEF	LDT2	0.19	0.19
tblVehicleEF	LDT2	0.24	0.26
tblVehicleEF	LDT2	0.41	0.45
tblVehicleEF	LDT2	1.9600e-003	2.0310e-003
tblVehicleEF	LDT2	2.6860e-003	2.7880e-003
tblVehicleEF	LDT2	1.8030e-003	1.8680e-003
tblVehicleEF	LDT2	2.4710e-003	2.5640e-003
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	0.26	0.27
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.29	0.33
tblVehicleEF	LDT2	3.7910e-003	3.8940e-003
tblVehicleEF	LDT2	9.5200e-004	9.7900e-004
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	0.26	0.27
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.18	0.18
tblVehicleEF	LDT2	0.32	0.36

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	1.54	1.69
tblVehicleEF	LDT2	3.63	4.01
tblVehicleEF	LDT2	385.13	395.42
tblVehicleEF	LDT2	87.66	89.58
tblVehicleEF	LDT2	0.19	0.19
tblVehicleEF	LDT2	0.21	0.24
tblVehicleEF	LDT2	0.37	0.41
tblVehicleEF	LDT2	1.9600e-003	2.0310e-003
tblVehicleEF	LDT2	2.6860e-003	2.7880e-003
tblVehicleEF	LDT2	1.8030e-003	1.8680e-003
tblVehicleEF	LDT2	2.4710e-003	2.5640e-003
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.26	0.27
tblVehicleEF	LDT2	0.10	0.10
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.15	0.16
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	3.8700e-003	3.9750e-003
tblVehicleEF	LDT2	9.4000e-004	9.6700e-004
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.26	0.27
tblVehicleEF	LDT2	0.10	0.10
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.15	0.16
tblVehicleEF	LDT2	0.28	0.31

tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	1.49	1.65
tblVehicleEF	LDT2	5.04	5.58
tblVehicleEF	LDT2	373.61	383.59
tblVehicleEF	LDT2	87.66	89.58
tblVehicleEF	LDT2	0.19	0.19
tblVehicleEF	LDT2	0.26	0.30
tblVehicleEF	LDT2	0.45	0.49
tblVehicleEF	LDT2	1.9600e-003	2.0310e-003
tblVehicleEF	LDT2	2.6860e-003	2.7880e-003
tblVehicleEF	LDT2	1.8030e-003	1.8680e-003
tblVehicleEF	LDT2	2.4710e-003	2.5640e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.27	0.29
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.21	0.22
tblVehicleEF	LDT2	0.34	0.38
tblVehicleEF	LDT2	3.7540e-003	3.8560e-003
tblVehicleEF	LDT2	9.6500e-004	9.9400e-004
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.27	0.29
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.21	0.22
tblVehicleEF	LDT2	0.37	0.41

tblVehicleEF	LHD1	5.4240e-003	5.3920e-003
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	2.29	2.36
tblVehicleEF	LHD1	3.77	3.84
tblVehicleEF	LHD1	9.72	9.74
tblVehicleEF	LHD1	688.13	687.85
tblVehicleEF	LHD1	24.35	24.11
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.12	0.12
tblVehicleEF	LHD1	3.52	3.62
tblVehicleEF	LHD1	1.18	1.16
tblVehicleEF	LHD1	1.3170e-003	1.3380e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.1400e-003	1.1730e-003
tblVehicleEF	LHD1	1.2600e-003	1.2800e-003
tblVehicleEF	LHD1	2.6210e-003	2.6260e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0490e-003	1.0790e-003
tblVehicleEF	LHD1	2.7750e-003	2.7200e-003
tblVehicleEF	LHD1	0.15	0.14
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3310e-003	1.2830e-003
tblVehicleEF	LHD1	0.24	0.25
tblVehicleEF	LHD1	0.65	0.61

tblVehicleEF	LHD1	0.37	0.38
tblVehicleEF	LHD1	9.6000e-005	9.7000e-005
tblVehicleEF	LHD1	6.7370e-003	6.7340e-003
tblVehicleEF	LHD1	3.1500e-004	3.1300e-004
tblVehicleEF	LHD1	2.7750e-003	2.7200e-003
tblVehicleEF	LHD1	0.15	0.14
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3310e-003	1.2830e-003
tblVehicleEF	LHD1	0.30	0.31
tblVehicleEF	LHD1	0.65	0.61
tblVehicleEF	LHD1	0.41	0.41
tblVehicleEF	LHD1	5.4240e-003	5.3920e-003
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	2.34	2.41
tblVehicleEF	LHD1	3.50	3.57
tblVehicleEF	LHD1	9.72	9.74
tblVehicleEF	LHD1	688.13	687.85
tblVehicleEF	LHD1	24.35	24.11
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.12	0.12
tblVehicleEF	LHD1	3.44	3.55
tblVehicleEF	LHD1	1.10	1.08
tblVehicleEF	LHD1	1.3170e-003	1.3380e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03

tblVehicleEF	LHD1	1.1400e-003	1.1730e-003
tblVehicleEF	LHD1	1.2600e-003	1.2800e-003
tblVehicleEF	LHD1	2.6210e-003	2.6260e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0490e-003	1.0790e-003
tblVehicleEF	LHD1	4.6920e-003	4.6150e-003
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.1060e-003	2.0380e-003
tblVehicleEF	LHD1	0.25	0.25
tblVehicleEF	LHD1	0.60	0.57
tblVehicleEF	LHD1	0.35	0.36
tblVehicleEF	LHD1	9.6000e-005	9.7000e-005
tblVehicleEF	LHD1	6.7380e-003	6.7350e-003
tblVehicleEF	LHD1	3.1000e-004	3.0800e-004
tblVehicleEF	LHD1	4.6920e-003	4.6150e-003
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.1060e-003	2.0380e-003
tblVehicleEF	LHD1	0.31	0.32
tblVehicleEF	LHD1	0.60	0.57
tblVehicleEF	LHD1	0.39	0.39
tblVehicleEF	LHD1	5.4240e-003	5.3920e-003
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	2.25	2.32

tblVehicleEF	LHD1	4.12	4.20
tblVehicleEF	LHD1	9.72	9.74
tblVehicleEF	LHD1	688.13	687.85
tblVehicleEF	LHD1	24.35	24.11
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.12	0.12
tblVehicleEF	LHD1	3.64	3.75
tblVehicleEF	LHD1	1.25	1.24
tblVehicleEF	LHD1	1.3170e-003	1.3380e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.1400e-003	1.1730e-003
tblVehicleEF	LHD1	1.2600e-003	1.2800e-003
tblVehicleEF	LHD1	2.6210e-003	2.6260e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0490e-003	1.0790e-003
tblVehicleEF	LHD1	8.9800e-004	8.6800e-004
tblVehicleEF	LHD1	0.17	0.16
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.9900e-004	4.7700e-004
tblVehicleEF	LHD1	0.24	0.25
tblVehicleEF	LHD1	0.71	0.67
tblVehicleEF	LHD1	0.40	0.40
tblVehicleEF	LHD1	9.6000e-005	9.7000e-005
tblVehicleEF	LHD1	6.7360e-003	6.7330e-003
tblVehicleEF	LHD1	3.2100e-004	3.2000e-004
tblVehicleEF	LHD1	8.9800e-004	8.6800e-004

tblVehicleEF	LHD1	0.17	0.16
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.9900e-004	4.7700e-004
tblVehicleEF	LHD1	0.30	0.31
tblVehicleEF	LHD1	0.71	0.67
tblVehicleEF	LHD1	0.43	0.44
tblVehicleEF	LHD2	3.0450e-003	3.0950e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	1.16	1.23
tblVehicleEF	LHD2	1.36	1.45
tblVehicleEF	LHD2	15.77	15.80
tblVehicleEF	LHD2	709.42	712.59
tblVehicleEF	LHD2	15.49	15.50
tblVehicleEF	LHD2	6.5200e-003	7.0690e-003
tblVehicleEF	LHD2	0.15	0.15
tblVehicleEF	LHD2	2.66	2.86
tblVehicleEF	LHD2	0.52	0.54
tblVehicleEF	LHD2	1.6540e-003	1.6760e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	3.9000e-004	4.2000e-004
tblVehicleEF	LHD2	1.5830e-003	1.6030e-003
tblVehicleEF	LHD2	2.7960e-003	2.7980e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	3.5900e-004	3.8600e-004

tblVehicleEF	LHD2	8.6600e-004	9.0600e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.4600e-004	4.5600e-004
tblVehicleEF	LHD2	0.18	0.19
tblVehicleEF	LHD2	0.16	0.16
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	6.8630e-003	6.8940e-003
tblVehicleEF	LHD2	1.8000e-004	1.8200e-004
tblVehicleEF	LHD2	8.6600e-004	9.0600e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.4600e-004	4.5600e-004
tblVehicleEF	LHD2	0.21	0.22
tblVehicleEF	LHD2	0.16	0.16
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	3.0450e-003	3.0950e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	9.5360e-003	0.01
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	1.17	1.24
tblVehicleEF	LHD2	1.27	1.35
tblVehicleEF	LHD2	15.77	15.80
tblVehicleEF	LHD2	709.42	712.59
tblVehicleEF	LHD2	15.49	15.50
tblVehicleEF	LHD2	6.5200e-003	7.0690e-003
tblVehicleEF	LHD2	0.15	0.15

tblVehicleEF	LHD2	2.62	2.81
tblVehicleEF	LHD2	0.49	0.50
tblVehicleEF	LHD2	1.6540e-003	1.6760e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	3.9000e-004	4.2000e-004
tblVehicleEF	LHD2	1.5830e-003	1.6030e-003
tblVehicleEF	LHD2	2.7960e-003	2.7980e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	3.5900e-004	3.8600e-004
tblVehicleEF	LHD2	1.4480e-003	1.5220e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	7.0200e-004	7.2000e-004
tblVehicleEF	LHD2	0.18	0.19
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	6.8630e-003	6.8940e-003
tblVehicleEF	LHD2	1.7900e-004	1.8100e-004
tblVehicleEF	LHD2	1.4480e-003	1.5220e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.0200e-004	7.2000e-004
tblVehicleEF	LHD2	0.21	0.22
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	3.0450e-003	3.0950e-003

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	1.15	1.21
tblVehicleEF	LHD2	1.48	1.58
tblVehicleEF	LHD2	15.77	15.80
tblVehicleEF	LHD2	709.42	712.59
tblVehicleEF	LHD2	15.49	15.50
tblVehicleEF	LHD2	6.5200e-003	7.0690e-003
tblVehicleEF	LHD2	0.15	0.15
tblVehicleEF	LHD2	2.75	2.95
tblVehicleEF	LHD2	0.56	0.57
tblVehicleEF	LHD2	1.6540e-003	1.6760e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	3.9000e-004	4.2000e-004
tblVehicleEF	LHD2	1.5830e-003	1.6030e-003
tblVehicleEF	LHD2	2.7960e-003	2.7980e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	3.5900e-004	3.8600e-004
tblVehicleEF	LHD2	2.9300e-004	3.0100e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.6900e-004	1.7200e-004
tblVehicleEF	LHD2	0.18	0.19
tblVehicleEF	LHD2	0.17	0.18
tblVehicleEF	LHD2	0.14	0.15

tblVehicleEF	LHD2	6.8630e-003	6.8930e-003
tblVehicleEF	LHD2	1.8300e-004	1.8500e-004
tblVehicleEF	LHD2	2.9300e-004	3.0100e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6900e-004	1.7200e-004
tblVehicleEF	LHD2	0.21	0.22
tblVehicleEF	LHD2	0.17	0.18
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	MCY	0.41	0.41
tblVehicleEF	MCY	0.19	0.19
tblVehicleEF	MCY	23.97	24.46
tblVehicleEF	MCY	10.56	10.55
tblVehicleEF	MCY	163.07	162.41
tblVehicleEF	MCY	50.03	50.23
tblVehicleEF	MCY	5.4390e-003	5.6160e-003
tblVehicleEF	MCY	1.23	1.24
tblVehicleEF	MCY	0.33	0.33
tblVehicleEF	MCY	1.9230e-003	1.9360e-003
tblVehicleEF	MCY	4.7270e-003	4.9960e-003
tblVehicleEF	MCY	1.8120e-003	1.8270e-003
tblVehicleEF	MCY	4.4860e-003	4.7450e-003
tblVehicleEF	MCY	0.86	0.85
tblVehicleEF	MCY	1.05	1.05
tblVehicleEF	MCY	0.51	0.50
tblVehicleEF	MCY	2.55	2.58
tblVehicleEF	MCY	1.13	1.14

tblVehicleEF	MCY	2.56	2.58
tblVehicleEF	MCY	2.0930e-003	2.0950e-003
tblVehicleEF	MCY	7.4900e-004	7.5200e-004
tblVehicleEF	MCY	0.86	0.85
tblVehicleEF	MCY	1.05	1.05
tblVehicleEF	MCY	0.51	0.50
tblVehicleEF	MCY	3.04	3.07
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	2.78	2.80
tblVehicleEF	MCY	0.39	0.39
tblVehicleEF	MCY	0.16	0.16
tblVehicleEF	MCY	21.78	22.20
tblVehicleEF	MCY	9.31	9.30
tblVehicleEF	MCY	163.07	162.41
tblVehicleEF	MCY	50.03	50.23
tblVehicleEF	MCY	5.4390e-003	5.6160e-003
tblVehicleEF	MCY	1.14	1.14
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	1.9230e-003	1.9360e-003
tblVehicleEF	MCY	4.7270e-003	4.9960e-003
tblVehicleEF	MCY	1.8120e-003	1.8270e-003
tblVehicleEF	MCY	4.4860e-003	4.7450e-003
tblVehicleEF	MCY	1.50	1.49
tblVehicleEF	MCY	1.03	1.02
tblVehicleEF	MCY	0.86	0.85
tblVehicleEF	MCY	2.40	2.42
tblVehicleEF	MCY	1.02	1.03

tblVehicleEF	MCY	2.16	2.17
tblVehicleEF	MCY	7.1600e-004	7.1900e-004
tblVehicleEF	MCY	1.50	1.49
tblVehicleEF	MCY	1.03	1.02
tblVehicleEF	MCY	0.86	0.85
tblVehicleEF	MCY	2.87	2.89
tblVehicleEF	MCY	1.02	1.03
tblVehicleEF	MCY	2.35	2.36
tblVehicleEF	MCY	0.43	0.43
tblVehicleEF	MCY	0.22	0.23
tblVehicleEF	MCY	26.41	26.98
tblVehicleEF	MCY	12.27	12.25
tblVehicleEF	MCY	163.07	162.41
tblVehicleEF	MCY	50.03	50.23
tblVehicleEF	MCY	5.4390e-003	5.6160e-003
tblVehicleEF	MCY	1.36	1.36
tblVehicleEF	MCY	0.36	0.36
tblVehicleEF	MCY	1.9230e-003	1.9360e-003
tblVehicleEF	MCY	4.7270e-003	4.9960e-003
tblVehicleEF	MCY	1.8120e-003	1.8270e-003
tblVehicleEF	MCY	4.4860e-003	4.7450e-003
tblVehicleEF	MCY	0.23	0.23
tblVehicleEF	MCY	1.20	1.21
tblVehicleEF	MCY	0.14	0.13
tblVehicleEF	MCY	2.71	2.75
tblVehicleEF	MCY	1.29	1.30
tblVehicleEF	MCY	3.07	3.09

tblVehicleEF	MCY	2.1370e-003	2.1410e-003
tblVehicleEF	MCY	7.9300e-004	7.9500e-004
tblVehicleEF	MCY	0.23	0.23
tblVehicleEF	MCY	1.20	1.21
tblVehicleEF	MCY	0.14	0.13
tblVehicleEF	MCY	3.23	3.27
tblVehicleEF	MCY	1.29	1.30
tblVehicleEF	MCY	3.34	3.36
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	2.35	2.58
tblVehicleEF	MDV	7.89	8.34
tblVehicleEF	MDV	504.47	514.23
tblVehicleEF	MDV	115.32	116.96
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.43	0.47
tblVehicleEF	MDV	0.80	0.84
tblVehicleEF	MDV	2.3240e-003	2.3930e-003
tblVehicleEF	MDV	3.3450e-003	3.4800e-003
tblVehicleEF	MDV	2.1490e-003	2.2130e-003
tblVehicleEF	MDV	3.0790e-003	3.2050e-003
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.38	0.37
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.29	0.28
tblVehicleEF	MDV	0.60	0.65

tblVehicleEF	MDV	5.0720e-003	5.1730e-003
tblVehicleEF	MDV	1.2950e-003	1.3200e-003
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.38	0.37
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.10	0.12
tblVehicleEF	MDV	0.29	0.28
tblVehicleEF	MDV	0.66	0.71
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	2.40	2.62
tblVehicleEF	MDV	6.70	7.09
tblVehicleEF	MDV	514.67	524.63
tblVehicleEF	MDV	115.32	116.96
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.39	0.43
tblVehicleEF	MDV	0.72	0.76
tblVehicleEF	MDV	2.3240e-003	2.3930e-003
tblVehicleEF	MDV	3.3450e-003	3.4800e-003
tblVehicleEF	MDV	2.1490e-003	2.2130e-003
tblVehicleEF	MDV	3.0790e-003	3.2050e-003
tblVehicleEF	MDV	0.17	0.16
tblVehicleEF	MDV	0.38	0.37
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.24	0.24
tblVehicleEF	MDV	0.53	0.57

tblVehicleEF	MDV	5.1740e-003	5.2780e-003
tblVehicleEF	MDV	1.2740e-003	1.2980e-003
tblVehicleEF	MDV	0.17	0.16
tblVehicleEF	MDV	0.38	0.37
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.11	0.12
tblVehicleEF	MDV	0.24	0.24
tblVehicleEF	MDV	0.58	0.63
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	2.36	2.61
tblVehicleEF	MDV	9.28	9.81
tblVehicleEF	MDV	499.65	509.32
tblVehicleEF	MDV	115.32	116.96
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.49	0.53
tblVehicleEF	MDV	0.87	0.92
tblVehicleEF	MDV	2.3240e-003	2.3930e-003
tblVehicleEF	MDV	3.3450e-003	3.4800e-003
tblVehicleEF	MDV	2.1490e-003	2.2130e-003
tblVehicleEF	MDV	3.0790e-003	3.2050e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.39	0.39
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.34	0.34
tblVehicleEF	MDV	0.70	0.75

tblVehicleEF	MDV	5.0240e-003	5.1250e-003
tblVehicleEF	MDV	1.3200e-003	1.3460e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.39	0.39
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.10	0.12
tblVehicleEF	MDV	0.34	0.34
tblVehicleEF	MDV	0.76	0.82
tblVehicleEF	MH	0.12	0.13
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	8.40	9.97
tblVehicleEF	MH	12.93	13.92
tblVehicleEF	MH	1,246.68	1,250.35
tblVehicleEF	MH	60.62	65.05
tblVehicleEF	MH	1.1150e-003	1.2270e-003
tblVehicleEF	MH	2.87	2.96
tblVehicleEF	MH	1.77	1.80
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	1.9810e-003	2.5900e-003
tblVehicleEF	MH	3.2240e-003	3.2200e-003
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	1.8210e-003	2.4020e-003
tblVehicleEF	MH	1.48	1.53
tblVehicleEF	MH	0.16	0.16
tblVehicleEF	MH	0.51	0.52
tblVehicleEF	MH	0.33	0.39

tblVehicleEF	MH	0.06	0.05
tblVehicleEF	MH	0.76	0.87
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	8.3300e-004	8.9700e-004
tblVehicleEF	MH	1.48	1.53
tblVehicleEF	MH	0.16	0.16
tblVehicleEF	MH	0.51	0.52
tblVehicleEF	MH	0.47	0.54
tblVehicleEF	MH	0.06	0.05
tblVehicleEF	MH	0.83	0.95
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	8.72	10.11
tblVehicleEF	MH	12.02	12.91
tblVehicleEF	MH	1,246.68	1,250.35
tblVehicleEF	MH	60.62	65.05
tblVehicleEF	MH	1.1150e-003	1.2270e-003
tblVehicleEF	MH	2.74	2.83
tblVehicleEF	MH	1.65	1.67
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	1.9810e-003	2.5900e-003
tblVehicleEF	MH	3.2240e-003	3.2200e-003
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	1.8210e-003	2.4020e-003
tblVehicleEF	MH	2.57	2.66
tblVehicleEF	MH	0.14	0.15

tblVehicleEF	MH	0.82	0.85
tblVehicleEF	MH	0.35	0.40
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.72	0.82
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	8.1700e-004	8.7900e-004
tblVehicleEF	MH	2.57	2.66
tblVehicleEF	MH	0.14	0.15
tblVehicleEF	MH	0.82	0.85
tblVehicleEF	MH	0.49	0.56
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.78	0.90
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	8.08	9.85
tblVehicleEF	MH	14.70	15.79
tblVehicleEF	MH	1,246.68	1,250.35
tblVehicleEF	MH	60.62	65.05
tblVehicleEF	MH	1.1150e-003	1.2270e-003
tblVehicleEF	MH	3.06	3.16
tblVehicleEF	MH	1.88	1.92
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	1.9810e-003	2.5900e-003
tblVehicleEF	MH	3.2240e-003	3.2200e-003
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	1.8210e-003	2.4020e-003

tblVehicleEF	MH	0.44	0.45
tblVehicleEF	MH	0.19	0.20
tblVehicleEF	MH	0.22	0.22
tblVehicleEF	MH	0.32	0.39
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.82	0.95
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	8.6300e-004	9.2900e-004
tblVehicleEF	MH	0.44	0.45
tblVehicleEF	MH	0.19	0.20
tblVehicleEF	MH	0.22	0.22
tblVehicleEF	MH	0.45	0.53
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.90	1.04
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.12	0.13
tblVehicleEF	MHD	0.56	0.62
tblVehicleEF	MHD	0.98	1.26
tblVehicleEF	MHD	13.15	14.35
tblVehicleEF	MHD	151.36	150.24
tblVehicleEF	MHD	1,226.80	1,230.29
tblVehicleEF	MHD	57.06	58.51
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.96	1.19
tblVehicleEF	MHD	2.68	3.36
tblVehicleEF	MHD	12.44	12.33

tblVehicleEF	MHD	8.7760e-003	0.01
tblVehicleEF	MHD	0.03	0.07
tblVehicleEF	MHD	1.4190e-003	1.5890e-003
tblVehicleEF	MHD	8.3960e-003	0.01
tblVehicleEF	MHD	0.03	0.07
tblVehicleEF	MHD	1.3040e-003	1.4610e-003
tblVehicleEF	MHD	1.7730e-003	1.9660e-003
tblVehicleEF	MHD	0.11	0.11
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	8.9500e-004	9.7400e-004
tblVehicleEF	MHD	0.13	0.20
tblVehicleEF	MHD	0.09	0.09
tblVehicleEF	MHD	0.82	0.89
tblVehicleEF	MHD	1.4570e-003	1.4460e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	8.0300e-004	8.3900e-004
tblVehicleEF	MHD	1.7730e-003	1.9660e-003
tblVehicleEF	MHD	0.11	0.11
tblVehicleEF	MHD	0.07	0.08
tblVehicleEF	MHD	8.9500e-004	9.7400e-004
tblVehicleEF	MHD	0.15	0.24
tblVehicleEF	MHD	0.09	0.09
tblVehicleEF	MHD	0.89	0.97
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.11	0.12
tblVehicleEF	MHD	0.37	0.41

tblVehicleEF	MHD	1.00	1.29
tblVehicleEF	MHD	12.11	13.20
tblVehicleEF	MHD	160.80	159.62
tblVehicleEF	MHD	1,226.80	1,230.29
tblVehicleEF	MHD	57.06	58.51
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.99	1.22
tblVehicleEF	MHD	2.63	3.29
tblVehicleEF	MHD	12.30	12.19
tblVehicleEF	MHD	7.3980e-003	8.9860e-003
tblVehicleEF	MHD	0.03	0.07
tblVehicleEF	MHD	1.4190e-003	1.5890e-003
tblVehicleEF	MHD	7.0780e-003	8.5970e-003
tblVehicleEF	MHD	0.03	0.07
tblVehicleEF	MHD	1.3040e-003	1.4610e-003
tblVehicleEF	MHD	3.0150e-003	3.3650e-003
tblVehicleEF	MHD	0.10	0.11
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	1.4450e-003	1.5820e-003
tblVehicleEF	MHD	0.13	0.20
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	0.77	0.84
tblVehicleEF	MHD	1.5450e-003	1.5340e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.8500e-004	8.1900e-004
tblVehicleEF	MHD	3.0150e-003	3.3650e-003
tblVehicleEF	MHD	0.10	0.11

tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	1.4450e-003	1.5820e-003
tblVehicleEF	MHD	0.15	0.24
tblVehicleEF	MHD	0.08	0.09
tblVehicleEF	MHD	0.84	0.91
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.13	0.14
tblVehicleEF	MHD	0.70	0.78
tblVehicleEF	MHD	0.96	1.24
tblVehicleEF	MHD	14.36	15.70
tblVehicleEF	MHD	139.39	138.37
tblVehicleEF	MHD	1,226.80	1,230.29
tblVehicleEF	MHD	57.06	58.51
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.92	1.13
tblVehicleEF	MHD	2.77	3.47
tblVehicleEF	MHD	12.56	12.46
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.07
tblVehicleEF	MHD	1.4190e-003	1.5890e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	0.07
tblVehicleEF	MHD	1.3040e-003	1.4610e-003
tblVehicleEF	MHD	5.7100e-004	6.1800e-004
tblVehicleEF	MHD	0.12	0.13
tblVehicleEF	MHD	0.06	0.06

tblVehicleEF	MHD	3.2600e-004	3.4900e-004
tblVehicleEF	MHD	0.13	0.20
tblVehicleEF	MHD	0.10	0.10
tblVehicleEF	MHD	0.87	0.94
tblVehicleEF	MHD	1.3430e-003	1.3340e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	8.2400e-004	8.6200e-004
tblVehicleEF	MHD	5.7100e-004	6.1800e-004
tblVehicleEF	MHD	0.12	0.13
tblVehicleEF	MHD	0.07	0.08
tblVehicleEF	MHD	3.2600e-004	3.4900e-004
tblVehicleEF	MHD	0.15	0.24
tblVehicleEF	MHD	0.10	0.10
tblVehicleEF	MHD	0.95	1.03
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.07
tblVehicleEF	OBUS	0.29	0.30
tblVehicleEF	OBUS	1.46	1.73
tblVehicleEF	OBUS	12.72	13.50
tblVehicleEF	OBUS	99.87	95.10
tblVehicleEF	OBUS	1,295.79	1,306.67
tblVehicleEF	OBUS	67.83	68.78
tblVehicleEF	OBUS	1.5810e-003	1.5310e-003
tblVehicleEF	OBUS	0.48	0.51
tblVehicleEF	OBUS	1.96	2.26
tblVehicleEF	OBUS	4.38	4.34

tblVehicleEF	OBUS	1.6000e-004	2.2600e-004
tblVehicleEF	OBUS	7.3870e-003	8.8780e-003
tblVehicleEF	OBUS	1.1270e-003	1.1500e-003
tblVehicleEF	OBUS	1.5300e-004	2.1600e-004
tblVehicleEF	OBUS	7.0480e-003	8.4730e-003
tblVehicleEF	OBUS	1.0360e-003	1.0580e-003
tblVehicleEF	OBUS	2.4740e-003	2.5090e-003
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	1.0000e-003	1.0020e-003
tblVehicleEF	OBUS	0.11	0.13
tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.78	0.83
tblVehicleEF	OBUS	9.6500e-004	9.2000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	9.0300e-004	9.2600e-004
tblVehicleEF	OBUS	2.4740e-003	2.5090e-003
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	1.0000e-003	1.0020e-003
tblVehicleEF	OBUS	0.14	0.16
tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.86	0.91
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.28	0.28

tblVehicleEF	OBUS	1.49	1.77
tblVehicleEF	OBUS	11.91	12.64
tblVehicleEF	OBUS	104.81	99.75
tblVehicleEF	OBUS	1,295.79	1,306.67
tblVehicleEF	OBUS	67.83	68.78
tblVehicleEF	OBUS	1.5810e-003	1.5310e-003
tblVehicleEF	OBUS	0.49	0.53
tblVehicleEF	OBUS	1.91	2.20
tblVehicleEF	OBUS	4.23	4.18
tblVehicleEF	OBUS	1.3500e-004	1.9000e-004
tblVehicleEF	OBUS	7.3870e-003	8.8780e-003
tblVehicleEF	OBUS	1.1270e-003	1.1500e-003
tblVehicleEF	OBUS	1.2900e-004	1.8200e-004
tblVehicleEF	OBUS	7.0480e-003	8.4730e-003
tblVehicleEF	OBUS	1.0360e-003	1.0580e-003
tblVehicleEF	OBUS	4.1120e-003	4.1850e-003
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	1.5880e-003	1.5950e-003
tblVehicleEF	OBUS	0.11	0.13
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	OBUS	0.75	0.79
tblVehicleEF	OBUS	1.0120e-003	9.6400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.8900e-004	9.1100e-004
tblVehicleEF	OBUS	4.1120e-003	4.1850e-003
tblVehicleEF	OBUS	0.05	0.05

tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	1.5880e-003	1.5950e-003
tblVehicleEF	OBUS	0.15	0.17
tblVehicleEF	OBUS	0.14	0.15
tblVehicleEF	OBUS	0.82	0.87
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.07	0.07
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	1.42	1.69
tblVehicleEF	OBUS	14.09	14.94
tblVehicleEF	OBUS	93.04	88.68
tblVehicleEF	OBUS	1,295.79	1,306.67
tblVehicleEF	OBUS	67.83	68.78
tblVehicleEF	OBUS	1.5810e-003	1.5310e-003
tblVehicleEF	OBUS	0.46	0.49
tblVehicleEF	OBUS	2.05	2.36
tblVehicleEF	OBUS	4.54	4.51
tblVehicleEF	OBUS	1.9400e-004	2.7500e-004
tblVehicleEF	OBUS	7.3870e-003	8.8780e-003
tblVehicleEF	OBUS	1.1270e-003	1.1500e-003
tblVehicleEF	OBUS	1.8600e-004	2.6300e-004
tblVehicleEF	OBUS	7.0480e-003	8.4730e-003
tblVehicleEF	OBUS	1.0360e-003	1.0580e-003
tblVehicleEF	OBUS	8.8300e-004	8.8400e-004
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.04	0.04

tblVehicleEF	OBUS	4.5700e-004	4.5500e-004
tblVehicleEF	OBUS	0.11	0.12
tblVehicleEF	OBUS	0.16	0.17
tblVehicleEF	OBUS	0.84	0.89
tblVehicleEF	OBUS	9.0000e-004	8.5900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	9.2600e-004	9.5000e-004
tblVehicleEF	OBUS	8.8300e-004	8.8400e-004
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	4.5700e-004	4.5500e-004
tblVehicleEF	OBUS	0.14	0.16
tblVehicleEF	OBUS	0.16	0.17
tblVehicleEF	OBUS	0.91	0.97
tblVehicleEF	SBUS	1.01	1.01
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	5.62	5.64
tblVehicleEF	SBUS	1.24	1.29
tblVehicleEF	SBUS	9.55	9.81
tblVehicleEF	SBUS	1,304.64	1,308.22
tblVehicleEF	SBUS	1,162.98	1,165.99
tblVehicleEF	SBUS	32.68	32.64
tblVehicleEF	SBUS	1.1120e-003	1.1240e-003
tblVehicleEF	SBUS	13.24	13.84
tblVehicleEF	SBUS	5.63	5.99
tblVehicleEF	SBUS	16.24	16.27

tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3600e-004	4.5000e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.0100e-004	4.1400e-004
tblVehicleEF	SBUS	2.8170e-003	2.8430e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.70	0.71
tblVehicleEF	SBUS	1.2040e-003	1.1750e-003
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.51	0.52
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.9300e-004	4.9700e-004
tblVehicleEF	SBUS	2.8170e-003	2.8430e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	1.00	1.01
tblVehicleEF	SBUS	1.2040e-003	1.1750e-003
tblVehicleEF	SBUS	0.18	0.19
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.55	0.57
tblVehicleEF	SBUS	1.01	1.01
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.14	0.14

tblVehicleEF	SBUS	5.46	5.47
tblVehicleEF	SBUS	1.27	1.32
tblVehicleEF	SBUS	8.45	8.69
tblVehicleEF	SBUS	1,372.57	1,376.38
tblVehicleEF	SBUS	1,162.98	1,165.99
tblVehicleEF	SBUS	32.68	32.64
tblVehicleEF	SBUS	1.1120e-003	1.1240e-003
tblVehicleEF	SBUS	13.66	14.28
tblVehicleEF	SBUS	5.53	5.88
tblVehicleEF	SBUS	16.20	16.24
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3600e-004	4.5000e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.0100e-004	4.1400e-004
tblVehicleEF	SBUS	4.5920e-003	4.6750e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.70	0.70
tblVehicleEF	SBUS	1.8910e-003	1.8560e-003
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.47	0.48
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.7400e-004	4.7800e-004

tblVehicleEF	SBUS	4.5920e-003	4.6750e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	1.00	1.00
tblVehicleEF	SBUS	1.8910e-003	1.8560e-003
tblVehicleEF	SBUS	0.18	0.19
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.52	0.53
tblVehicleEF	SBUS	1.01	1.01
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.17	0.17
tblVehicleEF	SBUS	5.85	5.88
tblVehicleEF	SBUS	1.22	1.27
tblVehicleEF	SBUS	12.33	12.67
tblVehicleEF	SBUS	1,210.82	1,214.10
tblVehicleEF	SBUS	1,162.98	1,165.99
tblVehicleEF	SBUS	32.68	32.64
tblVehicleEF	SBUS	1.1120e-003	1.1240e-003
tblVehicleEF	SBUS	12.65	13.22
tblVehicleEF	SBUS	5.81	6.19
tblVehicleEF	SBUS	16.29	16.32
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.3600e-004	4.5000e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.0100e-004	4.1400e-004

tblVehicleEF	SBUS	1.0720e-003	1.0500e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	0.71	0.71
tblVehicleEF	SBUS	5.6400e-004	5.4500e-004
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.58	0.60
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	5.3900e-004	5.4400e-004
tblVehicleEF	SBUS	1.0720e-003	1.0500e-003
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	1.01	1.01
tblVehicleEF	SBUS	5.6400e-004	5.4500e-004
tblVehicleEF	SBUS	0.18	0.19
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.64	0.65
tblVehicleEF	UBUS	0.10	0.11
tblVehicleEF	UBUS	0.13	0.13
tblVehicleEF	UBUS	5.04	5.32
tblVehicleEF	UBUS	24.16	25.07
tblVehicleEF	UBUS	1,911.67	1,916.35
tblVehicleEF	UBUS	209.18	210.86
tblVehicleEF	UBUS	1.3840e-003	1.4440e-003
tblVehicleEF	UBUS	6.75	7.17
tblVehicleEF	UBUS	10.11	10.10
tblVehicleEF	UBUS	0.37	0.36

tblVehicleEF	UBUS	0.13	0.14
tblVehicleEF	UBUS	1.0860e-003	1.0690e-003
tblVehicleEF	UBUS	0.16	0.16
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	9.9900e-004	9.8300e-004
tblVehicleEF	UBUS	6.4740e-003	6.2560e-003
tblVehicleEF	UBUS	0.12	0.12
tblVehicleEF	UBUS	3.4840e-003	3.2900e-003
tblVehicleEF	UBUS	0.49	0.52
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.75	1.78
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	2.5250e-003	2.5570e-003
tblVehicleEF	UBUS	6.4740e-003	6.2560e-003
tblVehicleEF	UBUS	0.12	0.12
tblVehicleEF	UBUS	3.4840e-003	3.2900e-003
tblVehicleEF	UBUS	0.63	0.67
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.91	1.95
tblVehicleEF	UBUS	0.10	0.11
tblVehicleEF	UBUS	0.12	0.12
tblVehicleEF	UBUS	5.14	5.42
tblVehicleEF	UBUS	20.39	21.16
tblVehicleEF	UBUS	1,911.67	1,916.35
tblVehicleEF	UBUS	209.18	210.86
tblVehicleEF	UBUS	1.3840e-003	1.4440e-003
tblVehicleEF	UBUS	6.59	6.99

tblVehicleEF	UBUS	9.91	9.90
tblVehicleEF	UBUS	0.37	0.36
tblVehicleEF	UBUS	0.13	0.14
tblVehicleEF	UBUS	1.0860e-003	1.0690e-003
tblVehicleEF	UBUS	0.16	0.16
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	9.9900e-004	9.8300e-004
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.12	0.12
tblVehicleEF	UBUS	5.5920e-003	5.3150e-003
tblVehicleEF	UBUS	0.49	0.53
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.58	1.61
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	2.4600e-003	2.4900e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.12	0.12
tblVehicleEF	UBUS	5.5920e-003	5.3150e-003
tblVehicleEF	UBUS	0.63	0.68
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	1.73	1.77
tblVehicleEF	UBUS	0.10	0.10
tblVehicleEF	UBUS	0.14	0.15
tblVehicleEF	UBUS	4.95	5.22
tblVehicleEF	UBUS	28.98	30.07
tblVehicleEF	UBUS	1,911.67	1,916.35
tblVehicleEF	UBUS	209.18	210.86

tblVehicleEF	UBUS	1.3840e-003	1.4440e-003
tblVehicleEF	UBUS	7.02	7.45
tblVehicleEF	UBUS	10.30	10.30
tblVehicleEF	UBUS	0.37	0.36
tblVehicleEF	UBUS	0.13	0.14
tblVehicleEF	UBUS	1.0860e-003	1.0690e-003
tblVehicleEF	UBUS	0.16	0.16
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	9.9900e-004	9.8300e-004
tblVehicleEF	UBUS	2.5880e-003	2.4500e-003
tblVehicleEF	UBUS	0.13	0.13
tblVehicleEF	UBUS	1.6860e-003	1.5720e-003
tblVehicleEF	UBUS	0.48	0.52
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.94	1.98
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	2.6070e-003	2.6420e-003
tblVehicleEF	UBUS	2.5880e-003	2.4500e-003
tblVehicleEF	UBUS	0.13	0.13
tblVehicleEF	UBUS	1.6860e-003	1.5720e-003
tblVehicleEF	UBUS	0.62	0.66
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	2.12	2.17

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1461	0.5530	0.4445	7.0000e-004	1.8954	0.0327	1.9281	0.1901	0.0301	0.2202	0.0000	62.7383	62.7383	0.0177	0.0000	63.1815
Maximum	**0.1461**	**0.5530**	**0.4445**	**7.0000e-004**	**1.8954**	**0.0327**	**1.9281**	**0.1901**	**0.0301**	**0.2202**	**0.0000**	**62.7383**	**62.7383**	**0.0177**	**0.0000**	**63.1815**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1461	0.5530	0.4445	7.0000e-004	1.8954	0.0327	1.9281	0.1901	0.0301	0.2202	0.0000	62.7382	62.7382	0.0177	0.0000	63.1814
Maximum	**0.1461**	**0.5530**	**0.4445**	**7.0000e-004**	**1.8954**	**0.0327**	**1.9281**	**0.1901**	**0.0301**	**0.2202**	**0.0000**	**62.7382**	**62.7382**	**0.0177**	**0.0000**	**63.1814**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-4-2019**	**6-3-2019**	0.3710	0.3710
2	**6-4-2019**	**9-3-2019**	0.3236	0.3236
		Highest	0.3710	0.3710

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0384	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Energy	1.4000e-004	1.2800e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	13.4132	13.4132	5.7000e-004	1.4000e-004	13.4686
Mobile	0.0747	0.3749	0.6197	1.1000e-003	18.1249	1.7000e-003	18.1266	1.8128	1.6100e-003	1.8144	0.0000	101.4764	101.4764	8.5300e-003	0.0000	101.6896
Waste						0.0000	0.0000		0.0000	0.0000	5.7223	0.0000	5.7223	0.3382	0.0000	14.1768
Water						0.0000	0.0000		0.0000	0.0000	0.2203	1.5262	1.7465	0.0227	5.5000e-004	2.4773
Total	**0.1133**	**0.3762**	**0.6211**	**1.1100e-003**	**18.1249**	**1.8000e-003**	**18.1267**	**1.8128**	**1.7100e-003**	**1.8145**	**5.9426**	**116.4165**	**122.3591**	**0.3700**	**6.9000e-004**	**131.8129**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0363	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Energy	1.4000e-004	1.2800e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	13.4132	13.4132	5.7000e-004	1.4000e-004	13.4686
Mobile	0.0747	0.3749	0.6197	1.1000e-003	18.1249	1.7000e-003	18.1266	1.8128	1.6100e-003	1.8144	0.0000	101.4764	101.4764	8.5300e-003	0.0000	101.6896
Waste						0.0000	0.0000		0.0000	0.0000	5.7223	0.0000	5.7223	0.3382	0.0000	14.1768
Water						0.0000	0.0000		0.0000	0.0000	0.1931	1.3647	1.5578	0.0199	4.8000e-004	2.1983
Total	**0.1111**	**0.3762**	**0.6211**	**1.1100e-003**	**18.1249**	**1.8000e-003**	**18.1267**	**1.8128**	**1.7100e-003**	**1.8145**	**5.9154**	**116.2550**	**122.1703**	**0.3672**	**6.2000e-004**	**131.5339**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**1.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.46**	**0.14**	**0.15**	**0.76**	**10.14**	**0.21**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	4.4660
Vegetation Land Change	0.0000
Total	**4.4660**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/4/2019	3/3/2019	5	10	
2	Site Preparation	Site Preparation	3/4/2019	3/4/2019	5	1	
3	Grading	Grading	3/5/2019	3/6/2019	5	2	
4	Building Construction	Building Construction	3/7/2019	7/24/2019	5	100	
5	Paving	Paving	7/25/2019	7/31/2019	5	5	
6	Architectural Coating	Architectural Coating	8/1/2019	8/7/2019	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.23

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,070; Non-Residential Outdoor: 3,690; Striped Parking Area: 624 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	7.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6000e-004	4.4600e-003	2.0700e-003	0.0000		1.8000e-004	1.8000e-004		1.7000e-004	1.7000e-004	0.0000	0.4378	0.4378	1.4000e-004	0.0000	0.4413
Total	**3.6000e-004**	**4.4600e-003**	**2.0700e-003**	**0.0000**	**2.7000e-004**	**1.8000e-004**	**4.5000e-004**	**3.0000e-005**	**1.7000e-004**	**2.0000e-004**	**0.0000**	**0.4378**	**0.4378**	**1.4000e-004**	**0.0000**	**0.4413**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	2.0000e-005	1.7000e-004	0.0000	9.1300e-003	0.0000	9.1300e-003	9.1000e-004	0.0000	9.1000e-004	0.0000	0.0182	0.0182	0.0000	0.0000	0.0182
Total	**2.0000e-005**	**2.0000e-005**	**1.7000e-004**	**0.0000**	**9.1300e-003**	**0.0000**	**9.1300e-003**	**9.1000e-004**	**0.0000**	**9.1000e-004**	**0.0000**	**0.0182**	**0.0182**	**0.0000**	**0.0000**	**0.0182**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6000e-004	4.4600e-003	2.0700e-003	0.0000		1.8000e-004	1.8000e-004		1.7000e-004	1.7000e-004	0.0000	0.4378	0.4378	1.4000e-004	0.0000	0.4413
Total	**3.6000e-004**	**4.4600e-003**	**2.0700e-003**	**0.0000**	**2.7000e-004**	**1.8000e-004**	**4.5000e-004**	**3.0000e-005**	**1.7000e-004**	**2.0000e-004**	**0.0000**	**0.4378**	**0.4378**	**1.4000e-004**	**0.0000**	**0.4413**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	2.0000e-005	1.7000e-004	0.0000	9.1300e-003	0.0000	9.1300e-003	9.1000e-004	0.0000	9.1000e-004	0.0000	0.0182	0.0182	0.0000	0.0000	0.0182
Total	**2.0000e-005**	**2.0000e-005**	**1.7000e-004**	**0.0000**	**9.1300e-003**	**0.0000**	**9.1300e-003**	**9.1000e-004**	**0.0000**	**9.1000e-004**	**0.0000**	**0.0182**	**0.0182**	**0.0000**	**0.0000**	**0.0182**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5000e-004	8.6000e-003	7.6900e-003	1.0000e-005		5.4000e-004	5.4000e-004		5.1000e-004	5.1000e-004	0.0000	1.0520	1.0520	2.0000e-004	0.0000	1.0570
Total	**9.5000e-004**	**8.6000e-003**	**7.6900e-003**	**1.0000e-005**	**7.5000e-004**	**5.4000e-004**	**1.2900e-003**	**4.1000e-004**	**5.1000e-004**	**9.2000e-004**	**0.0000**	**1.0520**	**1.0520**	**2.0000e-004**	**0.0000**	**1.0570**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	8.0000e-005	6.7000e-004	0.0000	0.0365	0.0000	0.0365	3.6500e-003	0.0000	3.6500e-003	0.0000	0.0727	0.0727	1.0000e-005	0.0000	0.0729
Total	**9.0000e-005**	**8.0000e-005**	**6.7000e-004**	**0.0000**	**0.0365**	**0.0000**	**0.0365**	**3.6500e-003**	**0.0000**	**3.6500e-003**	**0.0000**	**0.0727**	**0.0727**	**1.0000e-005**	**0.0000**	**0.0729**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5000e-004	8.6000e-003	7.6900e-003	1.0000e-005		5.4000e-004	5.4000e-004		5.1000e-004	5.1000e-004	0.0000	1.0520	1.0520	2.0000e-004	0.0000	1.0570
Total	**9.5000e-004**	**8.6000e-003**	**7.6900e-003**	**1.0000e-005**	**7.5000e-004**	**5.4000e-004**	**1.2900e-003**	**4.1000e-004**	**5.1000e-004**	**9.2000e-004**	**0.0000**	**1.0520**	**1.0520**	**2.0000e-004**	**0.0000**	**1.0570**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	8.0000e-005	6.7000e-004	0.0000	0.0365	0.0000	0.0365	3.6500e-003	0.0000	3.6500e-003	0.0000	0.0727	0.0727	1.0000e-005	0.0000	0.0729
Total	**9.0000e-005**	**8.0000e-005**	**6.7000e-004**	**0.0000**	**0.0365**	**0.0000**	**0.0365**	**3.6500e-003**	**0.0000**	**3.6500e-003**	**0.0000**	**0.0727**	**0.0727**	**1.0000e-005**	**0.0000**	**0.0729**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0479	0.4910	0.3772	5.7000e-004		0.0303	0.0303		0.0279	0.0279	0.0000	51.1502	51.1502	0.0162	0.0000	51.5548
Total	**0.0479**	**0.4910**	**0.3772**	**5.7000e-004**		**0.0303**	**0.0303**		**0.0279**	**0.0279**	**0.0000**	**51.1502**	**51.1502**	**0.0162**	**0.0000**	**51.5548**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1300e-003	0.0214	7.2900e-003	4.0000e-005	0.3703	2.0000e-004	0.3705	0.0371	1.9000e-004	0.0373	0.0000	4.0675	4.0675	2.3000e-004	0.0000	4.0732
Worker	3.0800e-003	2.7800e-003	0.0236	3.0000e-005	1.2777	3.0000e-005	1.2777	0.1279	3.0000e-005	0.1279	0.0000	2.5449	2.5449	2.0000e-004	0.0000	2.5500
Total	**4.2100e-003**	**0.0242**	**0.0309**	**7.0000e-005**	**1.6480**	**2.3000e-004**	**1.6482**	**0.1650**	**2.2000e-004**	**0.1652**	**0.0000**	**6.6124**	**6.6124**	**4.3000e-004**	**0.0000**	**6.6231**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0479	0.4910	0.3772	5.7000e-004		0.0303	0.0303		0.0279	0.0279	0.0000	51.1502	51.1502	0.0162	0.0000	51.5548
Total	**0.0479**	**0.4910**	**0.3772**	**5.7000e-004**		**0.0303**	**0.0303**		**0.0279**	**0.0279**	**0.0000**	**51.1502**	**51.1502**	**0.0162**	**0.0000**	**51.5548**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1300e-003	0.0214	7.2900e-003	4.0000e-005	0.3703	2.0000e-004	0.3705	0.0371	1.9000e-004	0.0373	0.0000	4.0675	4.0675	2.3000e-004	0.0000	4.0732
Worker	3.0800e-003	2.7800e-003	0.0236	3.0000e-005	1.2777	3.0000e-005	1.2777	0.1279	3.0000e-005	0.1279	0.0000	2.5449	2.5449	2.0000e-004	0.0000	2.5500
Total	**4.2100e-003**	**0.0242**	**0.0309**	**7.0000e-005**	**1.6480**	**2.3000e-004**	**1.6482**	**0.1650**	**2.2000e-004**	**0.1652**	**0.0000**	**6.6124**	**6.6124**	**4.3000e-004**	**0.0000**	**6.6231**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0700e-003	0.0196	0.0179	3.0000e-005		1.1100e-003	1.1100e-003		1.0300e-003	1.0300e-003	0.0000	2.3931	2.3931	6.8000e-004	0.0000	2.4102
Paving	3.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3700e-003**	**0.0196**	**0.0179**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**2.3931**	**2.3931**	**6.8000e-004**	**0.0000**	**2.4102**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.6000e-004	3.0300e-003	0.0000	0.1643	0.0000	0.1643	0.0164	0.0000	0.0164	0.0000	0.3272	0.3272	3.0000e-005	0.0000	0.3279
Total	**4.0000e-004**	**3.6000e-004**	**3.0300e-003**	**0.0000**	**0.1643**	**0.0000**	**0.1643**	**0.0164**	**0.0000**	**0.0164**	**0.0000**	**0.3272**	**0.3272**	**3.0000e-005**	**0.0000**	**0.3279**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0700e-003	0.0196	0.0179	3.0000e-005		1.1100e-003	1.1100e-003		1.0300e-003	1.0300e-003	0.0000	2.3931	2.3931	6.8000e-004	0.0000	2.4102
Paving	3.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3700e-003**	**0.0196**	**0.0179**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**2.3931**	**2.3931**	**6.8000e-004**	**0.0000**	**2.4102**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.6000e-004	3.0300e-003	0.0000	0.1643	0.0000	0.1643	0.0164	0.0000	0.0164	0.0000	0.3272	0.3272	3.0000e-005	0.0000	0.3279
Total	**4.0000e-004**	**3.6000e-004**	**3.0300e-003**	**0.0000**	**0.1643**	**0.0000**	**0.1643**	**0.0164**	**0.0000**	**0.0164**	**0.0000**	**0.3272**	**0.3272**	**3.0000e-005**	**0.0000**	**0.3279**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0891					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397
Total	**0.0898**	**4.5900e-003**	**4.6000e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.6383**	**0.6383**	**5.0000e-005**	**0.0000**	**0.6397**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	3.4000e-004	0.0000	0.0365	0.0000	0.0365	3.6500e-003	0.0000	3.6500e-003	0.0000	0.0364	0.0364	0.0000	0.0000	0.0364
Total	**4.0000e-005**	**4.0000e-005**	**3.4000e-004**	**0.0000**	**0.0365**	**0.0000**	**0.0365**	**3.6500e-003**	**0.0000**	**3.6500e-003**	**0.0000**	**0.0364**	**0.0364**	**0.0000**	**0.0000**	**0.0364**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0891					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7000e-004	4.5900e-003	4.6000e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	0.6383	0.6383	5.0000e-005	0.0000	0.6397
Total	**0.0898**	**4.5900e-003**	**4.6000e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**0.6383**	**0.6383**	**5.0000e-005**	**0.0000**	**0.6397**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	3.4000e-004	0.0000	0.0365	0.0000	0.0365	3.6500e-003	0.0000	3.6500e-003	0.0000	0.0364	0.0364	0.0000	0.0000	0.0364
Total	**4.0000e-005**	**4.0000e-005**	**3.4000e-004**	**0.0000**	**0.0365**	**0.0000**	**0.0365**	**3.6500e-003**	**0.0000**	**3.6500e-003**	**0.0000**	**0.0364**	**0.0364**	**0.0000**	**0.0000**	**0.0364**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0747	0.3749	0.6197	1.1000e-003	18.1249	1.7000e-003	18.1266	1.8128	1.6100e-003	1.8144	0.0000	101.4764	101.4764	8.5300e-003	0.0000	101.6896
Unmitigated	0.0747	0.3749	0.6197	1.1000e-003	18.1249	1.7000e-003	18.1266	1.8128	1.6100e-003	1.8144	0.0000	101.4764	101.4764	8.5300e-003	0.0000	101.6896

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	175.05	175.05	87.67	161,951	161,951
Parking Lot	0.00	0.00	0.00		
Total	175.05	175.05	87.67	161,951	161,951

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.482880	0.047259	0.194207	0.134290	0.040793	0.006520	0.016829	0.066591	0.001581	0.001384	0.005439	0.001112	0.001115
Automobile Care Center	0.482880	0.047259	0.194207	0.134290	0.040793	0.006520	0.016829	0.066591	0.001581	0.001384	0.005439	0.001112	0.001115

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.0230	12.0230	5.4000e-004	1.1000e-004	12.0701
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.0230	12.0230	5.4000e-004	1.1000e-004	12.0701
NaturalGas Mitigated	1.4000e-004	1.2800e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3902	1.3902	3.0000e-005	3.0000e-005	1.3985
NaturalGas Unmitigated	1.4000e-004	1.2800e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3902	1.3902	3.0000e-005	3.0000e-005	1.3985

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	26051.4	1.4000e-004	1.2800e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3902	1.3902	3.0000e-005	3.0000e-005	1.3985
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4000e-004**	**1.2800e-003**	**1.0700e-003**	**1.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**1.3902**	**1.3902**	**3.0000e-005**	**3.0000e-005**	**1.3985**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	26051.4	1.4000e-004	1.2800e-003	1.0700e-003	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3902	1.3902	3.0000e-005	3.0000e-005	1.3985
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4000e-004**	**1.2800e-003**	**1.0700e-003**	**1.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**1.3902**	**1.3902**	**3.0000e-005**	**3.0000e-005**	**1.3985**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	32176.8	9.3606	4.2000e-004	9.0000e-005	9.3973
Parking Lot	9152	2.6624	1.2000e-004	2.0000e-005	2.6729
Total		**12.0230**	**5.4000e-004**	**1.1000e-004**	**12.0701**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	32176.8	9.3606	4.2000e-004	9.0000e-005	9.3973
Parking Lot	9152	2.6624	1.2000e-004	2.0000e-005	2.6729
Total		**12.0230**	**5.4000e-004**	**1.1000e-004**	**12.0701**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0363	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Unmitigated	0.0384	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Total	**0.0384**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-004**	**6.0000e-004**	**0.0000**	**0.0000**	**6.4000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0273					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Total	**0.0363**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-004**	**6.0000e-004**	**0.0000**	**0.0000**	**6.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Toilet

Use Water Efficient Irrigation System

Use Water Efficient Landscaping

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.5578	0.0199	4.8000e-004	2.1983
Unmitigated	1.7465	0.0227	5.5000e-004	2.4773

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.694319 / 0.42555	1.7465	0.0227	5.5000e-004	2.4773
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.7465**	**0.0227**	**5.5000e-004**	**2.4773**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.608501 / 0.399592	1.5578	0.0199	4.8000e-004	2.1983
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.5578**	**0.0199**	**4.8000e-004**	**2.1983**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.7223	0.3382	0.0000	14.1768
Unmitigated	5.7223	0.3382	0.0000	14.1768

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	28.19	5.7223	0.3382	0.0000	14.1768
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.7223**	**0.3382**	**0.0000**	**14.1768**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	28.19	5.7223	0.3382	0.0000	14.1768
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.7223**	**0.3382**	**0.0000**	**14.1768**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	4.4660	0.0000	0.0000	4.4660

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	0.24 / 0.24	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Pine	7	4.4660	0.0000	0.0000	4.4660
Total		**4.4660**	**0.0000**	**0.0000**	**4.4660**

LACO

TECHNICAL MEMORANDUM

Biological Survey Results
AutoZone Retail Store and Minor Subdivision
1151 South Main Street, Fort Bragg, California
Assessor's Parcel Number (APN) 018-440-58

Date:	September 12, 2018
Project No.:	8978.04
Prepared For:	Mitch Bramlitt, Regional Project Manager for AutoZone Development

Prepared By: Gary Lester
Senior Environmental Scientist

Gary S. Lester

Reviewed By: Deirdre Clem
Senior Planner/Project Manager

D Clem

Attachments:

Appendix A:	Figures
Appendix B:	Site Photos
Appendix C:	List of Plant Species Encountered

1.0 INTRODUCTION

Mitch Bramlitt, Regional Project Manager for AutoZone Development (CLIENT), has requested professional services from LACO Associates (LACO) related to preparation of plans and special studies to accommodate the Coastal Development Permit (CDP) and Conditional Use Permit (CUP) application submittal to the City of Fort Bragg for a proposed retail facility (AutoZone), located at 1151 South Main Street in Fort Bragg, California (Site). The Site, identified as Assessor's Parcel Number (APN) 018-440-58, is approximately 2.5 acres in size and is located within the coastal zone. The Site and corresponding biological survey area are depicted in Figures 1 and 2, included in Appendix A.

Under the proposed project, the existing parcel, approximately 2.5 acres in size, would be subdivided into two individual lots (Lots 1 and 2). Lot 1, where the store would be developed, would be approximately 1.1 acres in size and would comprise the northeastern portion of the property, adjacent to the unnamed frontage road, located directly east of the site. The proposed remainder, approximately 1.4 acres in size, would comprise Lot 2 and the southern portion of the Site. Lot 1 would be graded and the topsoil would be removed and kept on-site for future landscape purposes. No development is proposed on the second parcel at this time; however, future commercial development on Lot 2 is anticipated.

The purpose of the study was to determine if the Site contains sensitive biological resources, such as sensitive or special status species or habitat areas, including riparian and wetland areas. This Biological Survey is being submitted as part of the CLIENT's CDP, CUP, and minor subdivision application to the City of Fort Bragg.

2.0 METHODS

Biological surveys, including one late spring field survey and one summer season field survey, were conducted by LACO Associates' Senior Environmental Scientist Gary Lester at the Site on June 19, 2018, and July 9, 2018, respectively, involving a total of approximately 3 hours of survey time each visit. Mr. Lester is qualified to conduct biological surveys. He has an undergraduate degree in botany and has received training in recognition of local flora and fauna, plant identification, and survey protocols. Additionally, Mr. Lester has conducted sensitive plant surveys, biological site investigations, and wildlife surveys professionally for over 25 years.

Prior to and during the survey, a number of resources were consulted to determine potential areas of sensitive plant and wildlife species occurrence in the vicinity of the Site, including California Department of Fish and Wildlife Natural Diversity Database (CNDDB) – Fort Bragg Quad (DFW, 2018), USGS 7.5-minute Fort Bragg quadrangle topographic map, and aerial photography.

The biological resource surveys were conducted following guidelines developed by the California Department of Fish and Wildlife (DFW, 2018). The intuitively controlled survey included sampling the identified potential habitat at a moderate to high coverage (60% to 100%). Plants were identified to the lowest taxonomic level (genus or species) necessary for rare plant identification, following the scientific nomenclature of the Jepson Manual (Baldwin, et. al., 2012).

3.0 ENVIRONMENTAL SETTING

The Site lies approximately 1.5 miles south of the Fort Bragg City Hall, immediately west of State Highway 1 (CA-1)/South Main Street in Fort Bragg, California. Elevations at the Site range between approximately 103 feet to 108 feet above mean sea level. The Site is located within the coastal zone and features coastal scrub, coastal grassland, including widely scattered conifers. Soils are mapped by Natural Resources Conservation Services (NRCS) as being Heeser (marine terrace) sandy loam (National Cooperative Soil Survey, 2018).

The Site is located south of the mouth of the Noyo River and is adjacent to several City surface streets, including Harbor Avenue, Ocean View Drive, CA-1/South Main Street, and associated frontage road (see Appendix A, Figures 1 and 2). The Site grassland habitat (see Appendix B, Photos 1-2) includes widely scattered conifers: Monterey pine (*Pinus radicata*), shore pine (*Pinus contorta*), Bishop pine (*Pinus muricata*), and Douglas-fir (*Pseudotsuga menzeisii*). The coastal grassland vegetation is dominated by non-native grasses: soft chess (*Bromus hordeaceus*), sweet vernal grass (*Anthoxanthum oderatum*), velvet grass (*Holcus lanatus*), ripgut brome (*Bromus diandrus*), wall barley (*Hordeum murinum*), and annual dogtail grass (*Cynosurus echinatus)*, with widely scattered non-native perennials, including perennial cat's ear (*Hypochaeris radicata*), garden vetch (*Vicia sativa*), white clover (*Trifolium repens*), perennial pea (*Lathyrus latifolius*), curly dock (*Rumex crispus*), and wild radish (*Raphanus sativus*). Widely scattered native perennials include beach strawberry (*Fragaria chiloensis*), river bar lupine (*Lupinus rivularis*), and California blackberry (*Rubus ursinus*).

Coastal scrub vegetation occurs at the southeast corner of the Site, established on an apparent constructed earthen berm (see Appendix B, Photos 3-4). Coastal scrub vegetation found on the berm includes the following dominate native species: coyote brush (*Baccharis pilularis*), California blackberry, honeysuckle (*Lonicera hispidula*), coast gumplant (*Grindillia stricta*), Henderson's angelica (*Angelica herdersonii*), and bracken fern (*Pteridium aquilinum*).

4.0 SENSITIVE PLANT SPECIES ANALYSIS

4.1 Potential Sensitive Plant Species Present

Based on the species identified in the CNDDB records, the range of habitats present, and the geographical range of the various sensitive species, the species considered most likely to occur in the vicinity of the Site are presented in Table 1. No special habitats (such as freshwater seeps or ponds, podzolized soils, or coastal bluffs) are present at the Site, eliminating sensitive species specific to those types of habitats. The sensitive plant species listed in Table 1 have the potential to occur at the Site based on habitat and known population's proximity nearby.

Table 1: Sensitive Plant Species (State and Federal Threatened, Endangered, or State Species of Concern) Occurring within the Vicinity

Plant Species	Status[2]	Habitat	Occurrence at the Site[1]
Blasdale's bentgrass *(Agrostis blasdalei)*	CNPS 1B.2	Coastal prairie and coastal scrub	Absent. Poor habitat conditions occur at the Site (diminutive natives excluded by dominant European grasses and forbs).
Point Reyes blenosperma *(Blenosperma nanum* var. *robustum*	SR CNPS 1B.2	Coastal prairie and coastal scrub	Absent. Poor habitat occurs at the Site (natives excluded by dominant European grasses and forbs).
coastal bluff morning-glory *(Calystegia purpurea* ssp. *saxicola)*	CNPS 1B.2	Coastal scrub	Absent. If present, obvious, it was not observed in the field. Known occurrences north and south of the Site.
California harebell *(Campanula californica)*	CNPS 1B.2	Coastal prairie	Absent. No suitable habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs).
California sedge *(Carex californica)*	CNPS 2B.3	Coastal prairie	Absent. No suitable habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs).
Deceiving sedge *(Carex saliniformis)*	CNPS 1B.2	Coastal prairie	Absent. No suitable habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs).
Oregon coast paintbrush *(Castilleja litoralis)*	CNPS 2B.2	Coastal scrub	Absent. If present, obvious, it was not observed in the field. Known occurrences north and south of the Site.
Mendocino coast paintbrush *(Castilleja mendocinoiensis)*	CNPS 1B.2	Coastal prairie and coastal scrub	Absent. If present, obvious, it was not observed in the field. Known occurrences north and south of the Site.
Howell's spineflower *(Chorizanthe howellii)*	FE, ST CNPS 1B.2	Coastal prairie and coastal scrub	Unlikely. No suitable or poor habitat occurs at the Site (diminutive natives excluded by dominant native shrubs or European grasses and forbs).
Whitney's farewell-to-spring *(Clarkia amoena* ssp. *whitneyi)*	CNPS 1B.1	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).
Bluff wallflower *(Erysimum concinnum)*	CNPS 1B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).
Pacific gilia *(Gilia capitata* var. *pacifica)*	CNPS 1B.2	Coastal prairie	Absent. No suitable habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs).
Short-leaved evax *(Hesperevax sparsiflora* var. *brevifolia)*	CNPS 1B.2	Coastal prairie	Absent. No suitable habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs).
Point Reyes horkelia *(Horkelia marinensis*	CNPS 1B.2	Coastal prairie and coastal scrub	Absent. No suitable or poor habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs, xeric conditions).
Baker's goldfields *(Lasthenia californica* ssp. *bakeri)*	CNPS 1B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).

Plant Species	Status[2]	Habitat	Occurrence at the Site[1]
Perennial goldfields *(Lasthenia californica* ssp. *macrantha)*	CNPS 1B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).
Coast lily *(Lilium maritimum)*	CNPS 1B.1	Coastal prairie	Absent. Obvious, if present (diminutive natives excluded by dominant European grasses and forbs).
Seacoast ragwort *(Packera bolanderi* var. *bolanderi)*	CNPS 2B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).
North coast phacelia *(Phacelia insularis* var. *continensis)*	CNPS 1B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).
Purple-stemmed checkerbloom *(Sidalcea malviflora* ssp. *purpurea)*	CNPS 1B.2	Coastal prairie	Absent. No suitable habitat occurs at the Site (diminutive natives excluded by dominant European grasses and forbs).
Coastal triquetrella *(Triquetrella californica)*	CNPS 2B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).
Alpine marsh violet *(Viola palustris)*	CNPS 1B.2	Coastal scrub	Unlikely. Poor habitat occurs at the Site (narrow, restricted, xeric scrub habitat).

[1] OCCURRENCE DESIGNATIONS:
Present: Species observed at the Project site at time of field survey or during recent past.
Likely: Species not observed at the Project site, but it may be reasonably expected to occur there on a regular basis.
Possible: Species not observed at the Project site, but it could occur there from time to time.
Unlikely: Species not observed at the Project site, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed at the Project site, and precluded from occurring there because habitat requirements not met.

[2]STATUS CODES:
FE Federally Endangered CE California Endangered
FT Federally Threatened CT California Threatened
FPE Federally Endangered (Proposed) CR California Rare
FC Federal Candidate CSC California Species of Special Concern
CNPS California Native Plant Society Listing
D/FD Delisted or proposed Federal delisting

5.0 SENSITIVE ANIMAL SPECIES ANALYSIS

5.1 Potential Sensitive Animal Species Present

According to CNDDB records, from the Fort Bragg Quad species list (CDFW, 2018), the species considered most likely to occur in the vicinity of the proposed Site are listed in Table 2. Only coastal prairie and coastal scrub habitats were present, eliminating many of the sensitive species specific to other types of habitats.

Table 2. Sensitive Animal Species Potentially Present at the Proposed Project Site

Species	Common Name	Fed/State List	Preferred Habitat/Potential Occurrence
Bombus caliginosus	Obscure bumblebee	None	Widespread/Unlikely, very little varied flower nectar source
Bombus occidentalis	Western bumblebee	None	Widespread/Unlikely, very little varied flower nectar source
Noyo intersessa	Ten Mile shoulderband	None	Coastal scrub/Unlikely, extremely poor and limited habitat
Rana aurora	Northern red-legged frog	None	Ponds, coastal scrub/ Unlikely, extremely poor and limited habitat
Pandion haliaetus	Osprey	None	Nests in large tree or snags/No habitat, seen foraging at nearby Noyo River mouth
Progne subis	Purple Martin	None	Tree and artificial hollows near open water/No habitat, seen in vicinity of nearby Lt. Charles L. Larson Bridge

6.0 RESULTS

The biological survey encompassed the Site, focusing on the entire 2.5-acre parcel area and immediate adjacent properties (see Appendix A, Figures 1 and 2). The biological survey detected no sensitive plant species and no sensitive animal species at the Site. Significant portions of the Site have been intensely managed for agriculture or grazing for many years, as there are very little remaining native plants species. There is little evidence of previous site development, save the earthen berm constructed at the southeast corner of the property. The coastal prairie habitat is comprised almost entirely of non-native European grasses and forbs. At the time of the biological survey, native coastal prairie species such as yarrow, California figwort, Hernderson's angelica, river-bar lupine, pearly everlasting, and red elderberry were relegated to single individuals. Even the tree species found on-site that are native (Bishop pine, shore pine, Douglas-fir) are scattered individuals and do not establish any type of forest community or habitat. The constructed earthen berm is the only plant habitat dominated by native species, albeit likely native invasives (coyote brush, California blackberry, bracken fern). A species list of those plants found during the survey of the Site is provided in Appendix C.

Bird species observed at the Site comprise primarily common occurring species expected in upland habitats near and around Fort Bragg. Year-round resident and summer resident bird species observed were Western Gull (*Larus occidentalis*), Great Blue Heron (*Ardea herodias*), Common Raven (*Corvus corax*), Anna's Hummingbird (*Calypte anna*), Turkey Vulture (*Cathartes aura*), Brown-headed Cowbird (*Molothrus ater*), American Robin (*Turdus migratorius*), Band-tailed Pigeon (*Patagioenas fasciata*), Eurasian Collared-Dove, (*Streptopelia decaocto*), Violet-green Swallow (*Tachycineta thalassina*), Barn Swallow (*Hirundo rustica*), Brewer's Blackbird (*Euphagus cyanocephalus*), Black Phoebe (*Sayornis nigricans*), Lesser Goldfinch (*Spinus psaltria*), American Goldfinch (*Carduelis tristis*), Chestnut-backed Chickadee (*Poecile rufescens*), Common Yellowthroat (*Geothlypis trichas*), Orange-crowned Warbler (*Oreothlypis celata*), Cedar Waxwing (*Bombycilla cedrorum*), Song Sparrow (*Melospiza melodia*), House Sparrow (*Passer domesticus*), Eurasian Starling (*Sturnus vulgaris*), House Finch (*Haemorhous mexicanus*), Purple Finch (*Haemorhous purpureus*), and White-crowned Sparrow (*Zonotrichia leucophrys*).

7.0 CONCLUSIONS

No evidence of existing on-site sensitive species were present, nor were sensitive habitats (wetlands, pygmy forest, coastal bluffs). There are no biological conditions for any sensitive plants, animals, or habitats.

However, suitable mature vegetation occurs that may provide nesting habitat for native birds; therefore, it is recommended that any site clearing occurs before or after the assumed breeding season (March 1-September 1). Should any clearing require action during the breeding season this action shall require a biologist to survey for active nests and shall only be approved and allowed to occur once the active nests have been completed or abandoned.

8.0 REFERENCES

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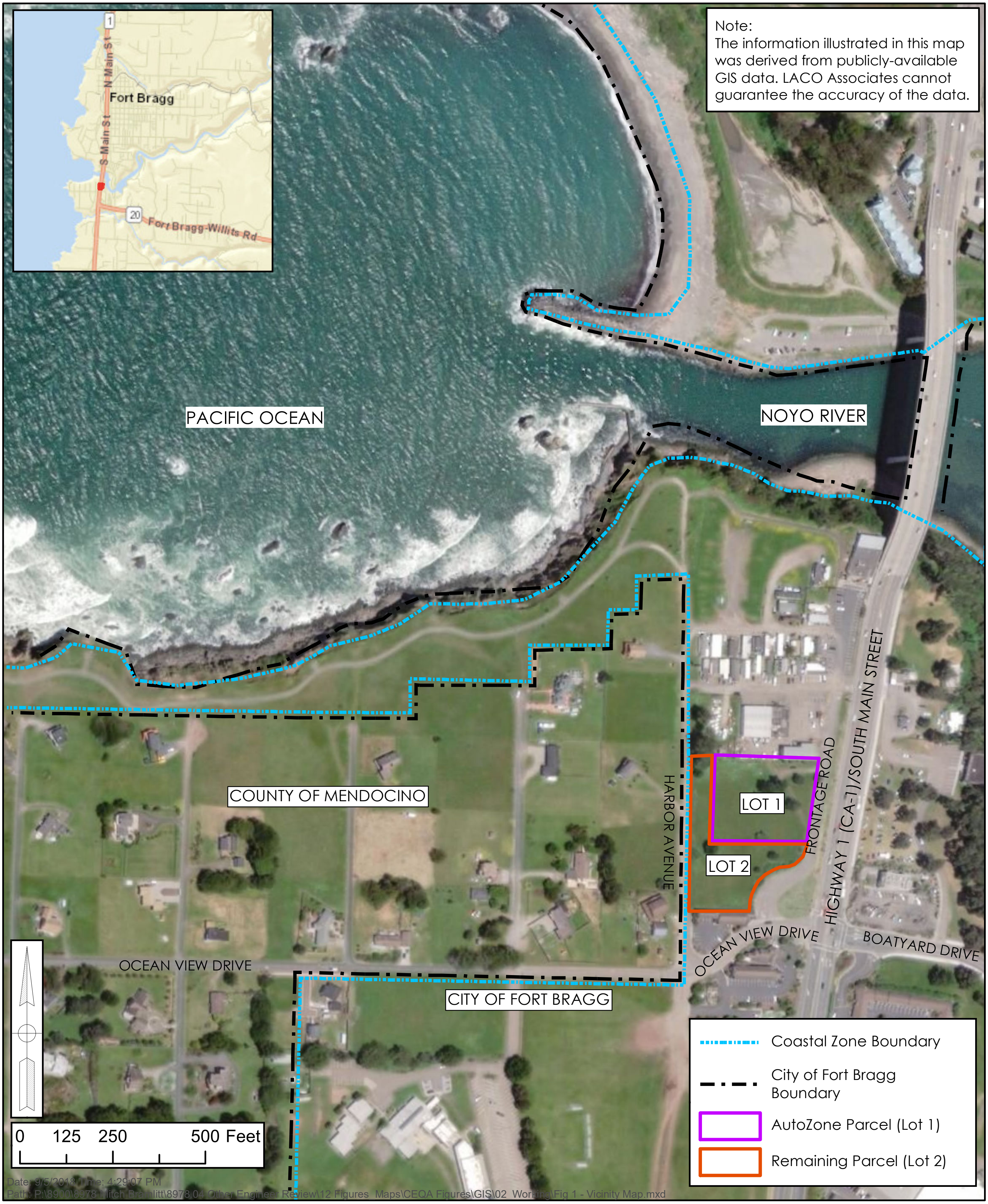
APPENDIX A

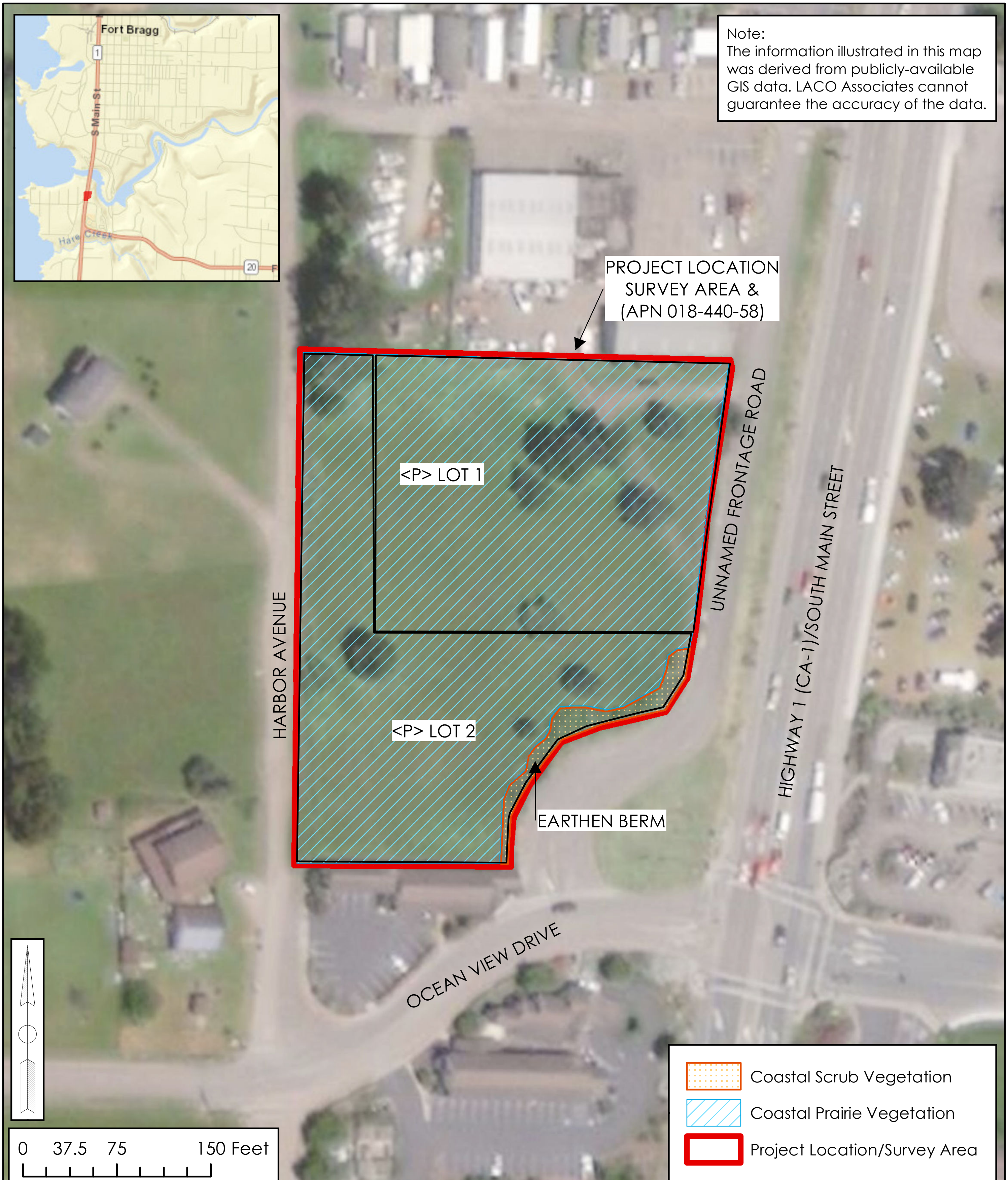
Figure 1: Vicinity Map

Figure 2: Biological Survey Area

LACO EUREKA • UKIAH • SANTA ROSA 1-800-515-5054 www.lacoassociates.com	PROJECT AUTOZONE MINOR SUBDIVISION	BY CMB	FIGURE 1
	CLIENT MITCH BRAMLITT	CHECK MMM	
	LOCATION 1151 S MAIN STREET, FORT BRAGG, CA 95437	DATE 09/04/2018	JOB NO. 8978.04
	VICINITY MAP		



LACO EUREKA • UKIAH • SANTA ROSA 1-800-515-5054 www.lacoassociates.com	PROJECT AUTOZONE MINOR SUBDIVISION	BY CMB	FIGURE 2
	CLIENT MITCH BRAMLITT	CHECK GSL/MMM	
	LOCATION 1151 S MAIN STREET, FORT BRAGG, CA 95437	DATE 9/04/2018	JOB NO. 8978.04
	BIOLOGICAL SURVEY AREA		



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Path: P:\8900\8978 Mitch Bramlitt\8978.04 Other Engineer Review\12 Figures_Maps\CEQA Figures\GIS\02_Working\Fig 2 - Biological Report.mxd

APPENDIX B

Site Photos

Photo 1 – Coastal Prairie habitat, note non-native dominant vegetation, widely scattered conifer tree cover

Photo 2 – Coastal prairie habitat

Photo 3 – Coastal scrub habitat at southeast corner

Photo 4 – All habitats in single view (grassland, scrub, and scattered conifers)

APPENDIX C

List of Plant Species Encountered

List of Plant Species Encountered

Species	Common Name	Fed/State List	Native / Non-Native
Achillea millefolium	yarrow	none	Native
Agrostis gigantea	redtop	none	Non-Native
Aira caryophyllea	silver hair grass	none	Non-Native
Aira praecox	early hair grass	none	Non-Native
Anagallis arvensis	scarlet pimpernel	none	Non-Native
Anaphalis margaritacea	pearly everlasting	none	Native
Angelica hendersonii	Henderson's angelica	none	Native
Anthoxanthum oderatum	sweet vernal grass	none	Non-Native
Arctotheca prostrata	creeping capeweed	none	Non-Native
Avena barbata	slender oat grass	none	Non-Native
Baccharus pilularis	coyote brush	none	Native
Brassica niger	black mustard	none	Non-Native
Brassica rapa	field mustard	none	Non-Native
Briza major	large quaking grass	none	Non-Native
Briza minor	small quaking grass	none	Non-Native
Bromus catharticus	rescue grass	none	Non-Native
Bromus diandrus	ripgut grass	none	Non-Native
Bromus hordeaceus	soft chess	none	Non-Native
Carduus pycnocephalus	Italian thistle	none	Native
Centaurium tenuiforum	slender centaury	none	Non-Native
Cerastium glomeratum	common chickweed	none	Non-Native
Cirsium vulgare	bull thistle	none	Non-Native
Cortaderia jubata	pampus grass	none	Non-Native
Cotoneaster pannosus	silverleaf cotoneaster	none	Non-Native
Cynosurus enchinatus	annual dogtail	none	Non-Native
Cytisus scoparium	Scotch broom	none	Non-Native
Dactylis glomerata	orchard grass	none	Non-Native
Daucus carota	Queen Anne's lace	none	Non-Native
Daucus pusillus	American wild carrot	none	Native
Erigeron canadensis	horseweed	none	Native
Erodium botyrs	longbeak stork's-bill	none	Non-Native
Erodium cicutarium	redstem stork's-bill	none	Non-Native
Eschscholzia californica	California poppy	none	Native
Festuca bromoides	brome fescue	none	Non-native
Festuca myuros	rattail sixweeks grass	none	Non-Native
Festuca perennis	perennial ryegrass	none	Native
Fragaria chiloensis	beach strawberry	none	Native
Galium aparine	goose grass	none	Native
Geranium dissectum	cut-leaf geranium	none	Non-Native
Geranium molle	woodland geranium	none	Non-Native
Grindelia stricta	gumplant	none	Native
Hedera helix	English ivy	none	Non-Native
Helminthotheca echinoides	bristly ox-tongue	none	Non-Native
Holcus lanatus	velvet grass	none	Non-Native
Hordeum murinum	wall barley	none	Non-Native
Hypericum perforatum	Klamath weed	none	Non-Native
Hypochaeris glabra	annual cat's ear	none	Non-Native

List of Plant Species Encountered

Species	Common Name	Fed/State List	Native / Non-Native
Hypochaeris radicata	perennial cat's ear	none	Non-Native
Iris douglasiana	Douglas iris	none	Native
Lathyrus latifolium	perennial sweet pea	none	Non-Native
Linum bienne	pale flax	none	Non-Native
Lonicera hispidula	honeysuckle	none	Native
Lotus corniculatus	bird's-foot trefoil	none	Non-Native
Lupinus rivularis	river bar lupine	none	Native
Madia sativa	coast tarweed	none	Native
Marah oregana	coast manroot	none	Native
Medicago arabica	spotted burclover	none	Non-Native
Pinus contorta	shore pine	none	Native
Pinus muricata	Bishop pine	none	Native
Pinus radiata	Monterey pine	none	Non-Native
Plantago coronopus	beach plantain	none	Non-Native
Plantago lanceolata	English plantain	none	Non-Native
Plantago major	common plantain	none	Non-Native
Poa annua	annual bluegrass	none	Non-Native
Poa pratensis	Kentucky bluegrass	none	Non-Native
Polygonum aviculare	knotweed	none	Non-Native
Prunella vulgaris	self-heal	none	Non-Native
Pseudotsuga menziesii	Douglas-fir	none	Native
Pteridium aquilinum	bracken fern	none	Native
Ranunculus repens	creeping buttercup	none	Non-Native
Raphanus sativus	wild radish	none	Non-Native
Rosa rubiginosa	sweet-brier	none	Non-Native
Rubus armenicus	Himalaya blackberry	none	Non-Native
Rubus ursinus	California blackberry	none	Native
Rumex acetocella	sheep sorrel	none	Non-Native
Rumex crispus	curly dock	none	Non-Native
Sambucus racemosa	red elderberry	none	Native
Scrophularia californica	figwort	none	Native
Senecio jacobaea	stinking willie	none	Non-Native
Solidago canadensis	Canadian goldenrod	none	Native
Sonchus oleraceus	sow thistle	none	Non-Native
Trifolium dubium	shamrock clover	none	Non-Native
Trifolium repens	white clover	none	Non-Native
Trifolium subterraneum	subterranean clover	none	Non-Native
Tropaeolum majus	nasturium	none	Non-Native
Vicia sativa	garden vetch	none	Non-Native
Vicia villosa	winter vetch	none	Non-Native

GEOTECHNICAL • ENVIRONMENTAL • GEOLOGY • MATERIALS TESTING & INSPECTION • FORENSIC • LABORATORY

SALEM engineering group, inc.

GEOTECHNICAL ENGINEERING INVESTIGATION

PROPOSED AUTOZONE RETAIL STORE
1151 SOUTH MAIN STREET (CA-1)
FORT BRAGG, CALIFORNIA

SALEM PROJECT NO. 5-218-0107
MARCH 6, 2018

PREPARED FOR:

AUTOZONE, INC.
123 S. FRONT STREET
MEMPHIS, TN 38103

ATTN: MS. KATHY RAMBO

PREPARED BY:

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March 6, 2018

Project No. 5-218-0107

Ms. Kathy Rambo
Autozone, Inc.
123 S. Front Street
Memphis, TN 38103

(901) 495-8170 Phone
kathy.rambor@autozone.com Email

Subject: GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED AUTOZONE STORE #6713
1151 SOUTH MAIN STREET (CA-1)
FORT BRAGG, CALIFORNIA

Dear Ms. Rambo

At your request and authorization, SALEM Engineering Group, Inc. (SALEM) has prepared this Geotechnical Engineering Investigation report for the Proposed Autozone Retail Store #6713 to be located at 1151 South Main Street (CA-1), near the southwest corner of South Main Street and Ocean View Drive, in Fort Bragg, Mendocino County, California. It is our understanding the site development will include construction of an Autozone Retail Store with asphalt concrete paved drives and parking and associated site improvements.

The accompanying report presents our findings, conclusions, and recommendations regarding the geotechnical aspects of designing and constructing the project as presently proposed. In our opinion, the proposed project is feasible from a geotechnical viewpoint provided our recommendations are incorporated into the design and construction of the project.

We appreciate the opportunity to assist you with this project. Should you have questions regarding this report or need additional information, please contact the undersigned at (559) 271-9700.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Shaun Reich, EIT
Geotechnical Project Engineer
Central / Northern California

Dean B. Ledgerwood II, CEG
Northern California Geotechnical Manager
CEG 2613

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Fresno, CA 93722
Phone (559) 271-9700
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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED AUTOZONE STORE #6713
1151 SOUTH MAIN STREET (CA-1)
FORT BRAGG, CALIFORNIA

1. PURPOSE AND SCOPE

This report presents the results of our Geotechnical Engineering Investigation for the site of a proposed Autozone Retail Store to be located at 1151 South Main Street (CA-1), near the southwest corner of South Main Street and Ocean View Drive, in Fort Bragg, Mendocino County, California (see Figure 1, Vicinity Map).

The purpose of our geotechnical engineering investigation was to observe and sample the subsurface conditions encountered at the site, and provide conclusions and recommendations relative to the geotechnical aspects of constructing the project as presently proposed.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions.

If project details vary significantly from those described herein, SALEM Engineering Group, Inc. (SALEM) should be contacted to determine the necessity for review and possible revision of this report.

2. PROJECT DESCRIPTION

We understand that the project will consist of construction of an AutoZone with a plan view area of about 7,000 square feet and associated site improvements. Site improvements will include underground utility installation, concrete curbs, gutters and flatwork, and asphalt and concrete pavements.

Based on review of the Autozone Guidelines and Specification, a minimum soil bearing pressure of 2,000 pounds per square foot is required for design. Furthermore, the Autozone Guidelines provide maximum floor slab loading of 100 pounds per square foot, maximum wall loads of 3 kips per linear foot, maximum interior column loads of 37-75 kips, and maximum exterior column loads of 20-50 kips. Maximum allowable total and differential settlements are reported to be 1-inch and ½-inch, respectively.

A site grading plan was not available at the time of preparation of this report. Based on site grades at the time of our field exploration, it is anticipated that cuts and fills during earthwork will be minimal and limited to providing a level area for the project area. In the event that changes occur in the nature or design of the project, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and the conclusions of our report are modified.

The information presented in this section was used in our evaluation for the planned development. Estimated loads and corresponding foundation sizes have a direct effect on the recommendations, including the type of foundation, the allowable bearing pressure, and settlement due to foundation loads. In addition, estimated finish subgrade elevations and assumed cut/fill grading quantities can have a direct effect on the provided recommendations. If any of the noted/assumed information is incorrect or has changed, please inform SALEM so that we may amend the recommendations presented in this report, if necessary.

The site configuration and locations of proposed improvements are shown on the Site Plan, Figure 2.

3. SITE LOCATION AND DESCRIPTION

Based on review of available historical aerial images, the site appears to have been vacant since at least 1998. At the time of this investigation, the immediate area of the proposed Autozone Retail Store was covered with native grasses and mature trees.

The project site is located at 1151 South Main Street (CA-1), approximately 200 feet south of the southwest corner of South Main Street and Ocean View Drive, in Fort Bragg, Mendocino County, California. The site comprises an approximate 2.6-acres (Mendocino County Assessor’s Parcel Number [APN] 018-440-58-00). The project site is located in an area surrounded by established commercial developments to the north and south, rural single family residences to the west, and a frontage street to the east with Main Street (CA-1) further east.

The site was observed to be relatively level and at a relative elevation of less than 1 foot above the adjacent roadway elevation of the frontage road. The site has an elevation of approximately 107 feet above mean sea level (AMSL) based on Google Earth Imagery.

4. FIELD EXPLORATION

Our field exploration consisted of site surface reconnaissance and subsurface exploration. The exploratory test borings (B-1 through B-10) were drilled on February 13, 2018 within or near the proposed building area at the approximate locations shown on Figure No. 2, Site Plan. The test borings were advanced using 4 inch solid flight auger rotated by a truck-mounted CME-55 drill rig. The test borings were extended to a maximum depth of 20.5 feet below the existing site grades.

The materials encountered in the test borings were visually classified in the field, and logs were recorded by a field engineer and stratification lines were approximated on the basis of observations made at the time of drilling. Visual classification of the materials encountered in the test borings were generally made in accordance with the Unified Soil Classification System (ASTM D2487). A soil classification chart and key to sampling is presented on the Unified Soil Classification Chart, in Appendix A. The test boring logs are presented in Appendix A. The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol. The location of the test borings were determined by measuring from features shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix A should be consulted.

A soil classification chart and key to sampling is presented on the Unified Soil Classification Chart, in Appendix "A." The logs of the test borings are presented in Appendix "A." Subsurface soil samples were obtained by driving a Modified California sampler (MCS) or a Standard Penetration Test (SPT) sampler.

Penetration resistance blow counts were obtained by dropping a 140-pound automated trip hammer through a 30-inch free fall to drive the sampler to a maximum penetration of 18 inches. The number of blows required to drive the last 12 inches, or less if very dense or hard, is recorded as Penetration Resistance (blows/foot) on the logs of borings.

The scope of our services did not include a groundwater study. Neither did services include an Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere.

Any statements, or absence of statements, in this report or on any boring logs regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment. The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices. The work conducted through the course of this investigation, including the preparation of this report, has been performed in accordance with the generally accepted standards of geotechnical engineering practice, which existed in the geographic area at the time the report was written. No other warranty, express or implied, is made.

Soil samples were obtained from the test borings at the depths shown on the logs of borings. The MCS samples were recovered and capped at both ends to preserve the samples at their natural moisture content; SPT samples were recovered and placed in a sealed bag to preserve their natural moisture content. The borings were backfilled per county requirements after completion of the drilling.

5. LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, shear strength, gradation, plasticity index, and optimum moisture-maximum density determination. In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and the results of laboratory test are summarized in Appendix "B." This information, along with the field observations, was used to prepare the final boring logs in Appendix "A."

6. SOIL AND GROUNDWATER CONDITIONS

6.1 Subsurface Conditions

Based on review of USGS Map, Ukiah Sheet, prepared by Jennings dated 1969, the area of the site is mapped within an Undivided Cretaceous Marine Sedimentary Rocks, described as Sandstone, Shale, and Conglomerate. The subsurface conditions encountered appear typical of those found in the geologic region of the site.

The soils encountered in the test borings drilled as part of this investigation generally consisted of silty and clayey sands with gravel underlain by interbedded layers of sandy silty clay, sand with silt, silty sands, and sandy silts to the maximum depth explored of 20.5 feet bgs. The upper 5 feet were noted to be loose to medium dense. Below 5 feet the soils were generally described as dense to very dense, however one boring (B-6) encountered loose soils at 15 feet bgs. The materials encountered below depths of about 5 feet bgs were generally consistent with the sedimentary rock mapped in the region.

Although not encountered in the test borings drilled, undocumented fill soils may be present throughout the site. This report includes recommendations to over-excavate undocumented fills and place back as compacted engineered fill.

Laboratory consolidation potential testing of near surface soil samples when wetted under a load of 2 kips per square foot resulted in less than 1 percent collapse. Under a load of about 8 kips per square foot, the soils tested exhibited about 6 to 7 percent consolidation. Based on these results the soils tested have slight collapse potential and low to moderate compressibility characteristics. Laboratory Atterberg limits testing of near surface soil samples resulted in a plasticity index of 5 and expansion index testing resulted in an expansion index of 15.

A representative of SALEM should be present on-site during grading to verify the extent of the undocumented fill. Laboratory test results indicated collapse potential and moderate compressibility and included varying density soils with varying moisture contents.

Soil conditions described in the previous paragraphs are generalized. Therefore, the reader should consult exploratory boring logs included in Appendix A for soil type, color, moisture, consistency, and USCS classification of the materials encountered at specific locations and elevations.

6.2 Groundwater

The test borings locations were checked for the presence of groundwater during and after the drilling operations. Free groundwater was not encountered within the borings excavated for this investigation. However, test borings B-2 and B-5 encountered perched groundwater at depths of about 11 feet below ground surface.

Available records from Geotracker website resources indicate a groundwater monitoring well located approximately ¼ mile east of the project site indicate a groundwater depth of 8.5 feet above mean sea level (about 99 feet bgs) in 2011. The site has an elevation of approximately 107 feet above mean sea level (AMSL) based on Google Earth Imagery.

It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, localized pumping, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

6.3 Soil Corrosion Screening

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete and the soil. The 2011 Edition of ACI 318 (ACI 318) has established criteria for evaluation of sulfate and chloride levels and how they relate to cement reactivity with soil and/or water. A soil sample was obtained from the project site and was tested for the evaluation of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts and soluble chloride. The water-soluble sulfate concentration in the saturation extract from the soil sample was detected to be 100 mg/kg.

ACI 318 Tables 4.2.1 and 4.3.1 outline exposure categories, classes, and concrete requirements by exposure class. ACI 318 requirements for site concrete based upon soluble sulfate are summarized in Table 6.3 below.

TABLE 6.3
WATER SOLUBLE SULFATE EXPOSURE REQUIREMENTS

Dissolved Sulfate (SO_4) in Soil percent by Weight	Exposure Severity	Exposure Class	Maximum w/cm Ratio	Minimum Concrete Compressive Strength	Cementitious Materials Type
0.01	Not Applicable	S0	N/A	2,500 psi	No Restriction

The water-soluble chloride concentration detected in saturation extract from the soil samples was 37 mg/kg. This level of chloride concentration is considered slightly corrosive.

It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, applicable manufacturer's recommendations for corrosion protection of buried metal pipe be closely followed. Additional corrosion testing for minimum resistivity may need to be performed if required by the pipe manufacturer.

7. GEOLOGIC SETTING

The site is located within the Coast Ranges Geomorphic Province. The province includes many separate mountain ranges and several major structural valleys. A peculiar distinction to this province is the presence of two entirely different core complexes: one being a disordered Jurassic-Cretaceous (205 to 60 million years before present) sequence of volcanic, metamorphic, and deep marine clastic sedimentary rocks, commonly known as the Franciscan Assemblage; and the other consisting of Early Cretaceous (138 to 96 million years before present) granitic intrusives and older metamorphic rocks. The two unrelated core complexes lie side by side separated by faults.

A thick blanket of Late Cretaceous and Cenozoic (less than 100 million years old) clastic sedimentary rocks covers large portions of the province. Folds, thrust faults, steep reverse faults, and strike-slip faults developed as a consequence of Cenozoic deformation. Some deformation is continuing today. More specifically, the site is located within a region of pre-volcanic rocks. The site vicinity is generally underlain by alluvial deposits. The sources of the alluvium are primarily marine sedimentary and metasedimentary formations. This alluvium is highly discontinuous and is composed of sands, silts, clays, and gravels in various combinations.

8. GEOLOGIC HAZARDS

8.1 Faulting and Seismicity

Based on the proximity of several dominant active faults and seismogenic structures, as well as the historic seismic record, the area of the subject site is considered subject to relatively high seismicity. The seismic hazard most likely to impact the site is ground-shaking due to a large earthquake on one of the major active regional faults. Numerous moderate to large earthquakes have affected the area of the subject site within historic time. The nearest fault to the project site is associated with the North San Andreas Fault system located approximately 6.5 mile from the site. There are no known active fault traces in the immediate project vicinity.

The project area is not within an Alquist-Priolo Special Studies Zone and will not require a special site investigation by an Engineering Geologist. Soils on site are classified as Site Class D in accordance with Chapter 16 of the California Building Code. The proposed structures are determined to be in Seismic Design Category D.

To determine the distance of known active faults within 100 miles of the site, we used the United States Geological Survey (USGS) web-based application *2008 National Seismic Hazard Maps - Fault Parameters*. Site latitude is 39.4247° North; site longitude is 123.8079° West. The ten closest active faults are summarized below in Table 8.1.

TABLE 8.1
REGIONAL FAULT SUMMARY

Fault Name	Distance to Site (miles)	Maximum Earthquake Magnitude, M_w
N. San Andreas; SAO	6.5	7.4
N. San Andreas; SAN+SAP	17.6	7.7
Maacama-Garberville	21.7	7.4
Bartlett Springs	38.6	7.3
Collayomi	58.8	6.7
Little Salmon Connected	77.2	6.5
Hunting Creek-Berryessa	77.7	7.1
Hayward-Rodgers Creek; RC+HN+HS	80.3	7.3
Great Valley 1	81.2	6.8
Great Valley 2	82.3	6.5

The faults tabulated above and numerous other faults in the region are sources of potential ground motion. However, earthquakes that might occur on other faults throughout California are also potential generators of significant ground motion and could subject the site to intense ground shaking.

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8.2 Surface Fault Rupture

The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

8.3 Ground Shaking

Based on the 2016 CBC, a site Class D was selected for the site based on soil conditions with average standard penetration resistance. N-values, between 15 and 50 blows per foot. Table 9.2.1 includes design seismic coefficients and spectral response parameters, based on the 2016 California Building Code (CBC) for the project foundation design.

Based on USGS web-based application US Seismic Design Maps, the estimated Maximum Considered Earthquake (MCE) peak ground acceleration adjusted for site class effects (PGA_M) was determined to be 0.577g (based on both probabilistic and deterministic seismic ground motion).

While listing PGA is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site.

8.4 Liquefaction

The site is not located within a State of California Seismic Hazard Zone for liquefaction. Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile. However, liquefaction has occurred in soils other than clean sand.

The soils encountered in the test borings drilled as part of this investigation generally consisted of silty and clayey sands with gravel underlain by interbedded layers of sandy silty clay, sand with silt, silty sands, and sandy silts to the maximum depth explored of 20.5 feet bgs. The upper 5 feet were noted to be loose to medium dense. Below 5 feet, the soils were generally described as dense to very dense, however one boring (B-6) encountered loose soils at 15 feet bgs. Based on review of USGS Map, Ukiah Sheet, prepared by Jennings dated 1969, the area of the site is mapped as Mesozoic Age Undivided Cretaceous Marine Sedimentary Rocks, described as Sandstone, Shale, and Conglomerate. The subsurface conditions encountered appear typical of those found in the geologic region of the site. Free groundwater was not encountered within the exploration borings conducted for this investigation, however, perched water was noted at depths of about 11 feet bgs in two of the borings drilled..

Based on the Mesozoic Age sedimentary rock encountered, lack of permanent groundwater, and relative density of the materials encountered, the potential for liquefaction and/or seismic settlement is considered low.

8.5 Lateral Spreading

Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Due to the site topography and relative density of the near surface materials encountered we judge the likelihood of lateral spreading to be low.

8.6 Landslides

There are no known landslides located at the site, nor is the site in the path of any known or potential landslides. We do not consider the potential for a landslide to be a hazard to this project.

8.7 Tsunamis and Seiches

The site is located within a coastal area. However, due to the project site elevation (±107 MSL), tsunamis (seismic sea waves) are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 General Conclusions

9.1.1 Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the site is suitable for the proposed construction of improvements at the site as planned, provided the recommendations contained in this report are incorporated into the project design and construction. Conclusions and recommendations provided in this report are based on our review of available literature, analysis of data obtained from our field exploration and laboratory testing program, and our understanding of the proposed development at this time, as outlined in the project description section.

9.1.2 The primary geotechnical constraints identified in our investigation is the presence of moderate compressible soils, and potential for undocumented fill to be encountered throughout the site. If undocumented fill is encountered, these soils should be excavated to verify the extent, and placed as compacted engineered fill. A representative of SALEM should be present on-site during grading to verify the extent of the undocumented fill.

9.1.3 The soils encountered in the test borings drilled as part of this investigation generally consisted of near surface silty and clayey sands with gravel underlain by interbedded layers of sandy silty clay, sand with silt, silty sands, and sandy silts to the maximum depth explored of 20.5 feet bgs. The upper 5 feet were noted to be loose to medium dense. Below 5 feet, the soils were generally described as dense to very dense, however one boring (B-6) encountered loose soils at 15 feet bgs. Although not encountered in the test borings drilled, there is potential for undocumented fills to be encountered throughout the site during grading. This report includes recommendations for excavation of undocumented fills, moisture conditioning as needed, and placed as compacted engineered fill soils.

9.1.4 Based on review of USGS Map, Ukiah Sheet, prepared by Jennings dated 1969, the area of the site is mapped within an Undivided Cretaceous Marine Sedimentary Rocks, described as Sandstone, Shale, and Conglomerate. The subsurface conditions encountered appear typical of those found in the geologic region of the site.

9.1.5 The near surface soils were identified to have slight collapse potential, moderate compressibility characteristics, and very low expansion potential.

9.1.6 When compacted as engineered fill, the near surface soils have good to excellent pavement support characteristics.

9.1.7 Of primary importance in the development of this site is the removal loose near surface soils below areas of proposed new foundations. To minimize post-construction soil movement, this report recommends foundations be supported entirely on a uniform layer of engineered fill (see Section 9.5).

9.1.8 Provided the site is graded in accordance with the recommendations of this report and foundations constructed as described herein, we estimate that total settlement due to static loads utilizing conventional shallow foundations for the proposed building will about 1 inch and corresponding differential settlement will be about ½-inch in 40 feet.

9.1.9 Based on the Mesozoic Age sedimentary rock encountered, lack of permanent groundwater, and relative density of the materials encountered, the potential for liquefaction and/or seismic settlement is considered low.

9.1.10 All references to relative compaction and optimum moisture content in this report are based on ASTM D 1557 (latest edition).

9.1.11 We should be retained to review the project plans as they develop further, provide engineering consultation as-needed, and perform geotechnical observation and testing services during construction.

9.1.12 Our firm should be consulted at the time of demolition activities if soil conditions not consistent with those identified as part of this investigation are encountered so that we can provide additional recommendations as needed.

9.2 Seismic Design Criteria

9.2.1 For seismic design of the structures, and in accordance with the seismic provisions of the 2016 CBC, our recommended parameters are shown below. These parameters were determined using USGS web-based application US Seismic Design Maps (https://earthquake.usgs.gov/designmaps/us/application.php), in accordance with the 2016 CBC. The Site Class was determined based on the soils encountered during our field exploration.

TABLE 9.2.1
2016 CBC SEISMIC DESIGN PARAMETERS

Seismic Item	Symbol	Value	2010 ASCE 7 or 2016 CBC Reference
Site Coordinates (Datum = NAD 83)		39.4247 Lat -123.8079 Lon	
Site Class	--	D	ASCE 7 Table 20.3
Soil Profile Name	--	Stiff Soil	ASCE 7 Table 20.3
Risk Category	--	II	CBC Table 1604.5
Site Coefficient for PGA	F_{PGA}	1.000	ASCE 7 Table 11.8-1
Peak Ground Acceleration (adjusted for Site Class effects)	PGA_M	0.577	ASCE 7 Equation 11.8-1
Seismic Design Category	SDC	D	ASCE 7 Table 11.6-1 & 2
Mapped Spectral Acceleration (Short period - 0.2 sec)	S_S	1.500 g	CBC Figure 1613.3.1(1-8)
Mapped Spectral Acceleration (1.0 sec. period)	S_1	0.652 g	CBC Figure 1613.3.1(1-8)
Site Class Modified Site Coefficient	F_a	1.000	CBC Table 1613.3.3(1)
Site Class Modified Site Coefficient	F_v	1.500	CBC Table 1613.3.3(2)
MCE Spectral Response Acceleration (Short period - 0.2 sec) $S_{MS} = F_a\ S_S$	S_{MS}	1.500 g	CBC Equation 16-37
MCE Spectral Response Acceleration (1.0 sec. period) $S_{M1} = F_v\ S_1$	S_{M1}	0.977 g	CBC Equation 16-38
Design Spectral Response Acceleration $S_{DS}=⅔S_{MS}$ (short period - 0.2 sec)	S_{DS}	1.000 g	CBC Equation 16-39
Design Spectral Response Acceleration $S_{D1}=⅔S_{M1}$ (1.0 sec. period)	S_{D1}	0.652 g	CBC Equation 16-40

9.2.2 Conformance to the criteria in the above table for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

9.3 Soil and Excavation Characteristics

9.3.1 Based on the soil conditions encountered in our soil borings, the onsite soils can be excavated with moderate effort using conventional excavation equipment.

9.3.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations to maintain safety and maintain the stability of adjacent existing improvements. Temporary excavations are further discussed in a later Section of this report.

9.3.3 Undocumented fill material may be encountered within the site. This report includes recommendations that all undocumented fill material be removed and/or compacted as engineered fill. Prior to fill placement, a representative of Salem Engineering Group, Inc. should inspect the bottom of the excavation to verify whether additional excavation will be required. Limits of removal and compaction should extend 5 feet beyond structural elements. Fill material should be worked until uniform and free from large clods, moisture-conditioned to above optimum moisture, and compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

9.3.4 The near surface soils identified as part of our investigation are, generally, damp to moist due to the absorption characteristics of the soil. Earthwork operations may encounter very moist unstable soils which may require removal to a stable bottom. Exposed native soils exposed as part of site grading operations should not be allowed to dry out and should be kept continuously moist prior to placement of subsequent fill.

9.4 Materials for Engineered Fill

9.4.1 On-site soils are generally suitable for use as Engineered Fill below the recommended aggregate base sections below slabs on grade and directly below foundations, provided they do not contain deleterious matter, organic material, or rock material larger than 3 inches in maximum dimension.

9.4.2 Imported non-expansive fill soil, should be well-graded, granular soil, with sufficient fines content and relatively impervious characteristics when compacted. This material should be approved by the Engineer prior to use and should typically possess the soil characteristics summarized below in Table 9.4.2.

TABLE 9.4.2
IMPORTED NON-EXPANSIVE IMPORT FILL REQUIREMENTS

Percent Passing 3-inch Sieve	100
Percent Passing No.4 Sieve	75-100
Percent Passing No 200 Sieve	15-40
Maximum Plasticity Index	15
Maximum Expansion Index (ASTM D4829)	20

Prior to importing the Contractor should demonstrate to the Owner that the proposed import meets the requirements for import fill specified in this report. In addition, the material should be verified by the Contractor that the soils do not contain any environmental contaminates as regulated by local, state, or federal agencies, as applicable.

9.4.3 The preferred materials specified for Imported Non-Expansive Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since they have complete control of the project site.

9.4.4 Environmental characteristics and corrosion potential of import soil materials should also be considered.

9.4.5 Proposed import materials should be sampled, tested, and approved by SALEM prior to its transportation to the site.

9.4.6 All Engineered Fill (including scarified ground surfaces and backfill) should be placed in lifts no thicker than will allow for adequate bonding and compaction (typically no greater than 6 to 8 inches in loose thickness).

9.4.7 Engineered Fill consisting of on-site soils should be placed, moisture conditioned to slightly above optimum moisture content, and compacted to at least 92 percent relative compaction (ASTM D1557).

9.4.8 Imported non-expansive soils placed as engineered fill should be moisture conditioned to or near optimum moisture content, and compacted to at least 92 percent relative compaction (ASTM D1557)

9.4.9 All engineered fill soils placed at depths greater than 5 feet BSG should be moisture conditioned to above optimum and compacted to a minimum of 95 percent relative compaction (ASTM D1557).

9.4.10 Caltrans Class 2 Aggregate Base shall meet the minimum requirements of Section 26 of the Caltrans Standard Specifications (Current Edition). Prior to importing, the Contractor should provide documentation that the aggregate base meets the requirements for Class 2 aggregate base (i.e. gradation, durability, R-value, sand equivalent, etc.) to the Owner and Salem for review. All aggregate base should be compacted to a minimum of 95 percent relative compaction.

9.4.11 Open graded gravel and rock material (i.e. ¾ inch or ½ inch crushed gravel) should not be used as backfill including utility trenches. If required by local agency or for use in subgrade stabilization, to prevent migration of fines, open graded materials should be fully encapsulated in a geotextile fabric such as Mirafi 140N or equivalent. Open graded rock should be placed in loose lifts no greater than about 6 to 8 inches, and vibrated in-place to a firm non-yielding condition.

9.5 Site Grading

9.5.1 A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Geotechnical Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section as well as other portions of this report.

9.5.2 A pre-construction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance.

9.5.3 Surface vegetation consisting of grass and other similar vegetation, if any, should be removed by stripping to a sufficient depth to remove organic-rich topsoil. At the time of our investigation the site was cleared, however, if vegetation develops the upper 2 to 4 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. The stripped vegetation will not be suitable for use as Engineered Fill. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site

9.5.4 Where not to remain, existing trees should be removed and their root systems should be thoroughly cleared of root balls as well as isolated roots greater than ¼-inch in diameter. The root system removal may disturb a significant quantity of soil. Following tree removal, all loose and disturbed soils should be removed from the tree wells. Any areas or pockets of soft or loose soils, void spaces made by burrowing animals, undocumented fill, or other disturbed soil (i.e. soil disturbed by root removal) that are encountered, should be excavated to expose approved firm native material. Care should be taken during site grading to mitigate (e.g. excavate and compact as engineered fill) all soil disturbed by demolition and tree removal activities.

9.5.5 The site is currently undeveloped. Site demolition activities should include removal of the all subsurface obstructions not intended to be incorporated into final site design. In addition, unknown underground buried structures and/or utility lines encountered during demolition and construction should be properly removed and the resulting excavations backfilled with either on-site soils or Imported Non-Expansive Engineered Fill compacted as recommended in this report. After demolition activities, it is recommended that disturbed soils be removed and replaced with compacted engineered fill.

9.5.6 Site preparation should include removal of any existing surface/subsurface structures, underground utilities (as required), any existing undocumented fill, and debris. Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be backfilled Engineered Fill placed in accordance with the recommendations of this report.

9.5.7 It is recommended that the building pad area be over-excavated to a minimum of 1-foot below the base of the footings, 2 feet below existing site grade, or to the depth required to remove undocumented fill, whichever is deeper. Horizontal limits of over-excavation should extend a minimum of 5 feet beyond the building limits, foundations, or slabs on grade adjacent to the building. The resulting bottom of over-excavation should be scarified to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned to slightly above optimum moisture, and compacted to a minimum of 92 percent of the maximum density (ASTM D1557).

9.5.8 Interior slab on grade areas should be supported on a minimum of 4 inches of Class 2 aggregate base over the depth of engineered fill recommended in this report.

9.5.9 Areas of miscellaneous lightly loaded foundations, such as screen walls, retaining walls, etc., should be over-excavated to a minimum of 1 foot below the bottom of foundations, 2 feet below existing site grade, or to the depth required to remove undocumented fill, whichever is deeper. The resulting bottom of over-excavation should be scarified to a depth of at least 12 inches, worked until uniform and free from large clods, moisture-conditioned to slightly above optimum moisture, and compacted to a minimum of 92 percent of the maximum density (ASTM D1557). Horizontal limits of over-excavation should extend a minimum of 5 feet beyond all sides of the foundations

9.5.10 Areas of proposed exterior slabs on grade, asphaltic concrete pavements, and Portland cement concrete pavements (outside the building pad and overbuild zone), it is recommended that scarification, moisture conditioning and compaction be performed to at least 12 inches below existing grade or finish grade, whichever is deeper. In addition, the upper 12 inches of final pavement subgrade, whether completed at-grade, by excavation, or by filling, should be uniformly moisture-conditioned to slightly percent above optimum moisture content and compacted to at least 92 percent relative compaction (ASTM D1557). Exterior slabs on grade should be supported on a minimum of 4 inches of Class 2 Aggregate Base over subgrade soils prepared in accordance with this report.

9.5.11 Final pavement subgrade should be finished to a smooth, unyielding surface. We recommend proof-rolling the subgrade with a loaded water truck (or similar equipment with high contact pressure) to verify the stability of the subgrade prior to placing aggregate base.

9.5.12 The most effective site preparation alternatives will depend on site conditions prior to grading. We should evaluate site conditions and provide supplemental recommendations immediately prior to grading, if necessary.

9.5.13 We do not anticipate groundwater or seepage to adversely affect construction if conducted during the drier months of the year (typically summer and fall). However, groundwater and soil moisture conditions could be significantly different during the wet season (typically winter and spring) as surface soil becomes wet; perched groundwater conditions may develop. Grading during this time period will likely encounter wet materials resulting in possible excavation and fill placement difficulties. Project site winterization consisting of placement of aggregate base and protecting exposed soils during construction should be performed. If the construction schedule requires grading operations during the wet season, we can provide additional recommendations as conditions warrant.

9.5.14 Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material or placement of crushed rocks or aggregate base material; or mixing the soil with an approved lime or cement product.

The most common remedial measure of stabilizing the bottom of the excavation due to wet soil condition is to reduce the moisture of the soil to or near the optimum moisture content by having the subgrade soils scarified and aerated or mixed with drier soils prior to compacting. However, the drying process may require an extended period of time and delay the construction operation. To expedite the stabilizing process, crushed rock may be utilized for stabilization provided this method is approved by the owner for the cost purpose.

If the use of crushed rock is considered, it is recommended that the upper soft and wet soils be replaced by 6 to 24 inches of ¾-inch to 1-inch crushed rocks. The thickness of the rock layer depends on the severity of the soil instability. The recommended 6 to 24 inches of crushed rock material will provide a stable platform. It is further recommended that lighter compaction equipment be utilized for compacting the crushed rock. A layer of geofabric is recommended to be placed on top of the compacted crushed rock to minimize migration of soil particles into the voids of the crushed rock, resulting in soil movement. Although it is not required, the use of geogrid (e.g. Tensar BX 1100, BX 1200 or TX 160) below the crushed rock will enhance stability and reduce the required thickness of crushed rock necessary for stabilization.

Our firm should be consulted prior to implementing remedial measures to provide appropriate recommendations.

9.5.15 An integral part of satisfactory fill placement is the stability of the placed lift of soil. If placed materials exhibit excessive instability as determined by a SALEM field representative, the lift will be considered unacceptable and should be remedied prior to placement of additional fill material. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

9.6 Shallow Foundations

9.6.1 The site is suitable for use of conventional shallow foundations consisting of continuous strip footings in combination with isolated spread footings bearing on Engineered Fill extending to depths as recommended in Section 9.5.7 of this report.

9.6.2 Per Autozone Guidelines and Specifications, it is recommended that continuous bearing wall footings to be utilized for the building have a minimum width of 24 inches, and a minimum embedment depth of 12 inches below lowest adjacent pad grade. Isolated column footings should have a minimum width of 18 inches, and a minimum embedment depth of 12 inches below lowest adjacent pad grade.

9.6.3 Miscellaneous foundations for lightly loaded structures (i.e. retaining walls, screen walls, etc.) should have a minimum width of 12 inches and depth of 12 inches below lowest adjacent grade.

9.6.4 Shallow spread foundations supported on engineered fill prepared in accordance with the recommendations provided in this report may be designed based on an allowable bearing pressure of 2,000 pounds per square foot. This value may be increased by 1/3 for short term wind and seismic loading.

9.6.5 Total static settlement of 1 inch and differential static settlement is ½ inch in 40 feet should be considered for design.

9.6.6 Footing concrete should be placed into a neat excavation. The footing bottoms should be maintained free of loose and disturbed soil. The footing excavations should not be allowed to dry out any time prior to pouring concrete. Prior to placement of reinforcement and within 24 hours of concrete placement, the bottom of footing excavations should be verified to be within the moisture content specified for engineered fill in this report.

9.6.7 Resistance to lateral footing displacement can be computed using an allowable coefficient of friction factor of 0.40 acting between the base of foundations and the supporting native subgrade or Engineered Fill.

9.6.8 Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 325 pounds per cubic foot. An increase of one-third is permitted when using the alternate load combination in Section 1605.3.2 of the 2016 CBC that includes wind or earthquake loads.

9.6.9 Minimum reinforcement for continuous footings should consist of four No. 4 steel reinforcing bars; two placed near the top of the footing and two near the bottom. Reinforcement for spread footings should be designed by the project structural engineer.

9.6.10 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom edge of the footing.

9.6.11 The foundation subgrade should be sprinkled as necessary to maintain a moist condition without significant shrinkage cracks as would be expected in any concrete placement. Prior to placing rebar reinforcement, foundation excavations should be evaluated by a representative of SALEM for appropriate support characteristics and moisture content. Moisture conditioning may be required for the materials exposed at footing bottom, particularly if foundation excavations are left open for an extended period.

9.7 Concrete Slabs-on-Grade

9.7.1 Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading. We recommend that interior non-structural slabs-on-grade be at least 5 inches thick and underlain by 4 inches of compacted granular aggregate subbase material, i.e., Class 2 aggregate base, compacted to at least 95 percent relative compaction (ASTM D1557), over engineered fills extending to the depths recommended below foundations (see Section 9.5).

9.7.2 Exterior slabs on grade should be supported on a minimum of 4 inches of granular aggregate subbase material, i.e., Class 2 aggregate base, compacted to at least 95 percent relative compaction (ASTM D1557), over the depth of engineered fill recommended in Section 9.5 of this report.

9.7.3 We recommend reinforcing slabs, at a minimum, with No. 3 reinforcing bars placed 18 inches on center, each way.

9.7.4 The spacing of crack control joints should be designed by the project structural engineer. In order to regulate cracking of the slabs, we recommend that full depth construction joints or control joints be provided at a maximum spacing of 15 feet in each direction for 5-inch thick slabs and 12 feet for 4-inch thick slabs.

9.7.5 Crack control joints should extend a minimum depth of one-fourth the slab thickness and should be constructed using saw-cuts or other methods as soon as practical after concrete placement. The exterior floors should be poured separately in order to act independently of the walls and foundation system.

9.7.6 It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the structures is recommended.

9.7.7 Exterior finish grades should be sloped at a minimum of 1 to 1½ percent away from all interior slab areas to preclude ponding of water adjacent to the structures and should be maintained throughout the life of the structure. Ponding of water should not be allowed adjacent to the structure. Over-irrigation within landscaped areas adjacent to the structure should not be performed. In addition, ventilation of the structure is recommended to reduce the accumulation of interior moisture.

9.7.8 Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with manufacturer's recommendations and/or ASTM guidelines, whichever is more stringent.

9.7.9 In areas where it is desired to reduce floor dampness where moisture-sensitive coverings, coatings, underlayments, adhesives, moisture sensitive goods, humidity controlled environments, or climate cooled environments are anticipated, construction should have a suitable waterproof vapor retarder (a minimum of 10 mils thick, however, 15 mils is recommended, polyethylene vapor retarder sheeting, Raven Industries "VaporBlock 15, Stego Industries 15 mil "StegoWrap" or W.R. Meadows Sealtight 15 mil "Perminator") incorporated into the floor slab design. The water vapor retarder should be a decay resistant material complying with ASTM E96 or ASTM E1249 not exceeding 0.01 perms, ASTM E154 and ASTM E1745 Class A. The vapor retarder should, maintain the recommended permeance **after** conditioning tests per ASTM E1745. The vapor barrier should be placed between the concrete slab and the compacted granular aggregate subbase material. The water vapor retarder (vapor barrier) should be installed in accordance with ASTM Specification E 1643-18.

9.7.10 The concrete maybe placed directly on vapor retarder. The vapor retarder should be inspected prior to concrete placement. Cut or punctured retarder should be repaired using vapor retarder material lapped 6 inches beyond damaged areas and taped. Extend vapor retarder over footings and seal to foundation wall or slab at an elevation consistent with the top of the slab or terminate at impediments such as water stops or dowels. Seal around penetrations such as utilities or columns in order to create a monolithic membrane between the surface of the slab and moisture sources below the slab as well as at the slab perimeter.

9.7.11 Avoid use of stakes driven through the vapor retarder.

9.7.12 The recommendations of this report are intended to reduce the potential for cracking of slabs. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

9.7.13 Proper finishing and curing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

9.8 Lateral Earth Pressures and Frictional Resistance

9.8.1 Lateral earth pressures, friction coefficient, and in-place density of soils against footings and walls are summarized in the Table 9.8.1 below.

TABLE 9.8.1
GEOTECHNICAL DESIGN PARAMETERS

Lateral Earth Pressure	Soil Equivalent Fluid Pressure, pcf
Active Pressure, Drained	37
At-Rest Pressure, Drained	57

Lateral Earth Pressure	Soil Equivalent Fluid Pressure, pcf
Allowable Passive Pressure	325
Related Parameters	
Allowable Coefficient of Friction	0.40
Minimum Unit Weight (lbs/ft^3)	100
Maximum Unit Weight (lbs/ft^3)	130

9.8.2 Active pressure applies to walls, which are free to rotate. At-rest pressure applies to walls, which are restrained against rotation. The preceding lateral earth pressures assume sufficient drainage behind retaining walls to prevent the build-up of hydrostatic pressure. The top one-foot of adjacent subgrade should be deleted from the passive pressure computation.

9.8.3 The allowable parameters include a safety factor and can be used in design for direct comparison of resisting loads against lateral driving loads.

9.8.4 If combined passive and frictional resistance is used in design, a 50 percent reduction in frictional resistance is recommended.

9.8.5 For lateral stability against seismic loading conditions, we recommend a minimum safety factor of 1.1.

9.8.6 For dynamic seismic lateral loading the following equation should be used:

Dynamic Seismic Lateral Loading Equation
Dynamic Seismic Lateral Load = $\frac{3}{8}\gamma K_h H^2$
Where: γ = Maximum Unit Weight (Section 9.8.1 above)
K_h = Horizontal Acceleration = $\frac{2}{3}PGA_M$ (Section 9.2.1 above)
H = Wall Height

9.9 Retaining Walls

9.9.1 Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic-concrete or other suitable backfill to minimize surface drainage into the wall drain system. The gravel should conform to Class II permeable materials graded in accordance with the current CalTrans Standard Specifications.

9.9.2 Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

9.9.3 Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements.

9.9.4 The top of the perforated pipe should be placed at or below the bottom of the adjacent floor slab or pavements. The pipe should be placed in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Slots should be no wider than 1/8-inch wide, while perforations should be no more than ¼-inch in diameter.

9.9.5 If retaining walls are less than 6 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 4-inch diameter holes (concrete walls) or unmortared head joints (masonry walls) and placed no higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

9.9.6 During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

9.10 Temporary Excavations

9.10.1 We anticipate that the majority of the site soils will be classified as Cal-OSHA "Type C" soil when encountered in excavations during site development and construction. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved "competent person" onsite during excavation to evaluate trench conditions and make appropriate recommendations where necessary.

9.10.2 It is the contractor's responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements. All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load.

9.10.3 Temporary excavations and slope faces should be protected from rainfall and erosion. Surface runoff should be directed away from excavations and slopes.

9.10.4 Open, unbraced excavations in undisturbed soils should be made according to the slopes presented in Table 9.10.4 below.

TABLE 9.10.4
RECOMMENDED EXCAVATION SLOPES

Depth of Excavation (ft)	Slope (Horizontal : Vertical)
0-5	1:1
5-10	1½:1
10-15	2:1

9.10.5 If, due to space limitation, excavations near existing structures are performed in a vertical position, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavations and installation. A Specialty Shoring Contractor should be responsible for the design and installation of such a shoring system during construction.

9.10.6 Braced shorings should be designed for a maximum pressure distribution of 21H, (where H is the depth of the excavation in feet). The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given herein. Equipment traffic should concurrently be limited to an area at least 3 feet from the shoring face or edge of the slope.

9.10.7 The excavation and shoring recommendations provided herein are based on soil characteristics derived from the borings within the area. Variations in soil conditions will likely be encountered during the excavations. SALEM should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation. Slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulation, (e.g. OSHA) standards for excavations, 29 CFR part 1926, or Assessor's regulations.

9.11 Underground Utilities

9.11.1 Underground utility trenches should be backfilled with properly compacted material. The material excavated from the trenches should be adequate for use as backfill provided it does not contain deleterious matter, vegetation or rock larger than 3 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches and compacted to at least 92 percent relative compaction (ASTM D1557) at or above optimum moisture content. The upper 12 inches of trench backfill within asphalt or concrete paved areas should be moisture conditioned to at or above optimum moisture content and compacted to at least 95 percent relative compaction (ASTM D1557).

9.11.2 The contractor should anticipate that screening of excavated material from trench excavations will be required to produce material suitable for backfill of utilities.

9.11.3 Bedding and pipe zone backfill typically extends from the bottom of the trench excavations to approximately 12 inches above the crown of the pipe. Pipe bedding, haunches and initial fill extending to 1 foot above the pipe should consist of a clean well graded sand with 100 percent passing the #4 sieve, a maximum of 15 percent passing the #200 sieve, and a minimum sand equivalent of 20.

9.11.4 It is suggested that underground utilities crossing beneath new or existing structures be plugged at entry and exit locations to the building or structure to prevent water migration. Trench plugs can consist of on-site clay soils, if available, or sand cement slurry. The trench plugs should extend 2 feet beyond each side of individual perimeter foundations.

9.11.5 The contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

9.12 Surface Drainage

9.12.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Proper drainage should be maintained at all times.

9.12.2 All site drainage should be collected and transferred away from improvements in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, (with the exception of designed bio-swale areas) and especially not against any foundations or retaining walls. Drainage should not be allowed to flow uncontrolled over any descending slope. The proposed structures should be provided with roof gutters. Discharge from downspouts, roof drains and scuppers are not permitted onto unprotected soils within five feet of the building perimeter. Planters which are located adjacent to foundations should be sealed or properly drained to prevent moisture intrusion into the materials providing foundation support. Landscape irrigation within 5 feet of the building perimeter footings should be kept to a minimum to just support vegetative life.

In the event that bio-swale areas are planned for stormwater disposal/temporary storage, these systems should be setback a minimum of 20 feet from proposed buildings.

9.12.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures. The building pad and pavement areas should be fine graded such that water is not allowed to pond. Final soil grade should slope a minimum of 2 percent away from structures.

9.13 Pavement Thickness Design

9.13.1 Based upon the site soil conditions and the R-Value test result, the table below presents minimum sections recommended for flexible asphaltic concrete pavement design. One (1) Resistance Value (R-Value) test RV-1, was performed at the location as indicated on the attached Site Plan, corresponding to areas proposed for pavement. RV-1 had a test result of 40. An R-value of 40 (equivalent resilient modulus of subgrade of 8,558) was utilized for design of project pavements.

9.13.2 The following asphaltic concrete pavement thickness recommendations have been prepared based on requirements of the Caltrans Highway Design Manual, a 20 year design life, and standard and heavy duty traffic loading of 11,279 and 30,567 ESALs, respectively.

TABLE 9.13.2.1
ASPHALT CONCRETE PAVEMENT THICKNESSES

Traffic Loading (ESALs)	Equivalent Traffic Index	Asphaltic Concrete*	Class 2 Aggregate Base**	Compacted Subgrade**
11,279 (Standard Duty)	5.0 (Standard Duty)	3.0"	4.0"	12.0"
30,567 (Heavy Duty)	6.0 (Heavy Duty)	3.5"	5.0"	12.0"

**** 1" or 1.5" wearing surface over tack coat over 2" binder course over prime coat***
***** 95% compaction based on ASTM D1557-07 Test Method***

9.13.3 The following Portland cement concrete pavement thickness recommendations have been prepared based on requirements of the 1993 AASHTO Rigid Pavement Design for standard and heavy duty traffic loading of 11,279 and 30,567 ESALs, respectively. Based on an R-value of 40 and minimum aggregate base thickness of 4 inches, a subgrade modulus of 200 pounds per cubic inch was used for design.

TABLE 9.13.3.1
PORTLAND CEMENT CONCRETE PAVEMENT THICKNESSES

Traffic Loading (ESALs)	Equivalent Traffic Index	Portland Cement Concrete*	Class 2 Aggregate Base**	Compacted Subgrade***
11,279 (Standard Duty)	5.0 (Standard Duty)	5.0"	4.0"	12.0"
30,567 (Heavy Duty)	6.0 (Heavy Duty)	6.0"	4.0"	12.0"

**** Minimum Compressive Strength of 4,000 psi***
***** 95% compaction based on ASTM D1557-07 Test Method or Cal 216***
******95% compaction based on ASTM D1557-07 Test Method***

9.13.4 Asphalt concrete should conform to Section 39 of Caltrans' latest Standard Specifications for ½ inch Hot Mix Asphalt (HMA) Type A or B.

9.13.5 An integral part of satisfactory fill placement is the stability of the placed lift of soil. Prior to placement of aggregate base, the subgrade soils should be proof-rolled by a loaded water truck (or equivalent) to verify no deflections of greater than ½ inch occur. If placed materials exhibit excessive instability as determined by a SALEM field representative, the lift will be considered unacceptable and shall be remedied prior to placement of additional fill material. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

10. PLAN REVIEW, CONSTRUCTION OBSERVATION AND TESTING

10.1 Plan and Specification Review

10.1.1 SALEM should review the project plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

10.2 Construction Observation and Testing Services

10.2.1 The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others interpretation of our recommendations, and therefore the future performance of the project.

10.2.2 SALEM should be present at the site during site preparation to observe site clearing, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

10.2.3 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

11. LIMITATIONS AND CHANGED CONDITIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the borings excavated at the approximate locations shown on the Site Plan, Figure 1. The report does not reflect variations which may occur between borings. The nature and extent of such variations may not become evident until construction is initiated.

If variations then appear during construction, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of such variations. The findings and recommendations presented in this report are valid as of the present and for the proposed construction. If site conditions change due to natural processes or human intervention on the property or adjacent to the site, or changes occur in the nature or design of the project, or if there is a substantial time lapse between the submission of this report and the start of the work at the site, the conclusions and recommendations contained in our report will not be considered valid unless the changes are reviewed by SALEM and the conclusions of our report are modified or verified in writing.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observations program during the construction phase. Our firm assumes no responsibility for construction compliance with the design concepts or recommendations unless we have been retained to perform the on-site testing and review during construction. SALEM has prepared this report for the exclusive use of the owner and project design consultants.

SALEM does not practice in the field of corrosion engineering. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, that manufacturer's recommendations for corrosion protection be closely followed. Further, a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of concrete slabs and foundations in direct contact with native soil. The importation of soil and or aggregate materials to the site should be screened to determine the potential for corrosion to concrete and buried metal piping. The report has been prepared in accordance with generally accepted geotechnical engineering practices in the area. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (559) 271-9700.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Shaun Reich, EIT
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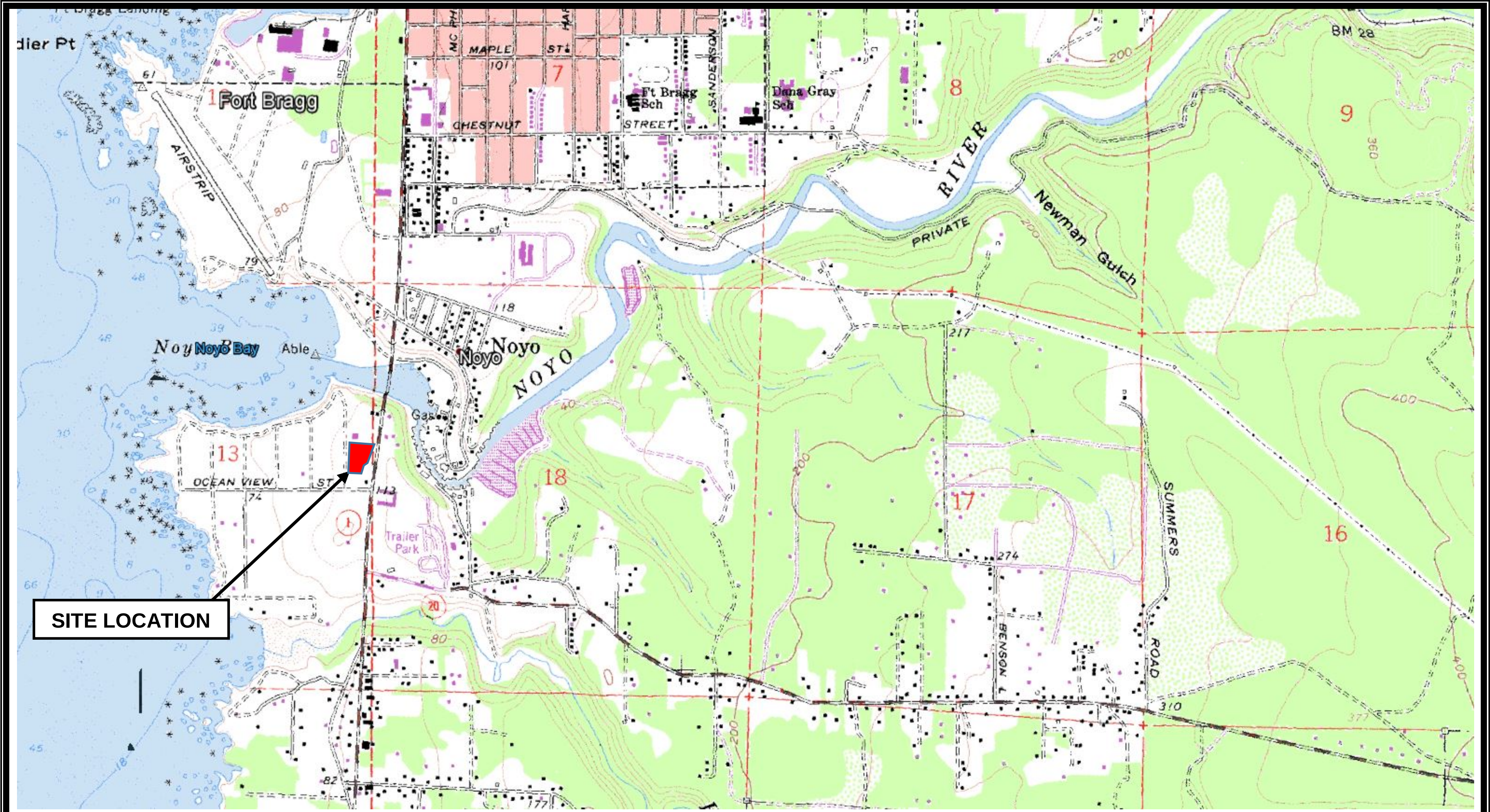
R. Sammy Salem, PE, GE
Geotechnical Project Engineer
Principal Managing Engineer
RCE 52762 / RGE 2549

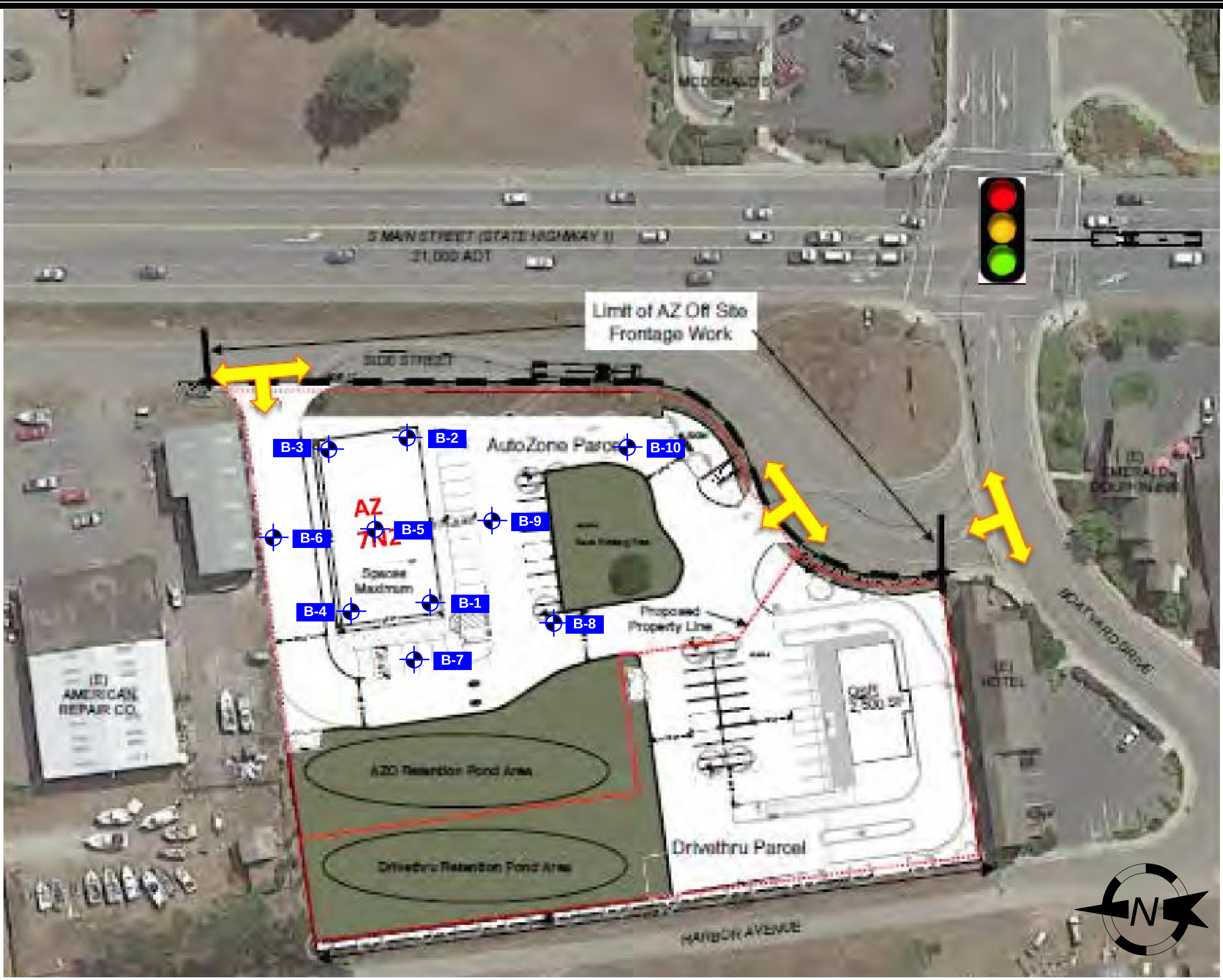
APPENDIX

A



Source Image: U.S. Geological Survey, Fort Bragg, Calif. 7.5' Quadrangle, 1960 (Photo Revised 1978)

VICINITY MAP **GEOTECHNICAL ENGINEERING INVESTIGATION** **Proposed AutoZone Store No. 6731** **1151 South Main Street (CA-1)** **Fort Bragg, California**	SCALE: NOT TO SCALE DRAWN BY: AW PROJECT NO. 5-218-0107	DATE: 03/2018 APPROVED BY: SR FIGURE NO. 1	SALEM engineering group, inc.



SITE PLAN **GEOTECHNICAL ENGINEERING INVESTIGATION** **Proposed AutoZone Store No. 6731** **1151 South Main Street (CA-1)** **Fort Bragg, California**	SCALE: NOT TO SCALE DRAWN BY: AW PROJECT NO. 5-218-0107	DATE: 03/2018 APPROVED BY: SR FIGURE NO. 2	LEGEND: B-1 Soil Boring Location All Locations Approximate	SALEM engineering group, inc.

APPENDIX A
FIELD EXPLORATION

Fieldwork for our investigation was conducted on February 13, 2018 and included a site visit, subsurface exploration, and soil sampling. The locations of the exploratory borings are shown on the Site Plan, Figure 2. Boring logs for our exploration are presented in figures following the text in this appendix. Borings were located in the field using existing reference points. Therefore, actual boring locations may deviate slightly.

Our borings were drilled using a truck-mounted CME-55 drilling rig. Sampling was accomplished by driving a 2-inch Standard Penetration Test (SPT) sampler and/or a 3-inch outside diameter Modified California Sampler (MCS) 18 inches into the soil. Penetration and/or Resistance tests were performed at selected depths. The resistance/N-Value obtained from driving was recorded based on the number of blows required to penetrate the last 12 inches. The driving energy was provided by an auto-trip hammer weighing 140 pounds, falling 30 inches. Relatively undisturbed MCS soil samples were obtained while performing this test. Bag samples of the disturbed soil were obtained from the SPT samples and auger cuttings. All samples were returned to our Fresno laboratory for evaluation. The borings were backfilled per county requirements after completion of the drilling.

Subsurface conditions encountered in the test borings were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field logs were revised based on subsequent laboratory testing.

Boring No. B-1

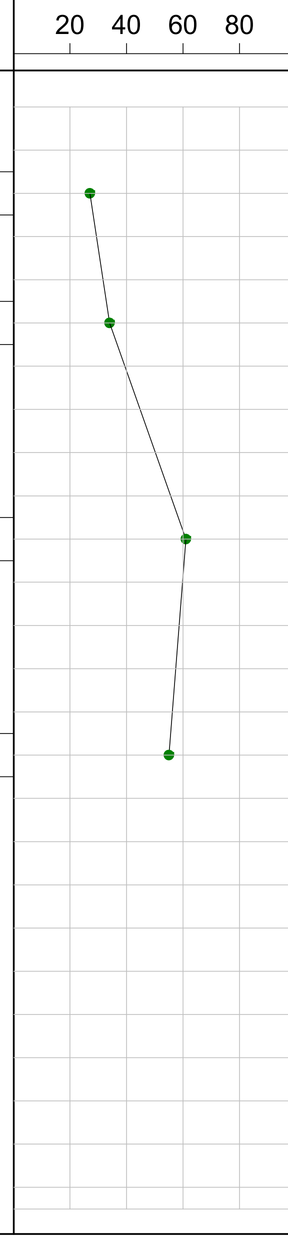
Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-1
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE / SAMPLE

Depth (ft)	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Blow Count
0	Ground Surface				
0–4	**Silty SAND (SM)** Medium dense; brown; moist; fine to coarse-grained sand with fine to medium gravel.	100.3	12.9	MCS	27
4–11.5	**Sandy Silty CLAY (CL)** Very stiff; brown; moist; with fine to coarse-grained gravel; (Sedimentary Rock).	94.7	27.5	MCS	34
10	Grades as above; hard; with moderately weathered rock.	109.1	19.8	MCS	61
11.5–16	**Sandy SILT (ML)** Hard; brown; moist; with clay and fine to coarse-grained gravel.	--	15.6	SPT	55
16	End of Borehole				

Penetration Test



Water Level

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

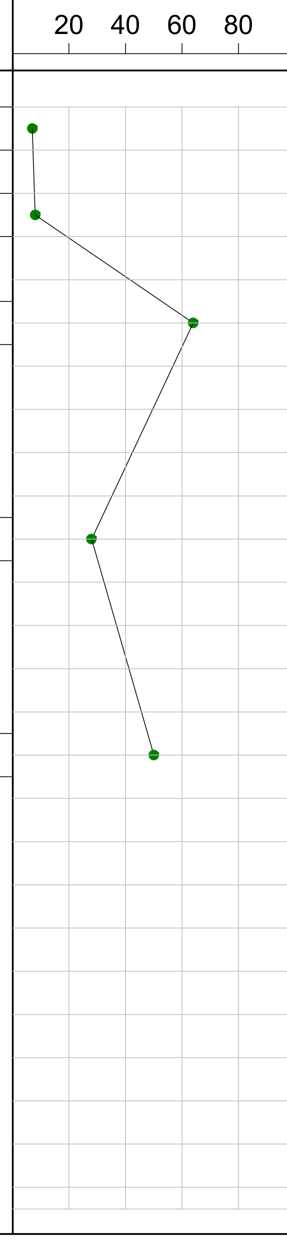
Boring No. B-2

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-2
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE			SAMPLE				
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Penetration	Blow Count
		Ground Surface					
0		**Silty SAND (SM)** Loose; brown; moist; fine to medium-grained.	86.2	21.9	MCS		7
		Grades as above.	100.2	20.3	MCS		8
5		**SAND with Silt (SP-SM)** Dense; brown; moist; fine to coarse-grained sand with fine to medium gravel; (Sedimentary Rock).	111.6	15.4	MCS		64
10		**Silty Clayey SAND (SC/SM) with Gravel** Medium dense; brown; moist; fine to coarse-grained.	106.0	20.7	MCS		28
15		Very dense; Increase medium to coarse gravel; [No Recovery].	--	--	SPT		50
		End of Borehole					
20							
25							

Penetration Test



Water Level

Perched GW

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

Boring No. B-3

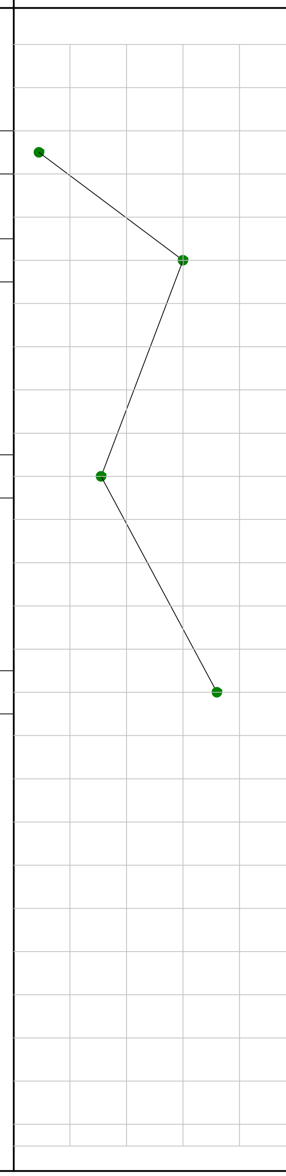
Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-3
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE / SAMPLE

Depth (ft)	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Blow Count
0	Ground Surface				
0–4	**Silty Clayey SAND (SC/SM) with Gravel** Loose; brown; moist; fine to coarse-grained.	94.5	22.2	MCS	9
4–8	**Poorly Graded SAND (SP) with Silt and Gravel** Very dense; brown; moist; fine to coarse-grained; (Sedimentary Rock).	108.5	6.5	MCS	60
8–12	**Clayey SAND (SC)** Medium dense; brown; moist; with fine to coarse-grained gravel.	121.0	13.5	MCS	31
12–15.5	**Sandy SILT (ML)** Hard; brown; moist; fine to medium-grained.	--	18.3	SPT	72
15.5	End of Borehole				

Penetration Test



Water Level

Drill Method: Solid Flight Auger	**Drill Date:** 02/13/2018
Drill Rig: CME 55	**Borehole Size:** 4 Inches
Driller: Salem Engineering Group, Inc.	**Hammer Type:** Auto Trip
Sheet: 1 of 1	**Weight & Drop:** 140 lbs/30 in.

SALEM

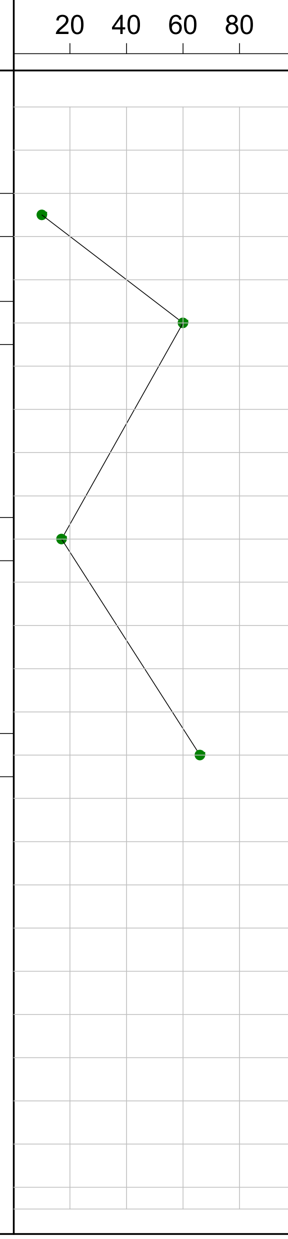
Boring No. B-4

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-4
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

Depth (ft)	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Blow Count
0	Ground Surface				
0–4	**Silty SAND (SM)** Loose; brown; moist; fine to medium-grained; with trace clay.	97.2	17.9	MCS	10
4–8	**Poorly Graded SAND (SP) with Gravel** Very dense; brown; moist; fine to coarse-grained; (Sedimentary Rock).	87.9	5.9	MCS	60
8–12	**Silty SAND (SM)** Medium dense; brown; moist-wet; with fine to coase-grained gravel.	95.5	13.8	MCS	17
12–15.5	**Sandy SILT/Silty SAND (ML/SM)** Hard; brown; moist; with trace of clay and fine to coarse-grained gravel.	--	11.4	SPT	66
15.5	End of Borehole				

Penetration Test



Water Level: Perched GW

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

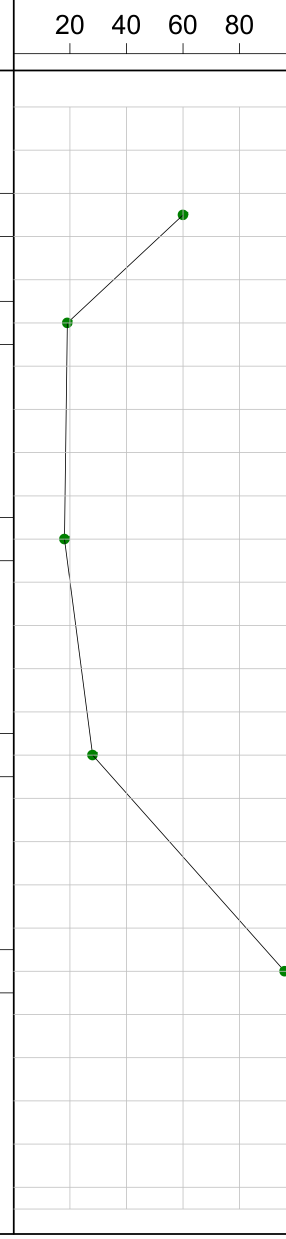
Boring No. B-5

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-5
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

Depth (ft)	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Blow Count
0	Ground Surface				
0	**SAND (SP) with Gravel** Very dense; brown; moist; fine to coarse-grained sand with fine to medium gravel.				
2.5		99.7	16.4	MCS	60
4	**Clayey SAND (SC)** Medium dense; brown; moist; with fine to coarse-grained gravel.				
5		106.0	19.0	MCS	19
10	Grades as above; very moist.	110.4	17.6	MCS	18
12	**Silty SAND/Sandy SILT (SM/ML)** Medium dense; brown; moist; with clay and fine to coarse-grained gravel; (Sedimentary Rock).				
15		--	16.0	SPT	28
16.5	**Sandy CLAY (CL)** Hard; gray; moist; fine-grained.				
20		--	11.7	SPT	96
20.5	End of Borehole				

Penetration Test



Water Level: Perched GW

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

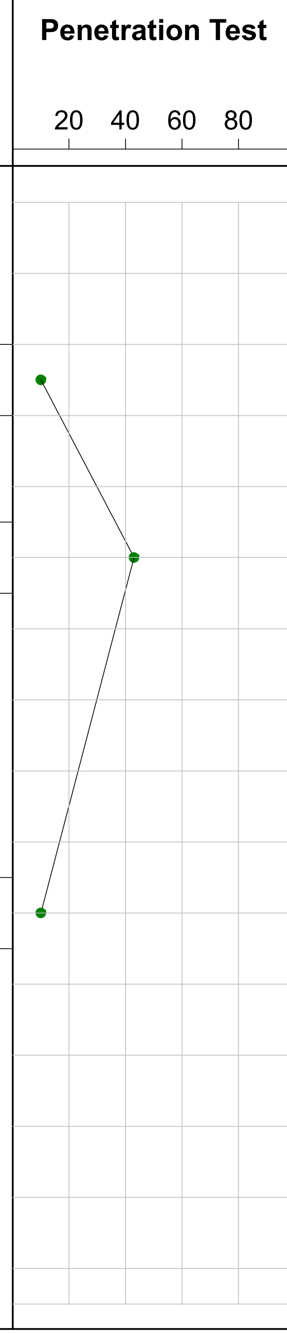
SALEM

Boring No. B-6

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-6
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE			SAMPLE						
Depth (ft)	**Symbol**	**Description**	**Dry Density (pcf)**	**Moisture Content (%)**	**Sampler Type**	**Penetration**	**Blow Count**	**Penetration Test**	**Water Level**
		Ground Surface							
0		**Silty SAND (SM)** Loose; brown; moist; with fine to coarse grained sand and fine to medium gravel and trace clay.							
			98.0	21.7	MCS		10		
		Poorly Graded SAND (SP) with Gravel Dense; brown; moist; fine to coarse-grained; (Sedimentary Rock).							
5			--	7.8	SPT		43		
		Silty SAND (SM) with Gravel Loose; brown; moist; fine to coarse-grained.							
10			--	15.8	SPT		10		
		End of Borehole							
15									



Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

Boring No. B-7

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-7
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE			SAMPLE					Penetration Test	Water Level
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Penetration	Blow Count	20 40 60 80	
		Ground Surface							
0		**Poorly Graded Sand (SP)** Very dense; gray; moist; fine to coarse-grained sand and fine to medium gravel; (Sedimentary Rock).							
			--	6.8	SPT		98		
5		Grades as above; dense.	116.5	5.8	MCS		62		
		Silty SAND (SM) Very dense; brown; moist; fine to medium-grained.							
10			--	11.8	SPT		58		
		End of Borehole							
15									

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

Boring No. B-8

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-8
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE			SAMPLE						
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Penetration	Blow Count	Penetration Test (20 40 60 80)	Water Level
		Ground Surface							
0		**Silty SAND (SM)** Loose; brown; moist; with fine to coarse-grained gravel and trace clay.							
			99.5	20.4	MCS		6		
		Clayey SAND (SC) Very dense; brown; moist; with fine to coarse-grained gravel; (Sedimentary Rock).							
5			--	14.5	SPT		65		
		Sandy SILT (ML) Hard; brown; moist; fine to medium-grained; with clay.							
10			--	24.5	SPT		45		
		End of Borehole							
15									

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

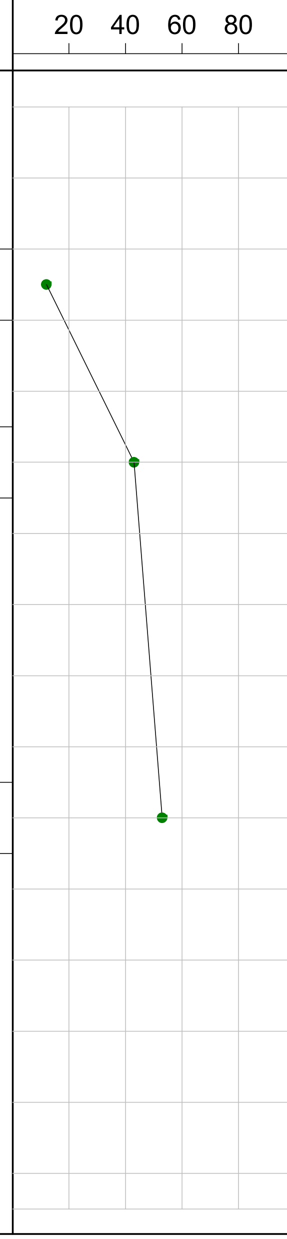
Boring No. B-9

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-9
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

Depth (ft)	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Blow Count
	Ground Surface				
0	**Silty SAND (SM)** Loose; brown; moist; fine to coarse-grained sand and fine to medium gravel.				
		--	17.8	SPT	12
5	**SAND (SP)** Dense; moist; brown; fine to medium grained sand and fine to medium gravel; (Sedimentary Rock).	109.3	12.4	MCS	43
	Sandy SILT (ML) Hard; brown; moist; fine to medium-grained; with clay and highly weathered rock.				
10		--	16.1	SPT	53
	End of Borehole				
15					

Penetration Test



Water Level

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

SALEM

Boring No. B-10

Project: Proposed AutoZone Store No. 6731
Client: AutoZone Parts, Inc.
Location: 1151 South Main Street (CA-1), Fort Bragg, CA
Grnd. Surf. Elev. (Ft. MSL) N/A

Project No: 5-218-0107
Figure No.: A-10
Logged By: JH
Depth to Water> **Initial:** None
At Completion: None

SUBSURFACE PROFILE			SAMPLE					Penetration Test	Water Level
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture Content (%)	Sampler Type	Penetration	Blow Count	20 40 60 80	
		Ground Surface							
0		**Silty SAND (SM)** Medium dense; brown; moist; fine to coarse-grained sand with clay.							
			102.1	16.8	MCS		22		
		SAND (SP) Medium dense; brown; moist; fine to coarse-grained sand and fine to medium gravel with clay; (Sedimentary Rock).							
5			--	9.8	SPT		22		
		Sandy CLAY (CL) Hard; brown; moist; fine to medium-grained; with highly weathered rock.							
10			--	20.8	SPT		34		
		End of Borehole							
15									

Drill Method: Solid Flight Auger
Drill Rig: CME 55
Driller: Salem Engineering Group, Inc.
Sheet: 1 of 1

Drill Date: 02/13/2018
Borehole Size: 4 Inches
Hammer Type: Auto Trip
Weight & Drop: 140 lbs/30 in.

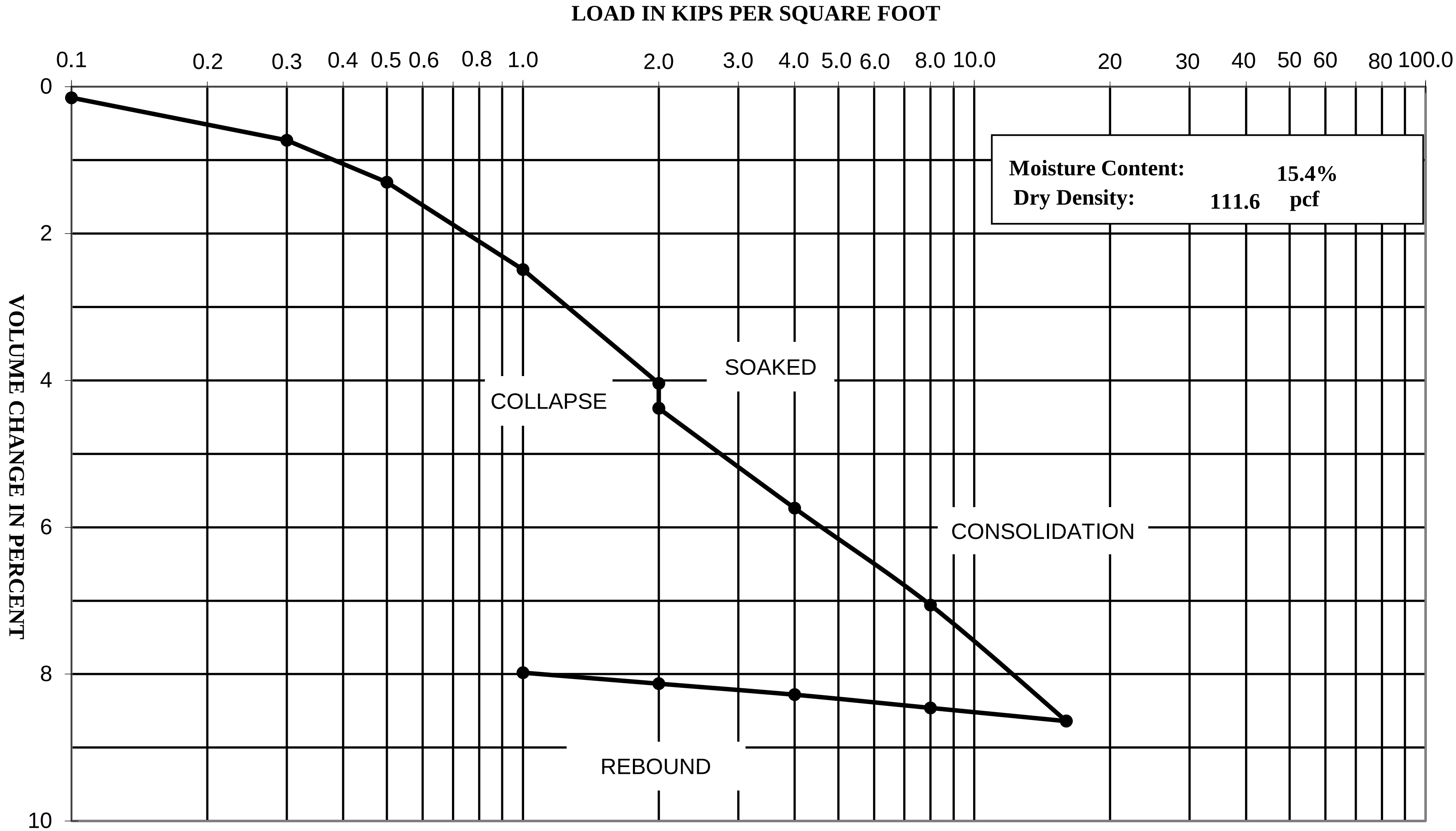
APPENDIX

B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM), Caltrans, or other suggested procedures. Selected samples were tested for in-situ moisture content, corrosivity, optimum moisture-maximum density determination, shear strengths, plasticity index, expansion index, R-value, and grain size distribution. The results of the laboratory tests are summarized in the following figures.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



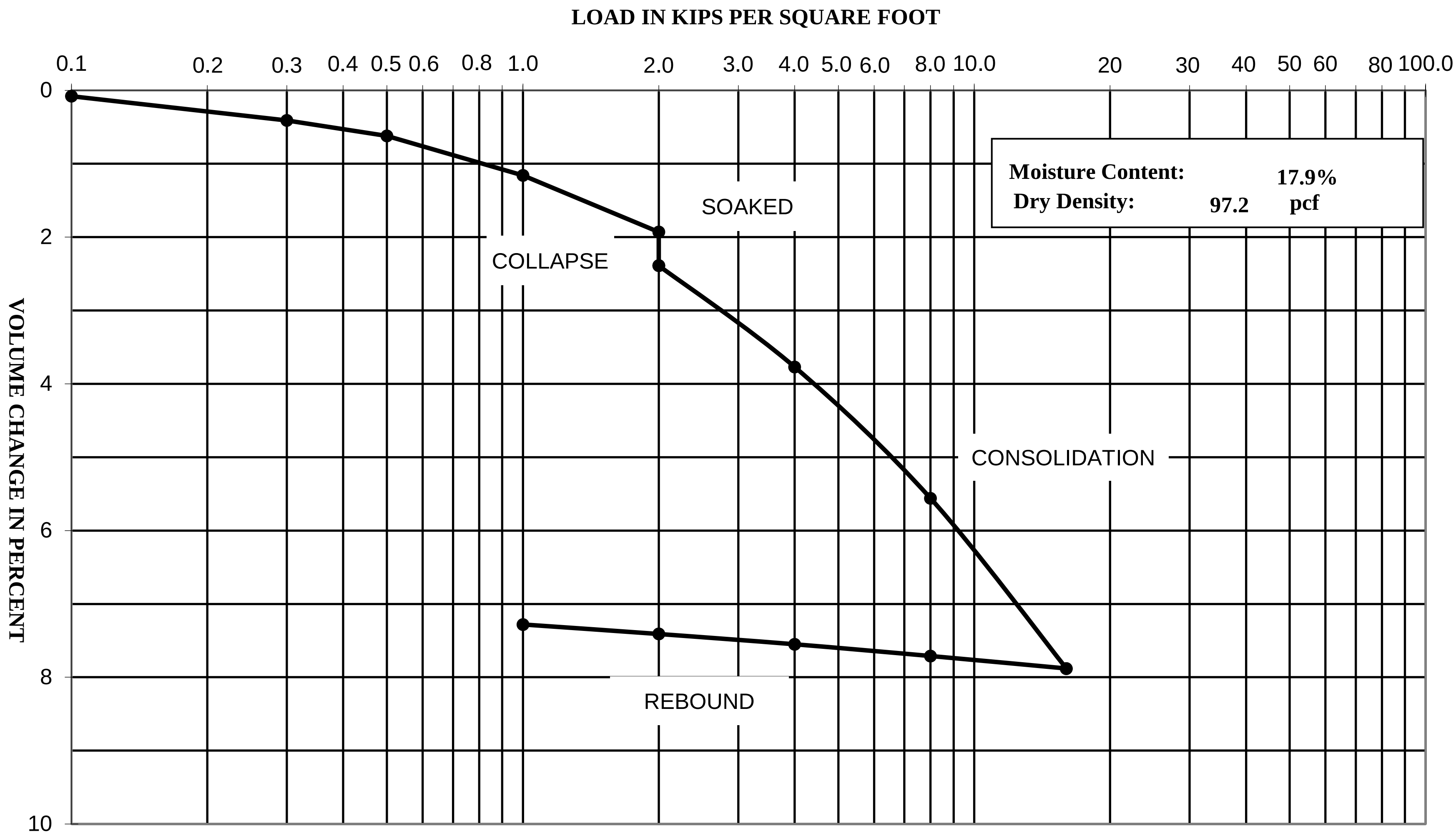
Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

Project Number: 5-218-0107

Boring: B-2 @ 5'

SALEM engineering group, inc.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



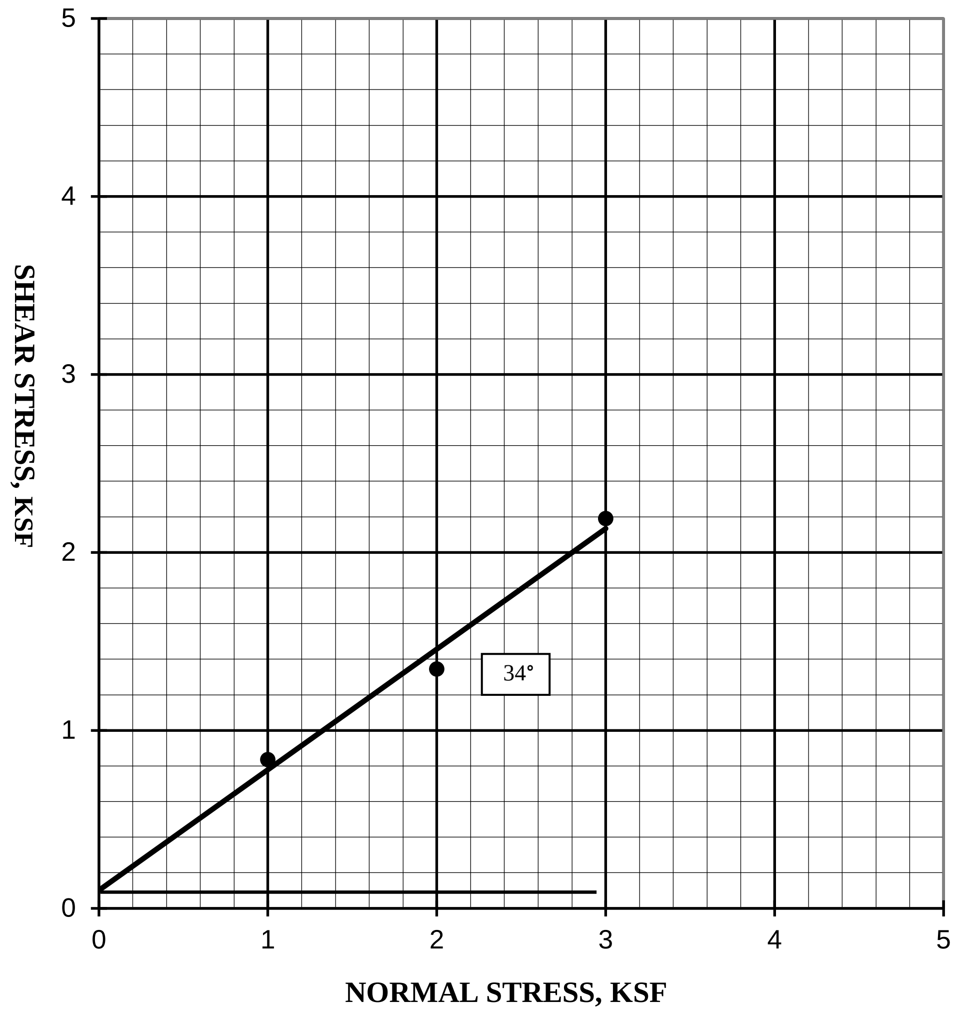
Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

Project Number: 5-218-0107

Boring: B-4 @ 2'

SALEM engineering group, inc.

SHEAR STRENGTH DIAGRAM
(DIRECT SHEAR)
ASTM D3080



Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

Project Number: 5-218-0107

Boring: B-2 @ 2'
Soil Type: Silty SAND (SM)

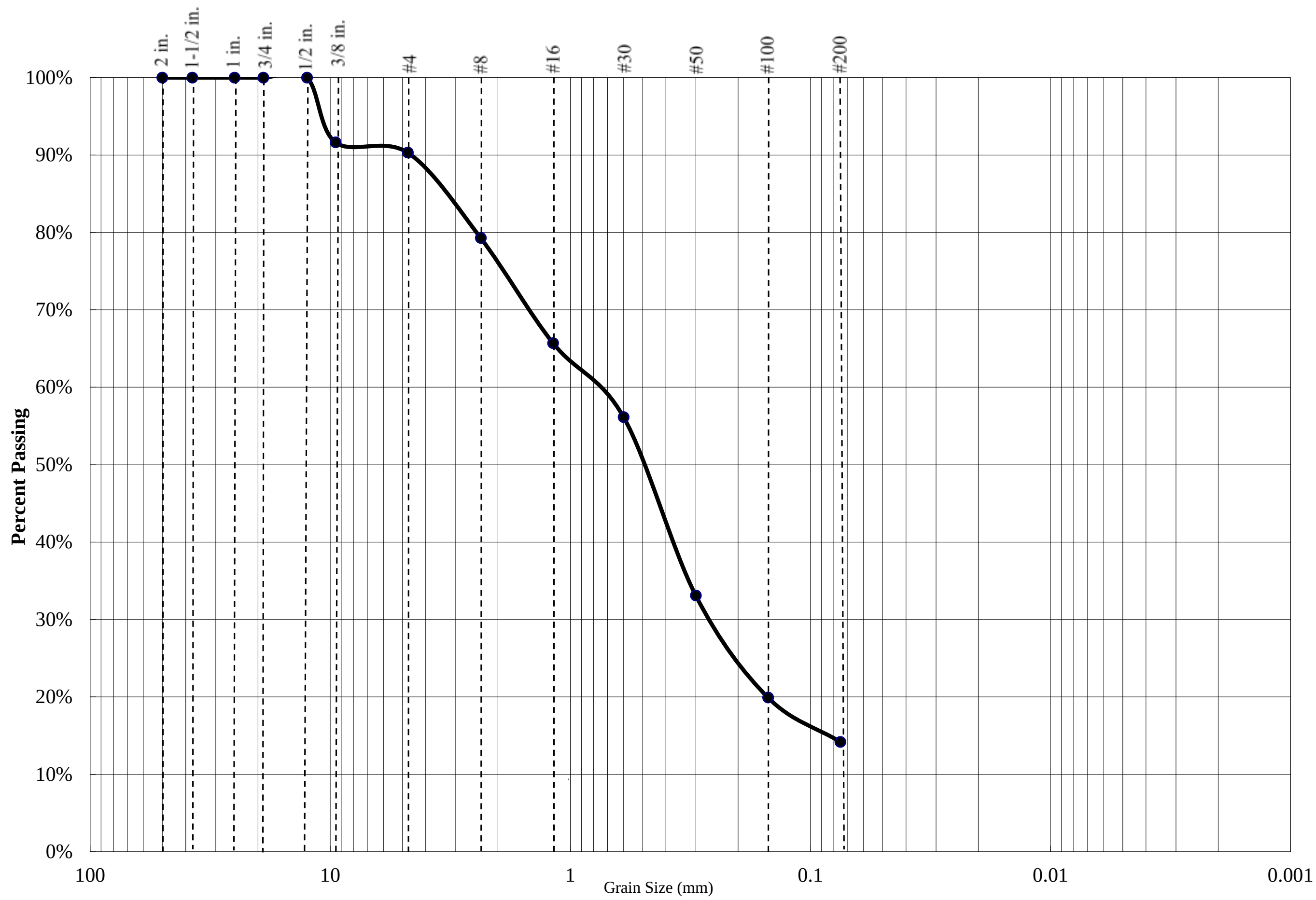
Friction Angle:	**34**	**degrees**
Cohesion:	**100**	**psf**

Moisture Content	**20.3%**
Dry Density	**100.2 pcf**

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
10%	77%	14%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	91.6%
#4	90.3%
#8	79.3%
#16	65.7%
#30	56.2%
#50	33.1%
#100	19.9%
#200	14.2%

Atterberg Limits					
PL=	--	LL=	--	PI=	--

Coefficients					
D_{85}=	2.1	D_{60}=	7.2	D_{50}=	0.5
D_{30}=	0.25	D_{15}=	0.075	D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

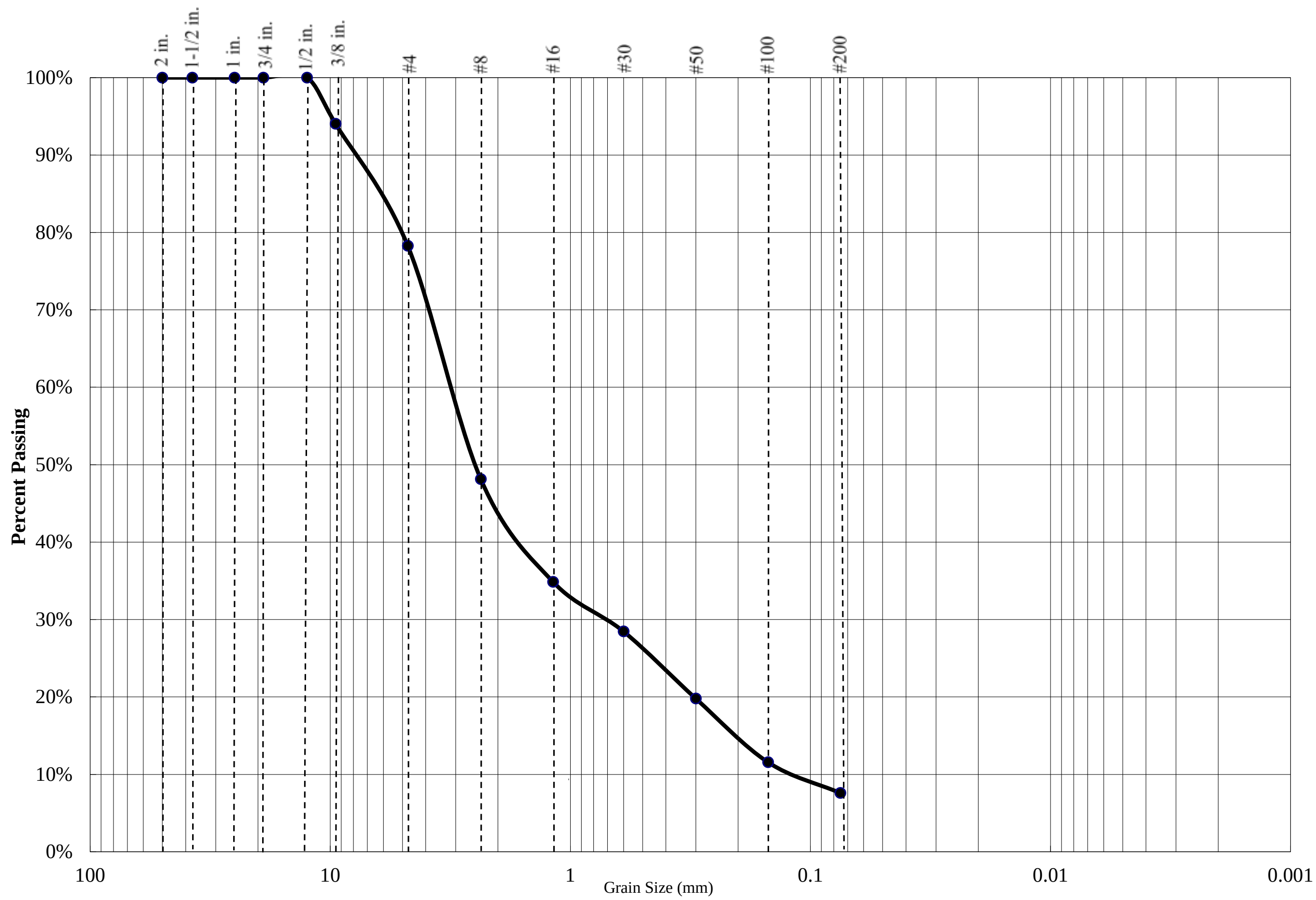
Project Number: 5-218-0107

Boring: B-2 @ 2'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
22%	71%	8%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	94.0%
#4	78.3%
#8	48.1%
#16	34.9%
#30	28.5%
#50	19.8%
#100	11.6%
#200	7.6%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=	6	D_{60}=	3.1	D_{50}=	0.23
D_{30}=	0.07	D_{15}=	0.2	D_{10}=	0.013
C_u=	238.5	C_c=	0.1		

USCS CLASSIFICATION
SAND with Silt (SP-SM)

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

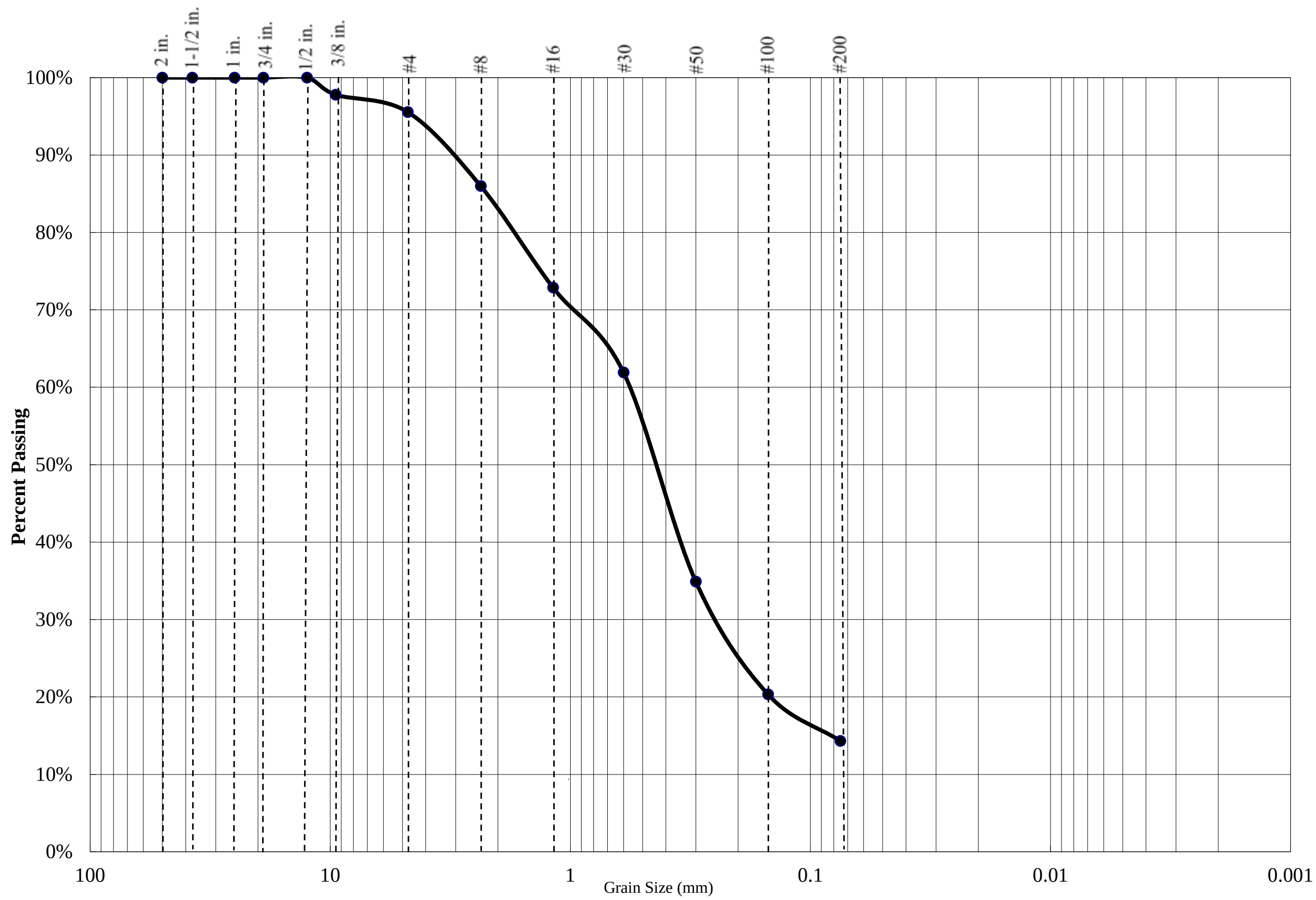
Project Number: 5-218-0107

Boring: B-2 @ 5'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
4%	82%	14%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	97.8%
#4	95.5%
#8	86.0%
#16	72.9%
#30	61.9%
#50	34.9%
#100	20.3%
#200	14.3%

Atterberg Limits					
PL=	--	LL=	--	PI=	--

Coefficients					
D_{85}=	0.21	D_{60}=	0.53	D_{50}=	0.43
D_{30}=	0.23	D_{15}=	0.073	D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

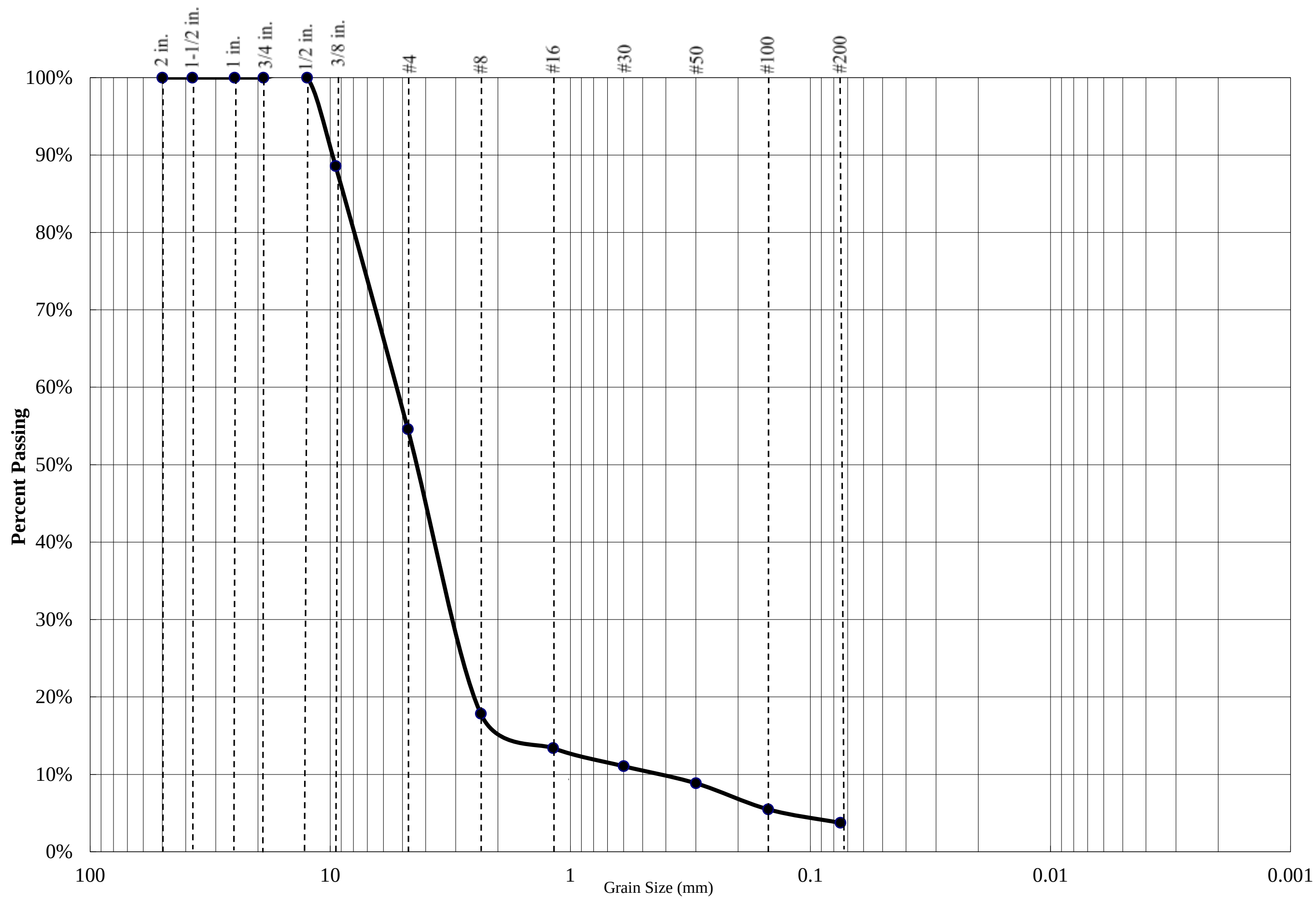
Project Number: 5-218-0107

Boring: B-4 @ 2'

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
45%	52%	4%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	88.6%
#4	54.6%
#8	17.8%
#16	13.4%
#30	11.1%
#50	8.8%
#100	5.5%
#200	3.7%

Atterberg Limits					
PL=	--	LL=	--	PI=	--

Coefficients					
D_{85}=	0.83	D_{60}=	0.51	D_{50}=	0.43
D_{30}=	0.3	D_{15}=	2	D_{10}=	0.4
C_u=	1.3	C_c=	0.4		

USCS CLASSIFICATION
Poorly Graded SAND (SP)

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA

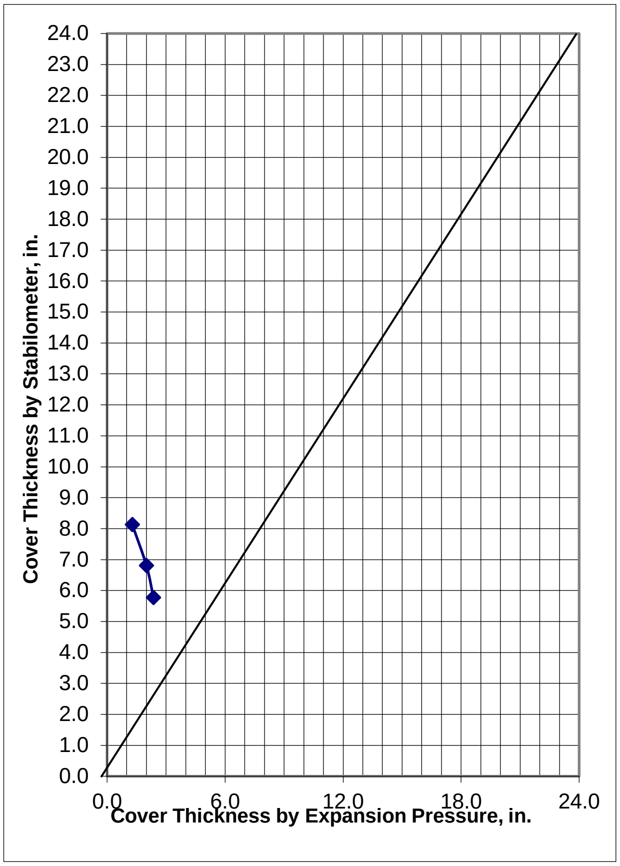
Project Number: 5-218-0107

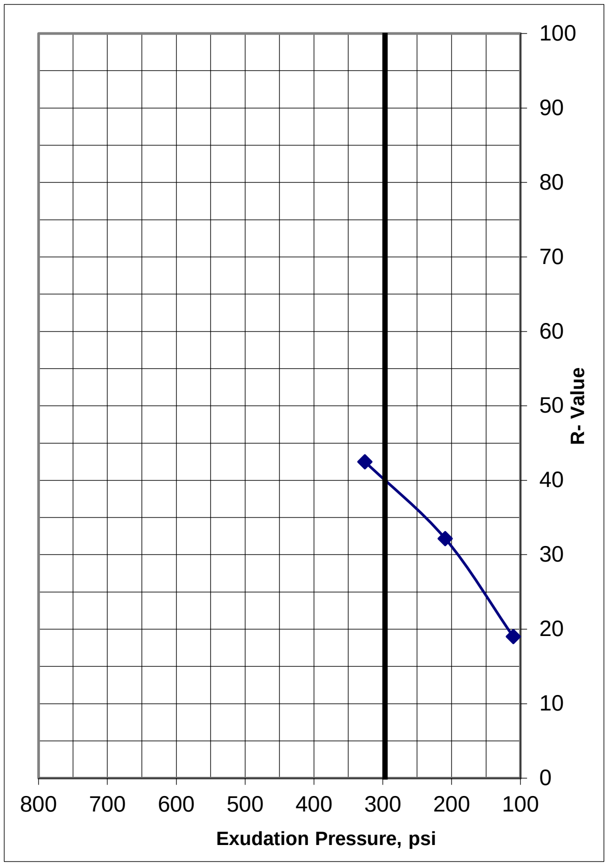
Boring: B-4 @ 5'

SALEM engineering group, inc.

Resistance R-Value and Expansion Pressure of Compacted Soils
ASTM D2844

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA
Project Number: 5-218-0107
Date Sampled: 2/13/18
Date Tested: 2/16/18
Sampled By: SEG
Tested By: VT
Sample Location: B-10 @ 0 - 3'
Soil Description: Silty SAND (SM)





Specimen	1	2	3
Exudation Pressure, psi	325.9	209.3	110.5
Moisture at Test, %	14.9	15.4	16.0
Dry Density, pcf	104.7	104.6	104.3
Expansion Pressure, psf	255	217	139
Thickness by Stabilometer, in.	5.8	6.8	8.1
Thickness by Expansion Pressure, in	2.4	2.0	1.3
R-Value by Stabilometer	42	32	19
R-Value by Expansion Pressure	N/A		
R-Value at 300 psi Exudation Pressure	40		

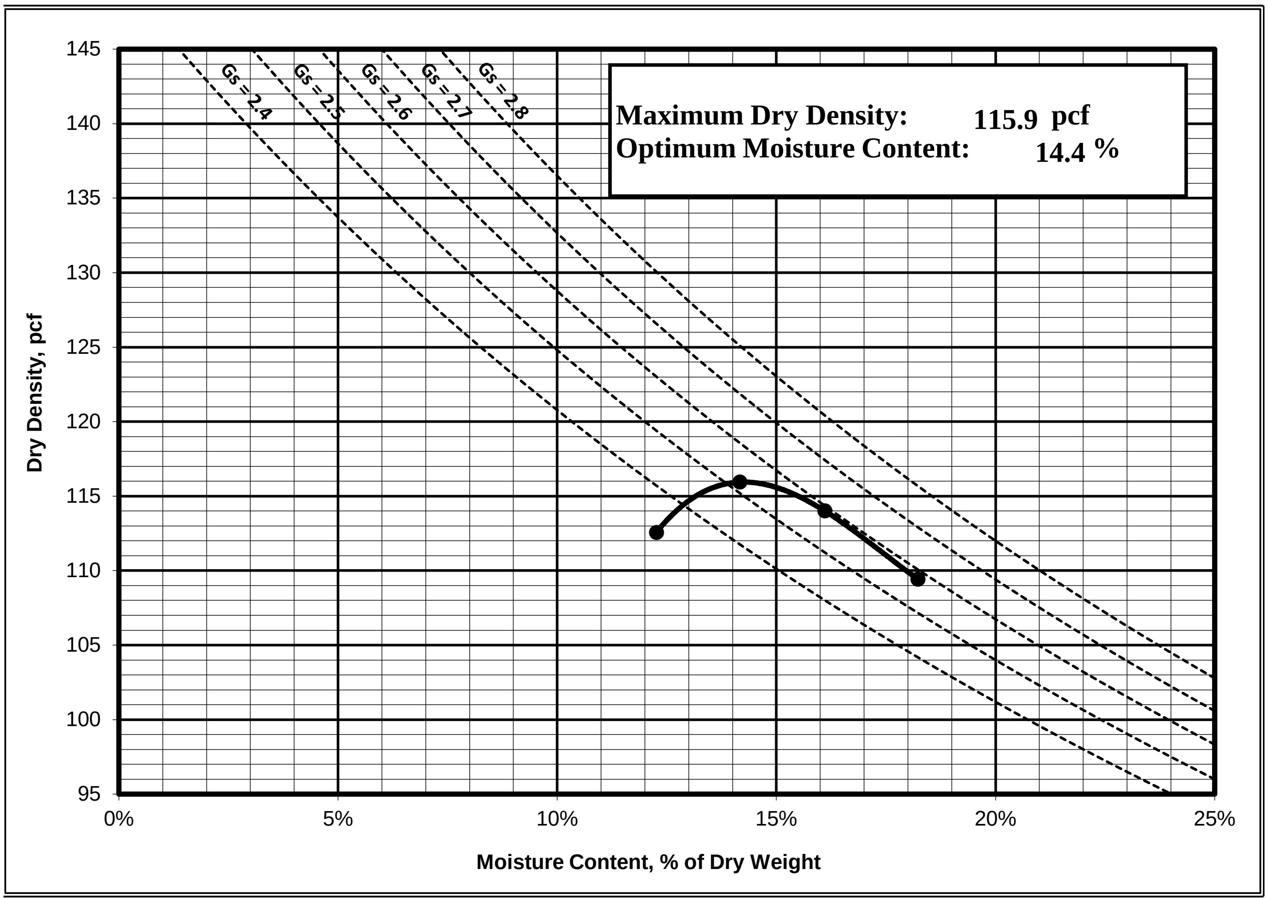
Controlling R-Value	**40**

SALEM engineering group, inc.

Laboratory Compaction Curve
ASTM D1557

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA
Project Number: 5-218-0107
Date Sampled: 2/13/18 Date Tested: 2/19/18
Sampled By: SEG Tested By: CM
Sample Location: B-5 @ 0 - 3'
Soil Description: SAND (SP)
Test Method: Method A

	1	2	3	4
Weight of Moist Specimen & Mold, (g)	3900.9	3991.6	3991.6	3946.2
Weight of Compaction Mold, (g)	1990.2	1990.2	1990.2	1990.2
Weight of Moist Specimen, (g)	1910.7	2001.4	2001.4	1956.0
Volume of Mold, (ft^3)	0.0333	0.0333	0.0333	0.0333
Wet Density, (pcf)	126.4	132.4	132.4	129.4
Weight of Wet (Moisture) Sample, (g)	336.0	336.0	336.0	336.0
Weight of Dry (Moisture) Sample, (g)	299.3	294.3	289.4	284.2
Moisture Content, (%)	12.3%	14.2%	16.1%	18.2%
Dry Density, (pcf)	112.6	115.9	114.0	109.4



CHEMICAL ANALYSIS

SO_4 - Modified CTM 417 & Cl - Modified CTM 417/422

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA
Project Number: 5-218-0107
Date Sampled: 2/13/18 Date Tested: 2/16/18
Sampled By: SEG Tested By: VT
Soil Description: SAND (SP)

Sample Number	Sample Location	Soluble Sulfate SO_4-S	Soluble Chloride Cl	pH
1a.	B-5 @ 0 - 3'	100 mg/kg	37 mg/kg	7.1
1b.	B-5 @ 0 - 3'	100 mg/kg	37 mg/kg	7.1
1c.	B-5 @ 0 - 3'	100 mg/kg	36 mg/kg	7.1
Average:		**100 mg/kg**	**37 mg/kg**	**7.1**

SALEM engineering group, inc.

EXPANSION INDEX TEST
ASTM D4829

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA
Project Number: 5-218-0107
Date Sampled: 2/13/18 Date Tested: 2/20/18
Sampled By: SEG Tested By: NL
Sample Location: B-3 @ 0 - 3'
Soil Description: Silty Clayey SAND (SC-SM)

Trial #	1	2	3
Weight of Soil & Mold, g.	546.6		
Weight of Mold, g.	188.8		
Weight of Soil, g.	357.8		
Wet Density, pcf	107.9		
Weight of Moisture Sample (Wet), g.	870.0		
Weight of Moisture Sample (Dry), g.	759.0		
Moisture Content, %	14.6		
Dry Density, pcf	94.1		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	50.0		

Time	Inital	30 min	1 hr	6 hrs	12 hrs	24 hrs
Dial Reading	0	0.0084	0.0098	--	--	0.0151

Expansion Index $_{measured}$ = 15.1
Expansion Index $_{50}$ = 15.1

Expansion Index = 15

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

SALEM engineering group, inc.

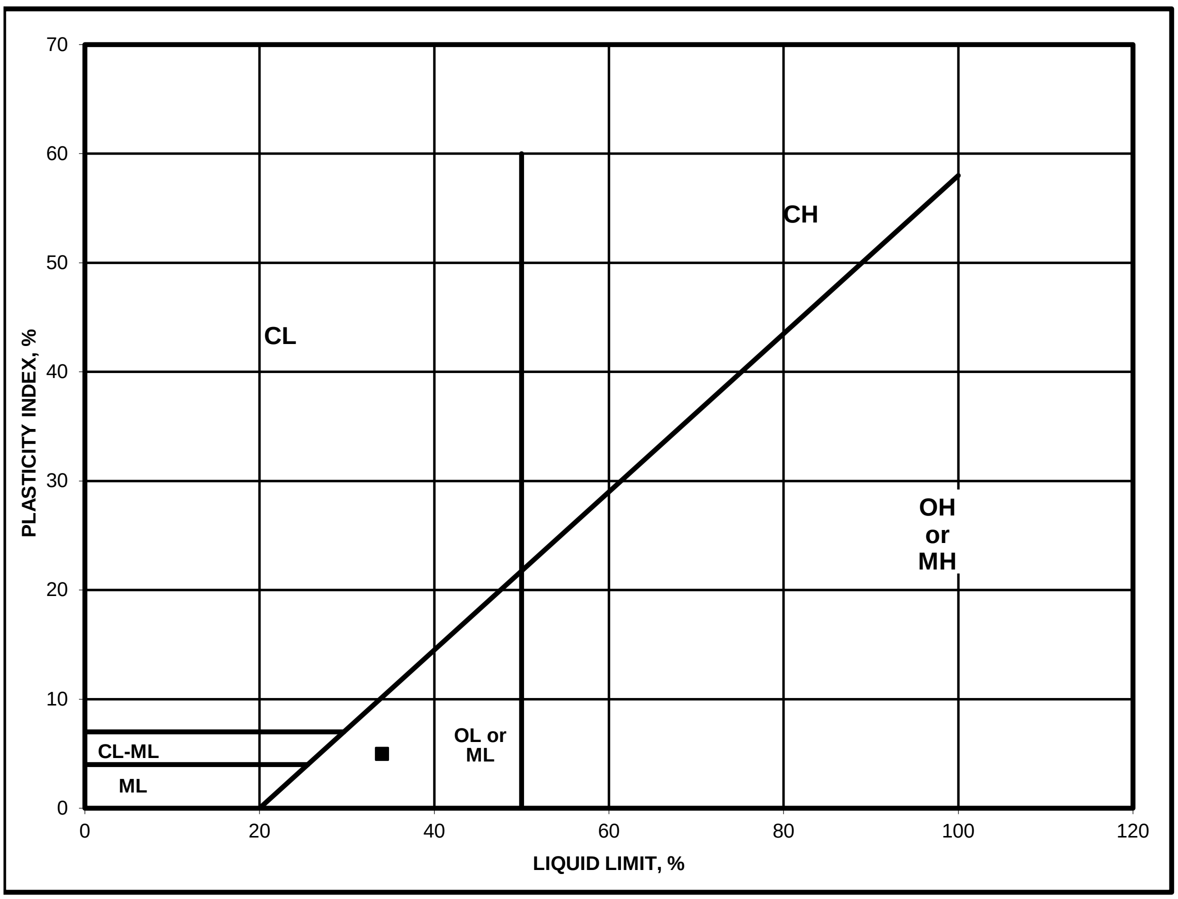
Atterberg Limits Determination
ASTM D4318

Project Name: AutoZone Store 6731_1151 South Main Street (CA-1), Fort Bragg, CA
Project Number: 5-218-0107
Date Sampled: 2/13/18 Date Tested: 2/20/18
Sampled By: SEG Tested By: CMG
Sample Location: B-3 @ 0 - 3'

Run Number	Plastic Limit			Liquid Limit		
	1	2	3	1	2	3
Weight of Wet Soil & Tare	27.18	27.12	27.15	51.77	48.41	54.21
Weight of Dry Soil & Tare	25.81	25.70	25.77	44.03	41.27	45.61
Weight of Water	1.37	1.42	1.38	7.74	7.14	8.60
Weight of Tare	21.07	20.84	20.96	20.93	20.41	20.95
Weight of Dry Soil	4.74	4.86	4.81	23.10	20.86	24.66
Water Content	28.9	29.2	28.7	33.5	34.2	34.9
Number of Blows				35	23	21

Plastic Limit : 29 **Liquid Limit : 34**

Plasticity Index : 5
Unified Soil Classification : OL/ML



SALEM engineering group, inc.

APPENDIX

C

APPENDIX C
GENERAL EARTHWORK AND PAVEMENT SPECIFICATIONS

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

1.0 SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

2.0 PERFORMANCE: The Contractor should be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work should be inspected and tested by a representative of SALEM Engineering Group, Incorporated, hereinafter referred to as the Soils Engineer and/or Testing Agency. Attainment of design grades, when achieved, should be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he should make the necessary adjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications should be made except upon written approval of the Soils Engineer, Civil Engineer, or project Architect.

No earthwork should be performed without the physical presence or approval of the Soils Engineer. The Contractor should notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor should assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement should apply continuously and not be limited to normal working hours; and that the Contractor should defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

3.0 TECHNICAL REQUIREMENTS: All compacted materials should be densified to no less that 90 percent of relative compaction based on ASTM D1557 Test Method (latest edition) as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests should be determined by the Soils Engineer. The results of these tests and compliance with these specifications should be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

4.0 SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Report. The Contractor should make his own interpretation of the data contained in the Geotechnical Engineering Report and the Contractor should not be relieved of liability for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

5.0 DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor should assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work. Site preparation should consist of site clearing and grubbing and preparation of foundation materials for receiving fill.

6.0 CLEARING AND GRUBBING: The Contractor should accept the site in this present condition and should demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Soils Engineer to be deleterious. Such materials should become the property of the Contractor and should be removed from the site.

Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials should not be permitted.

7.0 SUBGRADE PREPARATION: Surfaces to receive Engineered Fill and/or building or slab loads should be prepared as outlined above, scarified to a minimum of 12 inches, moisture-conditioned as necessary, and compacted to 92 percent relative compaction (ASTM D1557).

Loose soil areas and/or areas of disturbed soil should be moisture-conditioned as necessary and compacted to 92 percent relative compaction (ASTM D1557). All ruts, hummocks, or other uneven surface features should be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials should be approved by the Soils Engineer prior to the placement of any fill material.

8.0 EXCAVATION: All excavation should be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified should be backfilled at the Contractor's expense and should be compacted in accordance with the applicable technical requirements.

9.0 FILL AND BACKFILL MATERIAL: No material should be moved or compacted without the presence or approval of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills, provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills should be free from vegetation or other deleterious matter as determined by the Soils Engineer.

10.0 PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials should be the responsibility of the Contractor. Compaction of fill materials by flooding, ponding, or jetting should not be permitted unless specifically approved by local code, as well as the Soils Engineer. Both cut and fill should be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

11.0 SEASONAL LIMITS: No fill material should be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations should not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill is as specified.

12.0 DEFINITIONS - The term "pavement" should include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to, is the most recent edition of the Standard Specifications of the State of California, Department of Transportation. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as determined by ASTM D1557 Test Method (latest edition).

13.0 PREPARATION OF THE SUBGRADE - The Contractor should prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section should be compacted to a minimum relative compaction of 95 percent based upon ASTM D1557. The finished subgrades should be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

14.0 AGGREGATE BASE - The aggregate base material should be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material should conform to the requirements of Section 26 of the Standard Specifications for Class II material, ¾-inch or 1½-inches maximum size. The aggregate base material should be compacted to a minimum relative compaction of 95 percent ASTM D1557. The aggregate base material should be spread in layers not exceeding 6 inches and each layer of aggregate material course should be tested and approved by the Soils Engineer prior to the placement of successive layers.

15.0 AGGREGATE SUBBASE - The aggregate subbase should be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material should conform to the requirements of Section 25 of the Standard Specifications for Class 2 Subbase material. The aggregate subbase material should be compacted to a minimum relative compaction of 95 percent based upon ASTM D1557, and it should be spread and compacted in accordance with the Standard Specifications. Each layer of aggregate subbase should be tested and approved by the Soils Engineer prior to the placement of successive layers.

16.0 ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing should consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt should be PG 64-10, unless otherwise stipulated or local conditions warrant more stringent grade. The mineral aggregate should be Type A or B, ½ inch maximum size, medium grading, and should conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials should conform to Section 39. The prime coat, spreading and compacting equipment, and spreading and compacting the mixture should conform to the applicable chapters of Section 39, with the exception that no surface course should be placed when the atmospheric temperature is below 50 degrees F. The surfacing should be rolled with a combination steel-wheel and pneumatic rollers, as described in the Standard Specifications. The surface course should be placed with an approved self-propelled mechanical spreading and finishing machine.

LACO

TECHNICAL MEMORANDUM

Traffic Impact Analysis
AutoZone Fort Bragg
1151 South Main Street, Fort Bragg, California
Assessor's Parcel Number: 018-440-58

Date:	October 8, 2018
Project No.:	8978.07
Prepared For:	AutoZone Development Corporation
Prepared By:	LACO Associates
Reviewed By:	Michael D. Nelson, AICP, Principal

Attachments:	Appendix 1:	Project Vicinity Map
	Appendix 2:	Project Site Plan
	Appendix 3:	Traffic Volume Figures
	Appendix 4:	Existing Conditions Results
	Appendix 5:	Trip Generation Calculations
	Appendix 6:	Existing Conditions with Project Results
	Appendix 7:	Caltrans District 1 2014 Growth Factors
	Appendix 8:	Future Conditions Results
	Appendix 9:	Future Conditions with Project Results
	Appendix 10:	Fort Bragg Coastal General Plan: Circulation
	Appendix 11:	Caltrans Comment Letter

1.0 STUDY INTRODUCTION AND ANALYSIS

Mitch Bramlitt, Regional Project Manager for AutoZone Development Corporation (hereinafter "Client") proposes a minor subdivision to subdivide one parcel, approximately 2.5 acres in size, into two individual lots (Lots 1 and 2), with construction of an AutoZone retail store approximately 7,380 square feet in size (hereinafter "project" or "proposed project"). The AutoZone retail store would be located at 1151 South Main Street in Fort Bragg, California (see vicinity map in Appendix 1). This Traffic Impact Analysis presents an analysis of potential traffic and circulation impacts resulting from the proposed project. Construction is anticipated to start in spring 2019.

The subject parcel (Site), identified as Assessor's Parcel Number (APN) 018-440-58, is approximately 2.5 acres in size and is currently undeveloped. Surrounding the Site are established commercial developments to the north and south, rural single-family residences to the west, and an unnamed frontage road immediately east of the Site, with South Main Street (State Route 1 [SR 1]) further to the east. Additional improvements to the parcel will include access driveways, travel ways, a parking lot, stormwater management, and utilities. The improvements will be developed on Lot 1, within the northeastern portion of the property, which would comprise 1.1 acres of the 2.5-acre parcel. No development is proposed on the second parcel (Lot 2) at this time.

This technical memorandum presents the results of a traffic impact analysis for the Project development. Included is an estimate of the peak-hour vehicle trips that will be generated upon buildout of the Project. The Traffic Impact Analysis provides an evaluation of operating conditions during the weekday morning and evening peak periods as well as weekend midday peak periods under four scenarios: (1) Existing Conditions, (2) Existing Conditions with Project, (3) Future Conditions, and (4) Future Conditions with Project. The Future Conditions scenario represents the anticipated 20-year growth in traffic to year 2038 and approved projects within the service area, including the Hare Creek project. The 20-year traffic growth was based on the Caltrans 2014 Growth Factors (Caltrans, 2014) developed from California Air Resources Board (ARB) traffic growth projections and historic traffic growth data. Additionally, vehicle miles traveled (VMT) and queue lengths are analyzed.

1.1 Project Summary

The Project consists of a minor subdivision to subdivide the Site into two individual lots and the development of an approximately 7,384 square foot AutoZone retail store with associated improvements. Under the proposed project, the existing parcel, approximately 2.5 acres in size, would be subdivided into two individual lots (Lots 1 and 2). Lot 1, where the store would be developed, is 1.1 acres in size and would comprise the northeastern portion of the property, along the adjacent unnamed frontage road. The proposed remainder, approximately 1.1 acres in size, would comprise Lot 2 and the southern portion of the Site. No development is proposed on the second parcel at this time; however, future commercial development on Lot 2 is anticipated.

The Site is bounded by an unnamed frontage road to the east and commercial or residential land surrounding on the remaining sides. The frontage road runs parallel to SR 1, on the western side. The Project location is near the intersection of SR 1 and Ocean View Drive; however, under the Project, direct access will not be provided from SR 1 to the Site. The Project proposes access to the Site via the frontage road, which connects to SR 1 in the north and connects to Ocean View Drive in the south. Also proposed are improvements to the frontage road, including installation of sidewalks and curb and gutter stormwater drainage. The current Project site plan is included in Appendix 2.

1.2 Analysis Summary

Five intersections were selected for analysis as the locations most likely to experience impacts due to the Project-generated trips. Study intersections were evaluated for four scenarios: (1) Existing Conditions, (2) Existing Conditions with Project, (3) Future Conditions, and (4) Future Conditions with Project. Traffic volumes, intersection levels of service, and queue amounts were assessed based on standard measures of effectiveness and thresholds of significance established by the California Department of Transportation (Caltrans) and the City of Fort Bragg (City). A vehicle miles traveled (VMT) analysis was also conducted to fulfill requirements from the Caltrans comment letter dated June 6, 2018 (see Appendix 11). The impact to study intersections must remain below the thresholds of significance (described in section 2.4) through all study scenarios and with proposed project improvements to the roadway network, otherwise, mitigation measures may be required. SR 1 and SR 20 have previously been analyzed in a traffic study by GHD in 2017 for the development of Hare Creek shopping center. The study intersections of the previous study overlap with four of the study intersections for this Project's traffic study. The anticipated trips from the Hare Creek traffic study have been added to the Future Conditions and Future Conditions with Project scenarios in anticipation of traffic generated from approved projects in the study area.

2.0 STUDY PARAMETERS

The objective of this Traffic Impact Analysis is to provide State and City staff and policy-makers with data to make informed decisions regarding the potential traffic impacts of the Project, and any associated improvements that would be required to mitigate the traffic impacts. Mitigation could be necessary to achieve no significant impact as defined by the City of Fort Bragg Coastal General Plan (City of Fort Bragg, 2008), or other policies, including Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002), as the intersections evaluated in this study, are within the State right-of-way along SR 1 and SR 20. Traffic impacts are typically evaluated by determining the number of trips the Proposed Project is expected to generate, distributing the new trips to the surrounding street system based on existing or anticipated travel patterns specific to a proposed project, and then analyzing the expected impact of the new traffic on critical intersections included in the study.

2.1 Study Intersections

The intersections analyzed in this study are listed below in Table 1 and shown in Appendix 1. Intersections have been numbered to provide simple navigation in this technical memorandum.

Table 1. Summary table of intersection number, roads intersecting, and jurisdiction.

No.	Intersection	Jurisdiction
1	SR 1 / Access driveways to frontage road (near Noyo River Bridge)	Caltrans, City of Fort Bragg
2	SR 1 / Ocean View Drive	Caltrans, City of Fort Bragg
3	SR 1 / SR 20	Caltrans
4	SR 20 / Boatyard Drive	Caltrans, City of Fort Bragg
5	Ocean View Drive / frontage road	City of Fort Bragg

These intersections were analyzed per the request by Caltrans and the City. The driveway at Intersection No. 1, south of the Noyo River Bridge, is not an actual intersection. Further, SR 1 is not striped or marked as an intersection at the location of these driveways. The eastbound driveway approach is stop-controlled, and the westbound driveway approach is uncontrolled. Alternate ingress/egress travel routes to these driveways exist, connecting to Boatyard Drive on the east side of SR 1 and Ocean View Drive on the west side.

Traffic conditions at the remaining intersections were analyzed for the weekday A.M. and P.M. peak hours and weekend mid-day peak hour of traffic. The A.M. peak hour of traffic is generally between 7:00 and 9:00 A.M. and the P.M. peak hour is generally between 4:00 and 6:00 P.M., while the weekend mid-day peak hour is generally between 11:00 A.M. and 2:00 P.M. Peak hours of traffic correlate to the occurrence of congested traffic conditions on an average day.

2.2 Study Scenarios

Four scenarios were evaluated in this study, including (1) Existing Conditions, (2) Existing Conditions with Project, (3) Future Conditions, and (4) Future Conditions with Project:

- Scenario 1 – Existing Conditions: This scenario represents current traffic operations based on data collected in the field in July and August 2018.
- Scenario 2 – Existing Conditions with Project: This scenario presents an evaluation of the potential traffic impacts that would be expected to occur with the addition of project-generated traffic to Scenario 1 – Existing Conditions.
- Scenario 3 – Future Conditions: This scenario represents traffic operations in the year 2038, accounting for other approved projects, without the Project, based on applying 20-year Growth Factors from Caltrans District 1 to existing traffic volumes (Caltrans, 2014). For this particular traffic study, the approved Hare Creek project trip generation is also taken into account as part of the future conditions.
- Scenario 4 – Future Conditions with Project: This scenario represents an evaluation of the potential impacts that would be expected to occur with the addition of project-generated traffic to Scenario 3 – Future Conditions.

2.3 Data Requirements

The data requirements for the Traffic Impact Analysis include:

1) Existing traffic volumes; including new turning movement counts and 24-hour average daily traffic (ADT) vehicle classification counts.
2) Intersection geometry and configuration.
3) Hare Creek project-generated traffic volumes.

LACO's traffic data collection team has collected existing traffic volumes at all study locations on Tuesday (July 17th), Wednesday (July 18th), Thursday (July 19th), and Saturday (July 21st), 2018.

All intersection traffic counts are included in Appendix 3. Because of the small gap in time between the previous GHD study in 2017 and this study in 2018, the project-generated traffic volumes specific to the Hare Creek project and trip distribution from the previous GHD report were used.

2.4 Thresholds of Significance

The thresholds of significance presented are used to determine if the Project will have a significant environmental effect. Title 14, Chapter 3 Article 20 §15382 of the California Code of Regulations defines a significant effect on the environment as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project. In the context of traffic, levels of service-based standards are typically used to establish thresholds of significance and qualify potential impacts. Level of service (LOS) is commonly used by State, County, and City regulatory agencies to quantify traffic operations on various types of roads based on traffic volumes and roadway capacity, using a series of letter designations ranging from A to F, as established in the Highway Capacity Manual (HCM) (Transportation Research Board of the National Academies of Science in the United States).

2.4.1 City of Fort Bragg

The City's Coastal General Plan (City of Fort Bragg, 2008) identifies minimum level of service (LOS) standards in Policy C-1.1 (see Table 2, below):

Table 2. Minimum levels of service for intersections along and not along State Route 1.

Intersection Description	Minimum LOS
Signalized and All-Way-Stop Intersections along SR 1	D
Side Street Stop Sign Controlled Intersections along SR 1	D; or F if <15 vehicles per hour (veh/hr), left turns plus through movements from side street and volumes do not exceed Caltrans rural peak hour signal warrant criteria levels
Signalized and All-Way-Stop Intersections not along SR 1	C
Side Street Stop Sign Controlled Intersections not along SR 1	C; or E if <15 veh/hr, left turns plus through movements from side street and volumes do not exceed Caltrans rural peak hour signal warrant criteria levels

Additionally, the City's General Plan includes the following provisions that are applicable to the study area (City of Fort Bragg, 2008):

- *If volumes at an un-signalized intersection are increased to meet or exceed Caltrans rural peak hour signal Warrant [3] criteria levels and the intersection is operating at an unacceptable LOS, then signalization of the intersection is warranted.*
- *The maximum allowable LOS standards for Main Street apply to the P.M. peak hour weekdays during the summer and to the P.M. peak hour on weekdays and weekends during the remainder of the year. They do not apply to P.M. peak hours on weekends and holidays during the summer. During the P.M. peak hours on summer weekends and holidays, Main Street can operate at LOS F.*

Additional goals and policies are established in the Circulation section of the Coastal General Plan (see Appendix 10).

2.4.2 Caltrans

Caltrans has jurisdiction over the operation of highways and intersections in the study area. Caltrans uses measures of effectiveness to describe the characteristics of a roadway best fit for analyzing State highway facilities. These measures are also recommended for City and County facilities. The measure of effectiveness favored by Caltrans and used in this study is the Control Delay per Vehicle in units of seconds per vehicle. The control delays are used to determine the LOS for the intersection or roadway.

Caltrans strives to maintain service levels at the transition between LOS C and LOS D. In cases where this LOS is not feasible the lead agency should consult with Caltrans to establish an appropriate LOS threshold. If an existing State highway facility is operating worse than the appropriate target LOS, the existing measure of effectiveness should be maintained (Caltrans, 2002).

2.4.3 Vehicle Miles Traveled (VMT)

A separate threshold of significance is proposed for vehicle miles traveled (VMT). As the Project is relatively modest in size, no substantial effect on community-wide VMT, whether positive or negative, is anticipated under the Project. However, an increase in VMT would increase greenhouse gas emissions, and interfere with local and statewide goals to address climate change. Therefore, any increase in VMT, regardless of magnitude, is a potentially significant effect. This is consistent with the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR Advisory) which states:

> "*Recommended threshold for retail projects: A net increase in total VMT may indicate a significant transportation impact.*"

3.0 METHODOLOGIES

3.1 Intersection Level of Service

Level of service (LOS) is commonly used by State, County, and City regulatory agencies to quantify traffic operations on various types of roads based on traffic volumes and roadway capacity, using a series of letter designations ranging from A to F, as established in the Highway Capacity Manual (HCM) (Transportation Research Board of the National Academies of Science in the United States). Generally, LOS A represents free-flow conditions and LOS F represents restricted-flow or breakdown conditions. Level of service is determined by estimating the average intersection delay in seconds per vehicle. The through movements on an uncontrolled main street are assumed to operate at free flow (LOS A). The LOS designation for intersections is generally accompanied by a unit of measure which indicates a level of delay and/or volume to capacity ratios. The LOS standards in the City of Fort Bragg Coastal General Plan use the Highway Capacity Manual, HRB Special Report 87.

The study intersections were analyzed using methodologies from the HCM2010 Highway Capacity Manual – Volume 3 Interrupted Flow (HCM2010) (Transportation Research Board, 2010). This source contains methodologies for various types of intersection control, including signalized intersections and two way stop-controlled (TWSC) intersections. The level of analysis in this study is "planning and preliminary engineering", so the most fundamental data was collected, and default values are used to substitute remaining input data. Only motor vehicle traffic was assessed. HCS Streets Version 7.6 Traffic software was used for the traffic analysis in this study.

3.1.1 Signalized Intersections

The signalized methodology in the HCS Streets Traffic software requires input data for traffic characteristics, lane configuration, signal control, analysis period duration, and approach speed limit. Traffic characteristic inputs include approach movement, demand flow rate, heavy vehicle percentage, base saturation flow, and peak hour factor. Lane configuration inputs include the number and orientation of lanes. Signal control inputs include the type of signal control, phase sequence, cycle length, average green time, and yellow change interval. Computed control delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology to describe the signalized intersection operation as a whole. The ranges of delay associated with the various signalized levels of service are summarized in Table 3, below.

It was assumed in the analysis that in the two future scenarios the signalized intersections would be connected.

Table 3. Levels of Service for Signalized Intersections.

Level of Service	Description	Control Delay (Seconds Per Vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths	< 10
B	Operations with low delay occurring with good progression and/or short cycle lengths	>10 to 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	>20 to 35
D	Operations with poor progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop, and individual cycle failures are noticeable.	>35 to 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	>55 to 80
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80

Reference: 2010 Highway Capacity Manual (Transportation Research Board, 2010).

3.1.2 Two-Way Stop-Controlled Intersections

The two-way stop-controlled (TWSC) (un-signalized) intersection methodology for motor vehicles is determined by the computed or measured control delay and the volume-to-capacity ratio. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns by using the criteria shown in Table 4. LOS for TWSC intersections is not defined for the intersection as a whole or for major-street approaches.

The input data required for evaluation of TWSC intersections includes the number and configuration of lanes on each approach; percent heavy vehicles for each movement; demand flow rate for each entering vehicular movement and each pedestrian crossing movement during the peak hour; peak hour factor; existence of a two-way left-turn lane (TWLTL) or raised or striped median storage (or both); approach grades; existence of flared approaches on the minor street; and existence of upstream traffic signals.

Table 4. Levels of Service for Two-Way Stop-Controlled Intersections.

Level of Service	Description	Control Delay (Seconds Per Vehicle)
A	Little or no delay	< 10
B	Short traffic delays	>10 to 15
C	Average traffic delays	>15 to 25
D	Long traffic delays	>25 to 35
E	Very long traffic delays	>35 to 50
F	Extreme traffic delays with intersection capacity exceeded (for an all-way stop), or with approach/turn movement capacity exceeded (for a side street stop-controlled intersection)	> 50

Reference: 2010 Highway Capacity Manual (Transportation Research Board, 2010).

3.2 Vehicle Queueing

Vehicle queuing analysis is completed for all signalized intersections to assess the capacity of intersections to accommodate the number of vehicles expected to wait at the intersections before being able to pass through or turn. This analysis is important because if there is not enough queuing space between intersections, in left-turn or right-turn pockets, the overflow of vehicles can obstruct operations of the roadway.

The HCS Streets software program version 7.6 was used to determine the 50th percentile vehicle queue, which is the maximum back of queue on a typical cycle. The queue analysis will determine the 50th percentile movement queue lengths based on HCM2010 methodology.

3.3 Project Trip Generation and Distribution

This section discusses the methods and analysis conducted in selecting trip generation rates and assigning Project trips to the existing roadway network. The magnitude of traffic produced by the Proposed Project and the locations where that traffic would appear is estimated using the three-step process of trip generation, trip distribution, and trip assignment. The number of Project trips generated during the weekday A.M. and P.M. peak hour and weekend (Saturday) midday peak hour were estimated using standard rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual 10th Edition (ITE, 2012) based on the land use category. The Trip Generation Manual is a standard reference used by jurisdictions through the State, including Caltrans, and is based on actual trip generation studies performed at numerous locations in areas of varied population. For the purpose of this analysis, it was assumed that the trip generation characteristics of the Proposed Project are best represented by 7,000 square feet of a retail commercial (automobile parts sales) ITE Land Use category (ITE Code #843).

As stated above, the four scenarios to assess project impact are: (1) Existing Conditions, (2) Existing Conditions with Project, (3) Future Conditions, and (4) Future Conditions with Project. The scenarios that include the Project take into account the estimated trip generation from the Site.

3.3.1 Trip Generation

Analysis of Project-related traffic impacts relied on trip generation rates. Trip generation rates for daily, A.M. peak hour, P.M. peak hour, and weekend peak hour, were determined for the Project based on the ITE land use category (for reference material, see Appendix 5). The generation rates are based on the square footage of the facility. The Project proposes an approximately 7,000 square foot facility on 48,000 square feet of improved area. It should be noted that the land use types described in the ITE Trip Generation manual are different than the land use types the City describes in their planning documents or zoning ordinance. The land use types are based on specific site characteristics and the corresponding trip generation rates are based on data collected over years of study for the specific purpose of estimating trip generations.

The ITE trip generation rates under the "Retail" land use category (and ITE land use code) that best fit the Project was Automobile Parts Sales (ITE Code #843). The Project meets the qualities of an Automobile Parts Sales ITE land use, including:

- Parts sales
- Car maintenance services

The "best fit" regression equation was used to establish the total trip generation for the Automobile Parts Sales (ITE Code #843) land use, provided in Table 5, below.

Table 5. Summary of Calculations for Trip Generation Based on the Square Footage of the Project.

Land Use	Units (ksf)	Daily		A.M. Peak Hour		P.M. Peak Hour		Weekend Peak Hour	
		Rate (trip/ksf)	Trips	Rate (trip/ksf)	Trips	Rate (trip/ksf)	Trips	Rate (trip/ksf)	Trips
Retail - Automobile Parts Sales (843)	7	55.34	387.38	2.59	18.13	4.91	34.37	11.53	80.71
Total Project Trips			387.38		18.13		34.37		80.71

The trip generation from the approved Hare Creek project, which affects the Future Conditions and Future Conditions with Project scenarios, is included in Appendix 5.

3.3.2 *Pass-by Trips*

Trip generation is separated into pass-by trips and non-pass-by trips. Pass-by trips are intermediate stops between a starting location and a primary destination from a direct driveway access or an adjacent roadway that offers access. Retail developments, like AutoZone, are often adjacent to busy streets in order to attract motorists already on the roadway. The Project does not propose a driveway directly from the AutoZone parking lot to SR 1, but a driveway connected to the frontage road will allow access from SR 1.

The number of pass-by trips is not expected to significantly change the study results.

3.3.3 *Trip Distribution*

Trip distribution was adopted from the previous GHD traffic study from 2017, based on the existing 24-hour ADT classification counts and intersection turning movement counts. Their methodology included (GHD 2017):

- Distributing the project-generated trips to the "*surrounding roadway system based on probable origins and destinations together with existing traffic patterns in the study area*".
- Trip assignment was based on an assumed distribution of approximately 50 percent of the traffic to and from the south (SR 1) and east (SR 20) and 50 percent of the traffic to and from the north (SR 1).

3.4 Vehicle Miles Travelled

Pursuant to the OPR Advisory, *"lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. A retail project might lead to increases or decreases in VMT, depending on previously existing retail travel patterns."* With that guidance, LACO Associates examined whether the Proposed Project has a significant potential to increase regional VMT by creating a new locus for commercial trips. We also considered the proximity of the Project relative to local population centers as compared to existing comparable retail outlets.

4.0 EXISTING CONDITIONS

This section describes the existing conditions in the traffic study location, including the road network, transit services, bicycle routes, and pedestrian walkways. The existing conditions are also described for the study intersections and roadways during both the weekday A.M. and P.M. peak hours and weekend mid-day peak hour based on peak hour traffic conditions.

4.1 Traffic Study Location

The traffic study location focuses on intersections surrounding the Project location. The Proposed Project location is on an existing unnamed frontage road running parallel along the western side of SR 1 just south of the Noyo River Bridge in Fort Bragg. Access to the Site will be provided either from the intersection 5 or from Intersection 1 (see attached vicinity map, Appendix 1).

4.1.1 Road Network

The roadways analyzed in this study are functionally classified by the City of Fort Bragg Coastal General Plan, dated July 2008 (General Plan). These classifications are Highways, Arterials, Major collectors, Minor collectors, and Local Streets. Highways are high-speed limited access roadways serving primarily regional and county-wide travel. Arterials are medium-speed, medium capacity roadways that provide travel and access within the City and access to highways. Major Collectors are relatively low-speed streets that provide access within and between neighborhoods. Minor Collectors are relatively low-speed streets that provide connections between Arterials and Major Collectors and direct access to parcels. The function of local streets is to provide access to adjacent properties.

The roadways that lead into the study intersections are described in Table 6, below.

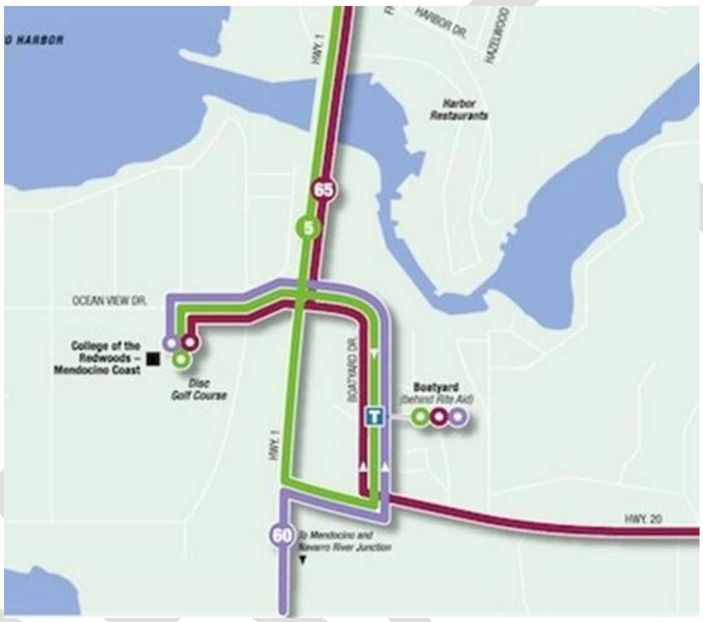
Table 6. Descriptions of Each of the Roads that Lead into the Study Intersections.

Roadway	Description
State Route (SR) 1	A four-lane or two-lane highway. SR 1 runs north-south and passes through the City of Fort Bragg. SR 1 is a two-lane highway south of the SR 1 and SR 20 intersection (Intersection No. 3), and widens into a four-lane highway, passing north through the SR 1 and SR 20 intersection. There are two southbound left-turn lanes at the intersection of SR 1 and SR 20. A two-way left-turn lane (TWLTL) exists north of the intersection of Ocean View Drive and SR 1 (Intersection No. 2). The posted speed limit is 40 mph.
SR 20	A two-lane highway that terminates at the intersection with SR 1. SR 20 runs east-west. A TWLTL exists east of the intersection of Boatyard Drive and SR 20 (Intersection No. 4). The posted speed limit is 40 mph in the vicinity of the intersection.
Ocean View Drive	A two-lane local street giving access to Todd's Point and the unnamed frontage road that the Project is on from SR 1. The posted speed limit is 25 mph.
Boatyard Drive	A two-lane local street that curves between SR 1 at Ocean View Drive (Intersection No. 2) and SR 20 (Intersection No. 4). Provides access to the Boatyard Shopping Center. The posted speed limit is 25 mph.
Unnamed frontage road	A two-lane unnamed frontage road that runs along the west side of SR 1 between the Intersection No. 1 and Ocean View Drive. There is no posted speed limit.
Noyo River Bridge	A four-lane bridge that allows SR 1 to cross the Noyo River. Noyo River Bridge is located North of Intersection No. 1 on SR 1. Class II bike lanes are present on both sides. Pedestrian walkways on both sides are separate from vehicle and bicycle traffic.

4.1.2 *Public Transit*

The Mendocino Transit Authority has three active bus lines within the traffic study area, shown in Figure 1, below. Transit Route 65 (CC Rider) services from Fort Bragg to Willits, Ukiah, and Santa Rosa, and is available seven days per week, with additional trips Monday through Friday. Transit Route 5 (BraggAbout) is an hourly service within Fort Bragg, with service Monday through Friday. Transit Route 60 (The Coaster) runs between Fort Bragg and Mendocino, connecting with Route 75, with service Monday through Friday. All three transit routes use two bus stops within the study area, one at College of the Redwoods off of Ocean View Drive and one at the Boatyard Shopping Center off of Boatyard Drive (MTA 2018).

Figure 1. Map of bus routes 5, 60, and 65 in Fort Bragg
(Source: http://mendocinotransit.org/routes/routes-5-and-60/)



4.1.3 *Bicycle Routes*

SR 1 is part of the Caltrans District 1 Pacific Coast Bike Route, which allows for bicycle travel along the coast of California. SR 1 and SR 20 are Class III bicycle routes according to the Streets and Highways Code (SHC 890.4) standards. Class III bicycle routes designate a preferred route on a street shared with motor vehicles for bicyclists to maintain a continuous bike route (Caltrans, 2017). SR 1 has a paved shoulder of zero to eight feet and SR 20 has a paved shoulder of zero to two feet, separated from motor vehicles by a striped line marking the edge of travel way (Caltrans, n.d.).

4.1.4 *Pedestrian Walkways*

Walkways for pedestrians within the study area are limited. Sidewalks and crosswalks are currently along a small portion of Boatyard Drive near the Boatyard shopping center, at all corners of the intersection of Boatyard Drive and SR 1, and along the south side of Ocean View Drive until Harbor Avenue, as well as the north side between the unnamed frontage road and Harbor Avenue. Sidewalks, curb ramps, and marked crosswalks are present at Intersections No. 2 (Ocean View Drive and SR 1) and No. 3 (SR 1 and SR 20).

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4.2 Study Intersections

The five intersections relevant to the Proposed Project were included as part of the traffic study area are summarized in Table 7 and shown in Appendix 1. The intersections with the highest likelihood of being affected by the Proposed Project were chosen.

Table 7. Intersection Type of the Five Study Intersections.

No.	Intersection	Intersection Type
1	SR 1 / Driveway to frontage road (near Noyo River Bridge)	TWSC
2	SR 1 / Ocean View Drive	Signalized
3	SR 1 / SR 20	Signalized
4	SR 20 / Boatyard Drive	TWSC
5	Ocean View Drive / frontage road	TWSC

4.2.1 Existing Sight Distance

Intersection sight distance includes both corner and stopping sight distances. The corner sight distance is a measurement of a clear line of sight between the driver of a vehicle waiting at the crossroad, a pedestrian or bicyclist waiting at the crossroad, and the driver of an approaching vehicle. The stopping sight distance is a measurement of a clear line of sight between the driver of an approaching vehicle and the traffic stop, be it un-signalized or signalized. The sight distances provided in Table 8 are applied to un-signalized intersections and signalized intersections on public roads whenever possible. Unanticipated vehicle conflicts can occur due to signal malfunctions, violations of signals, right turns on red, and right of way failures.

Table 8. Design Speed, Corner Sight Distance, and Stopping Sight Distance of Roads Forming the Study Intersections.

Roads	Design Speed	Corner Sight Distance	Stopping Sight Distance
SR 20	40mph	440 ft	300 ft
SR 1 (S Main St)	40 mph	440 ft	300 ft
Ocean View Drive	25 mph	275 ft	150 ft
Boatyard Drive	25 mph	275 ft	150 ft
frontage road	--	--	--

Prior review of the existing study intersections conducted by GHD indicates that the minimum sight distances are provided based on intersection geometry configuration and posted speed limits (GHD 2017).

4.3 Traffic Volumes

Data on existing traffic volumes was collected at the study locations on Tuesday (July 17th), Wednesday (July 18th), Thursday (July 19th), and Saturday (July 21st), 2018.

4.3.1 24-hour ADT Vehicle Classification Counts

24-hour ADT vehicle classification counts were used in project trip generation and distribution in the GHD 2017 traffic study. The resulting trip distributions were used in this analysis of projected traffic volumes associated with development of the proposed AutoZone retail store at the Site.

4.3.2 Intersection Traffic Counts

Peak weekday A.M. and P.M. and peak weekend midday intersection turning and through movement volumes for the existing conditions. The distribution of the vehicle types using the roads and intersections of interest. The traffic volumes are presented in Appendix 3.

4.4 Existing Conditions Intersection Level of Service Analysis

The results of the intersection level of service analysis based on existing turning movement traffic volumes are summarized in Table 9. The analysis finds that all study intersections are currently operating acceptably based on Caltrans and City significance thresholds.

The Existing Conditions scenario level of service analysis output tables are provided in Appendix 4.

Table 9. Existing Conditions Intersection Level of Service Summary.

No.	Intersection	Weekday				Weekend	
		A.M.		P.M.		Midday	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	SR 1 / frontage road						
	Eastbound LTR	11.3	B	14.2	B	17.9	C
	Westbound LTR	10.8	B	14	B	14.9	B
	Northbound L	8.7	A	11	B	10.9	B
	Southbound L	8.7	A	10.8	B	9.9	A
2	SR 1 / Ocean View Drive	10.8	B	13.5	B	13.4	B
3	SR 1 / SR 20	8.4	A	12.7	B	11.5	B
4	SR 20 / Boatyard Drive						
	Eastbound L	8.9	A	8.3	A	8.4	A
	Westbound L	8.2	A	8	A	7.9	A
	Northbound LTR			12.8	B	12.8	B
	Southbound LTR	9.9	A	13	B	13	B
5	Ocean View Drive / frontage road						
	Eastbound T	7.4	A	7.4	A	7.4	A
	Southbound L	10.3	B	11	B	9.9	A

4.5 Existing Conditions Signalized Intersection Queue Analysis

Existing traffic volumes were applied to signalized study intersections and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersections. The results of the existing conditions signalized intersection queue analysis are provided in Table 10, below.

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Table 10. Existing Conditions Signalized Intersection Queue Lengths and Ratio of Lanes to Available Storage.

Existing Conditions

Movement	Lane / Avail. Storage	Queue Length - 50th (feet)		
		A.M.	P.M.	Midday
Intersection No. 2 - SR 1 / Ocean View Drive				
EBL	1/100	4.6	19.3	9.7
EBTR	1/110	2.2	7.8	11.5
WBL	1/120	3.3	6.2	5.2
WBT	1/120	1.3	3.8	4.8
WBR	1/120	7.5	15.2	25.7
NBL	1/350	1.6	9.8	7.3
NBT	2/350	23.4	61.6	57.1
NBR	Shared	23.2	60.8	56
SBL	1/400	12.5	14	45.3
SBT	2/400	21.2	43.4	58.3
SBR	Shared	20.8	41.1	57.2
Intersection No. 3 - SR 1 / SR 20				
WBL	1/220	6.4	38.1	24.8
WBR	1/120	18.1	60.5	47.1
NBT	2/170	17.1	49.2	45.1
NBR	1/123	6.4	25.4	23.4
SBL	2/320	7	21.9	21.6
SBT	1/320	3.8	23.6	44.2

Note: Bolded values surpass the available storage per lane.

Based on these results, it appears that queuing in each lane will take place within the available storage capacity and no impacts to current operations are anticipated.

5.0 EXISTING CONDITIONS WITH PROJECT

The existing conditions were then paired with the predicted traffic volume generation from the Project. An LOS and queue length analysis was executed to determine the impacts of the Project on the study intersections.

5.1 Existing Conditions with Project Traffic Volumes

The Existing Conditions with Project scenario traffic volumes were determined by combining the existing traffic volume with the estimated traffic generation. The volumes are in Appendix 3, with the A.M. peak hour, P.M. peak hour, and weekend midday peak.

5.2 Existing Conditions with Project Intersection LOS Analysis

The level of service analysis results, including the delay in seconds and LOS, are summarized in Table 11. Based on the resulting LOS, the study intersections are operating acceptably based on City standard thresholds (reference Table 2).

The Existing Conditions with Project scenario level of service analysis output tables are provided in Appendix 6.

Table 11. Existing Conditions with Project Intersection Level of Service Summary

No.	Intersection	Weekday				Weekend	
		A.M.		P.M.		Midday	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	SR 1 / frontage road						
	Eastbound LTR	12.5	B	14	B	18.7	C
	Westbound LTR	12.6	B	13.6	B	15.4	C
	Northbound L	8.7	A	11.1	B	11.1	B
	Southbound L	9.8	A	10.5	B	10.1	B
2	SR 1 / Ocean View Drive	11.3	B	13.6	B	18.1	B
3	SR 1 / SR 20	8.4	A	8.5	A	11.6	B
4	SR 20 / Boatyard Drive						
	Eastbound L	8.9	A	8.3	A	8.4	A
	Westbound L	8.2	A	8	A	8	A
	Northbound LTR	10.5	B	13	B	12.9	B
	Southbound LTR	9.2	A	13.1	B	13.1	B
5	Ocean View Drive / frontage road						
	Eastbound T	7.4	A	7.5	A	7.6	A
	Southbound L	10.8	B	10.7	B	10.7	B

5.3 Existing Conditions with Project Signalized Intersection Queue Analysis

Existing with Project traffic volumes were applied to signalized study intersections and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity at the intersections. The results of the Existing Conditions with Project signalized intersection queue analysis is provided in Table 12, below.

Table 12. Existing Conditions with Project Signalized Intersection Queue Lengths and Ratio of Lanes to Available Storage

Existing Conditions Plus Project

Movement	Lane / Avail. Storage	Queue Length - 50th (feet)		
		A.M.	P.M.	Midday
Intersection No. 2 - SR 1 / Ocean View Drive				
EBL	1/100	6.2	21	24
EBTR	1/110	3.5	9.6	25.3
WBL	1/120	3.5	5.8	6.4
WBT	1/120	1.5	3.8	7.4
WBR	1/120	8.1	13.6	35.4
NBL	1/350	2.9	9.3	71
NBT	2/350	27.3	47.7	41.3
NBR	Shared	27	47.1	37.5
SBL	1/400	13.2	12.9	58.6
SBT	2/400	23.8	45.7	108.4
SBR	Shared	23.3	43.2	104.8
Intersection No. 3 - SR 1 / SR 20				
WBL	1/220	6.4	6	24.5
WBR	1/120	18.1	17.3	50.2
NBT	2/170	17.1	17.6	47.1
NBR	1/123	6.4	6.5	23.1
SBL	2/320	7	6.8	21.9
SBT	1/320	3.8	4.6	45.2

Based on these results, it appears that queuing in each lane will take place within the available storage capacity and no impacts to operations are anticipated.

5.4 Vehicle Miles Traveled (VMT)

The Proposed Project consists of a retail auto parts store located generally to the south of the major population center of Fort Bragg, which is expected to provide the substantial majority of its customer base. As described in the OPR Technical Advisory, most retail trips are assumed to be re-routed from other existing retail outlets offering similar products. The most comparable existing retail outlets are all along SR 1/South Main Street. Two are most convenient to the northerly portions of Fort Bragg, and one quite comparable outlet is located farther south and more distant from the primary population center. As such, the most likely effect on regional vehicle miles traveled associated with development of the Proposed Project is anticipated to slightly reduce the distance of some trips from the main population center southbound and to offer a second southerly option for customers approaching Fort Bragg from the south or from the east along SR 20, which may also reduce trip lengths modestly by diverting traffic that would otherwise continue to the northerly outlets. As the proposed project is close to a similar outlet, the regional effect on VMT is likely to be small, but generally will be reduced by offering a closer option for southbound traffic and an alternative nearby option for northbound traffic.

6.0 FUTURE CONDITIONS

The Future Conditions scenario evaluates the potential significance of 20 years of regional growth on the road network. The estimated future traffic volumes at each study intersection in the year 2038 were approximated with 20-year growth factors from the Caltrans 2014 Growth Factors (Caltrans, 2014) applied to the existing conditions traffic turning movement counts, taken in July 2018. The Caltrans growth factors were developed from California Air Resources Board traffic growth projections and historic traffic growth data. The traffic generation from the approved Hare Creek project in the area is also taken into account.

Growth factors of 1.15 and 1.05 were applied to existing traffic volumes on SR 1 and SR 20, respectively. The 2014 Growth Factors (Caltrans, 2014) are included in Appendix 7.

6.1 Future Conditions Traffic Volumes

Future Conditions traffic volumes for the weekday A.M. and P.M. peak hours and weekend midday peak are presented in Appendix 3. The volumes are projected for the year 2038, based on existing traffic volumes and the Caltrans District 1 2014 Growth Factors, with additional traffic generated by the approved Hare Creek project.

6.2 Future Conditions Intersection LOS Analysis

The level of service analysis results, including the delay in seconds and LOS, are summarized in Table 13, below. Based on the resulting LOS, the study intersections in the Future Conditions scenario are operating sufficiently based on City standard thresholds (reference Table 2). The Future Conditions scenario level of service analysis output tables are provided in Appendix 8.

Intersections No. 1, No. 2, and No. 3 operate sufficiently, with an LOS for all movements within the intersections along SR 1 between A and D.

Intersections No. 4 and No. 5 would be anticipated to operate sufficiently, at LOS C or better, during all peak periods.

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Table 13. Future Conditions Intersection Level of Service Summary

No.	Intersection	Weekday				Weekend	
		A.M.		P.M.		Midday	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	SR 1 / frontage road						
	Eastbound LTR	15.7	C	25	D	27.2	D
	Westbound LTR	12.3	B	16.6	C	19.6	C
	Northbound L	9.1	A	13	B	13.3	B
	Southbound L	9.4	A	12.2	B	11.1	B
2	SR 1 / Ocean View Drive	13	B	22	C	33.5	C
3	SR 1 / SR 20	11.7	B	21.3	C	19	B
4	SR 20 / Boatyard Drive						
	Eastbound L	1.9	A	1.9	A	8.7	A
	Westbound L	7.7	A	8.1	A	8.1	A
	Northbound LTR			13.9	B	13.9	B
	Southbound LTR	9.8	A	14.4	B	14.4	B
5	Ocean View Drive / frontage road						
	Eastbound T	7.5	A	7.8	A	8	A
	Southbound L	10	B	11.3	B	12.8	B

6.3 Future Conditions Signalized Intersection Queue Analysis

Future traffic volumes were applied to signalized study intersections and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity. The results of the Future Conditions signalized intersection queue analysis is provided in Table 14, below.

Table 14. Future Conditions Signalized Intersection Queue Lengths and Ratio of Lanes to Available Storage

Future Conditions

Movement	Lane / Avail. Storage	Queue Length - 50th (feet)		
		A.M.	P.M.	Midday
Intersection No. 2 - SR 1 / Ocean View Drive				
EBL	1/100	25.4	**136.6**	**188.3**
EBTR	1/110	18.9	93.6	**164.8**
WBL	1/120	8.4	18.1	14
WBT	1/120	4.9	19.7	26.5
WBR	1/120	25.4	53.1	88.6
NBL	1/350	18.1	93.7	130.3
NBT	2/350	41.5	85.1	150.4
NBR	Shared	41.4	89.7	153.1
SBL	1/400	36.6	44.3	134.5
SBT	2/400	51.5	167.5	329.5
SBR	Shared	50.3	151.5	311.2
Intersection No. 3 - SR 1 / SR 20				
WBL	1/220	22.7	129.4	93.7
WBR	1/120	66.7	**232.5**	**213.5**
NBT	2/170	35.7	134.2	146.9
NBR	1/123	13.2	59.2	60.6
SBL	2/320	31	62.5	75.8
SBT	1/320	13.1	61.7	75

Note: Bolded values surpass the available storage per lane.

Based on this analysis, there is the potential in certain conditions for several lanes to experience queues longer than the available storage, potentially causing traffic to back up across nearby intersections or for turning lane traffic to back up into through lanes. Additional detail is provided in the Future Conditions with Project analysis, below.

7.0 FUTURE CONDITIONS WITH PROJECT

7.1 Future Conditions with Project Traffic Volumes

Future Conditions with Project traffic volumes for the weekday A.M. and P.M. peak hours and weekend midday peak are presented in Appendix 3. The volumes are projected for the year 2038, based on the Future Conditions volumes along with the generated trips from the Project and the approved Hare Creek project.

7.2 Future Conditions with Project Intersection LOS Analysis

Similarly, to the previous scenarios, the study intersections for the for the Future Conditions with Project scenario operate sufficiently. The LOS is summarized in Table 15, below. The Future Conditions with Project scenario level of service analysis output tables are provided in Appendix 9.

Intersections No. 1, No. 2, and No. 3 would be anticipated to operate sufficiently under the Future Conditions with Project scenario, in comparison to City and Caltrans standards (reference Table 2). The LOS of all movements within the intersection along SR 1 would remain between A and D. Intersections No. 4 and No. 5, which are not along SR 1, would be anticipated to operate at acceptable levels of service of C or above.

Table 15. Future Conditions with Project Intersection Level of Service Summary

No.	Intersection	Weekday				Weekend	
		A.M.		P.M.		Midday	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	SR 1 / frontage road						
	Eastbound LTR	20.8	C	25.6	D	28.7	D
	Westbound LTR	22.1	C	18.7	C	20.5	C
	Northbound L	9.1	A	13.1	B	13.7	B
	Southbound L	15.5	C	13.5	B	11.6	B
2	SR 1 / Ocean View Drive	17.2	B	24	C	41.5	D
3	SR 1 / SR 20	19.8	B	21.5	C	19.5	B
4	SR 20 / Boatyard Drive						
	Eastbound L	7.7	A	8.6	A	8.7	A
	Westbound L	7.5	A	8.1	A	8.1	A
	Northbound LTR			13.7	B	14.1	B
	Southbound LTR	9.8	A	14.5	B	14.6	B
5	Ocean View Drive / frontage road						
	Eastbound T	7.5	A	7.9	A	8.2	A
	Southbound L	9.6	A	11.5	B	16.4	C

7.3 Future Conditions with Project Signalized Intersection Queue Analysis

Future with Project traffic volumes were applied to signalized study intersections and the peak hour demand 50th percentile queue lengths were reviewed against the existing lane storage capacity. The results of the Future Conditions with Project signalized intersection queue analysis is provided in Table 16, below.

Table 16. Future Conditions with Project signalized intersection queue lengths and ratio of lanes to available storage.

Future Conditions with Project

Movement	Lane / Avail. Storage	Queue Length - 50th (feet)		
		A.M.	P.M.	Midday
Intersection No. 2 - SR 1 / Ocean View Drive				
EBL	1/100	54.5	**146**	**250.1**
EBTR	1/110	42.3	102.3	**255.3**
WBL	1/120	15.1	18.1	14
WBT	1/120	10	20.7	29.9
WBR	1/120	49.6	53	93.3
NBL	1/350	39.7	101.3	254.7
NBT	2/350	47.6	118.7	137.5
NBR	Shared	49.3	118	140.8
SBL	1/400	67.2	44.3	134.5
SBT	2/400	63.3	183.1	340.2
SBR	Shared	61.1	164.3	320.6
Intersection No. 3 - SR 1 / SR 20				
WBL	1/220	46.4	128.5	92.6
WBR	1/120	**138.1**	**234.5**	**217.8**
NBT	2/170	49.6	138.4	157.6
NBR	1/123	17.6	59.9	62
SBL	2/320	57.1	64.9	76.3
SBT	1/320	117.4	69.4	102.2

Note: Bolded values surpass the available storage per lane.

Based on this analysis, there is the potential in certain conditions for several lanes to experience queues longer than the available storage, potentially causing traffic to back up across nearby intersections or for turning lane traffic to back up into through lanes. Specifically, under the Future Conditions with Project scenario, the following may occur:

- Intersection 2 Eastbound Left and Eastbound Through/Right: Traffic may back up across the intersection of Ocean View Drive and the SR 1 Frontage Road. Through/Right traffic may extend beyond the start of the left turn lane.
- Intersection 3 Westbound Right: Traffic may extend beyond the current extent of the right turn lane striping.

8.0 SUMMARY AND RECOMMENDATIONS

This section summarizes the results of the Traffic Impact Analysis associated with development of the Proposed Project, including its potential traffic impacts.

The LOS results for the four scenarios run on the studied roadway network are summarized in Table 17. In conclusion, this study finds that the Proposed Project would not be expected to contribute significantly to the potential deterioration of traffic operations in the study area for the conditions analyzed in this study based on LOS. Each of the study intersections is expected to operate acceptably with or without the Project under each of the four study scenarios and with the addition of Proposed Project improvements to the roadway network.

Table 17. Summary of minimum LOS requirements and the lowest LOS from the results for each intersection and scenario combination.

Scenario	Intersection No.	Intersection Location	Minimum LOS Requirement	Analysis Results: Minimum LOS
Existing	1	Along SR1	D	C
	2	Along SR1	D	B
	3	Along SR1	D	B
	4	Not along SR1	C	B
	5	Not along SR1	C	B
Existing with Project	1	Along SR1	D	C
	2	Along SR1	D	B
	3	Along SR1	D	B
	4	Not along SR1	C	B
	5	Not along SR1	C	B
Future	1	Along SR1	D	D
	2	Along SR1	D	C
	3	Along SR1	D	C
	4	Not along SR1	C	B
	5	Not along SR1	C	B
Future with Project	1	Along SR1	D	D
	2	Along SR1	D	D
	3	Along SR1	D	C
	4	Not along SR1	C	B
	5	Not along SR1	C	C

As described above, the vehicle miles traveled (VMT) will remain the same or decrease with construction of the Project. The addition of a retail auto parts store between two existing stores in the area will decrease the distance consumers will have to travel.

With respect to queuing, median queue lengths for Existing and Existing with Project scenarios do not exceed available lane storage. In the Future and Future with Project scenario, queuing may interfere with traffic operations in a limited number of locations. Recommendations for addressing these impacts are provided below.

8.1 Queuing Recommendations

As noted above, in the Future with Project scenario, queuing may interfere with traffic operations in a limited number of locations. Recommendations for addressing potential impacts at these locations are as follows:

1) Intersection 2/5: With the Proposed Project, install appropriate Keep Clear signage and street markings at the intersection of Ocean View Drive and the frontage road. This will allow southbound traffic on the frontage road to merge with eastbound traffic on Ocean View Drive, without impacting the operations of the traffic signal at SR 1 and Ocean View Drive. There is sufficient additional stacking room between the Ocean View/Frontage Road intersection and the Ocean View/Harbor Avenue intersection to the west to accommodate the anticipated additional queue length for eastbound left and eastbound through traffic.

2) Intersection 3: As conditions warrant and concurrent with regular maintenance, the westbound north lane striping could be extended by approximately 100 feet to provide an earlier separation between left turning and right turning traffic. No changes to pavement configuration are required.

No mitigation is necessary for northbound through traffic, as there is ample queuing length south of the northbound split into two lanes.

9.0 REFERENCES

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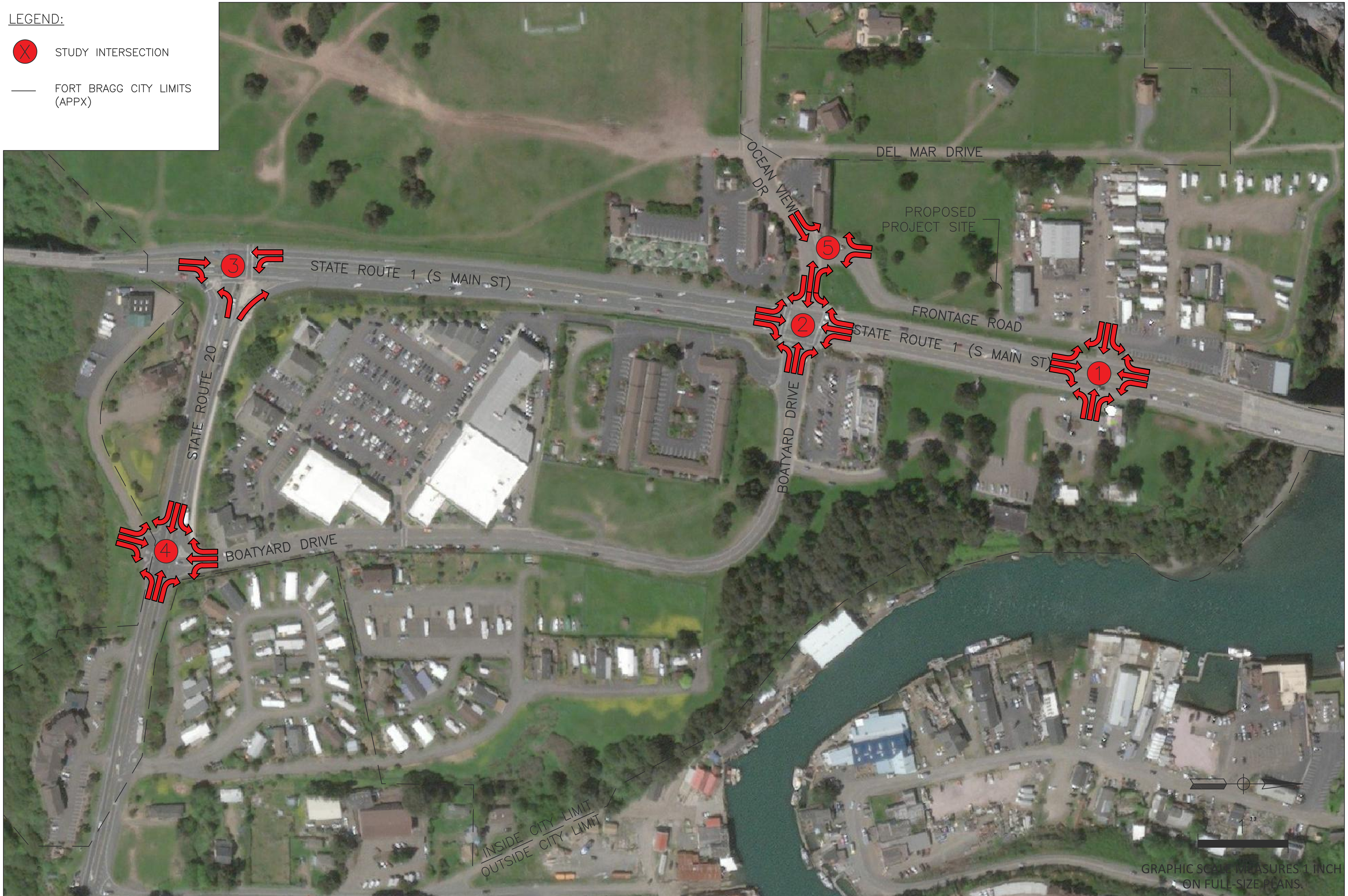
APPENDIX 1

Project Vicinity Map



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AUTO ZONE DEVELOPMENT - TRAFFIC IMPACT STUDY
1151 S MAIN ST, FORT BRAGG, CA ; APN:018-440-58
SITE MAP

AUTO ZONE, INC.
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ASV
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APPROVED	RLW
DATE	9/24/2018
JOB NUMBER	8978.07
SHEET	

FIG 2

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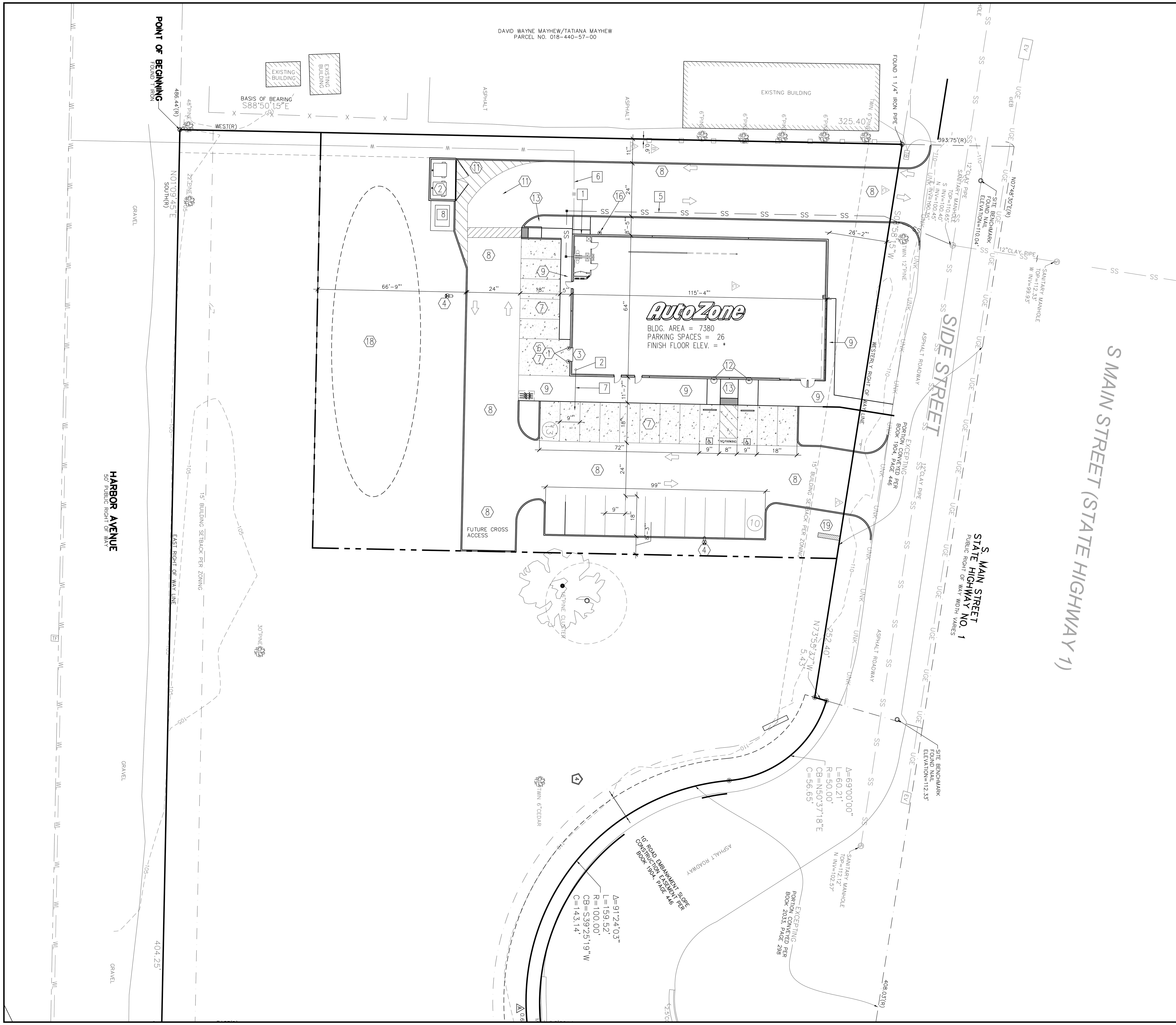
APPENDIX 2

Project Site Plan



BUILDING & PAVING

1. Pipe guard – see details 16 / AS2
2. Dumpster layout – see details 8,9,10,11 & 12/ AS2
3. Service Door Plan – see detail 15/AS2
4. Concrete light pole base – see detail 13/AS2 Aim light fixture in direction as indicated.
5. New Curbing. See detail ___ Civil Plans
6. Loading Area: slope at max. 2-1/2% away from building.
7. Concrete paving – see dtl. 4/ AS2 Expansion and Control joints – see dtls. 21 & 22/AS2. Maximum spacing for control joints is 15' O.C. each way.
8. New Asphalt paving – see dtl. 5/AS2
9. New Concrete sidewalk – see details 19, 20/AS2
10. 4" wide parking stripe painted white (typ.)
11. 4" wide diagonal stripes painted white at 2 ft. O.C.
12. Handicap parking sign – see detail 17 & 18/AS2 G.C. to provide one Van Accessible sign.
13. Accessible Ramp – See details 1 & 2/AS2 – Max. slope 1:12 (8.33%) , Max. cross slope 1:50 (2.00%) Truncated dome surface color to be yellow per CBC 2013, section 11B-705.1.1.3.
14. Bicycle rack location. See detail 24/AS.2
15. New landscape area. See Landscaping plans
16. Yard hydrant/hose bibb location. See detail 6/P1
17. Existing tree to remain. Protect and preserve during construction.
18. Proposed Detention pond area
19. Proposed Monument Sign location

UTILITY KEYNOTES

1. Electrical Switchgear location
2. 6" Fire Riser Location
3. 6" Roof Drain Outlet point. See sheet A6 detail 9
4. Sanitary sewer connection point. The contractor to pothole and verify the location of the existing utility line prior to construction of new utility and storm drain lines.
5. New 6" Sanitary sewer lateral. See sheet C6 Utility Plan
6. 1" Domestic Water service. See sheet C6 Utility Plan
7. New fire line. See Utility Plan & FP1

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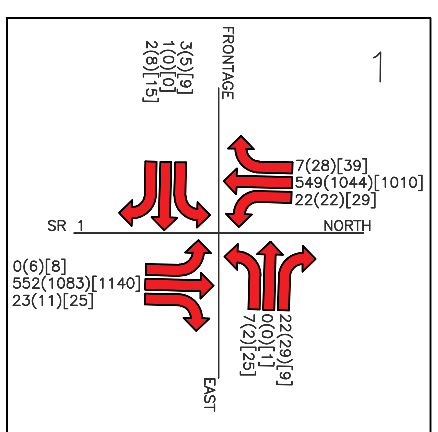
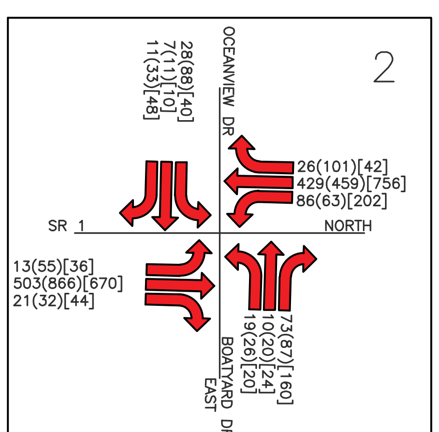
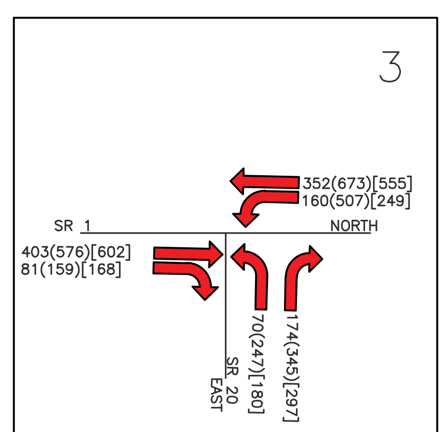
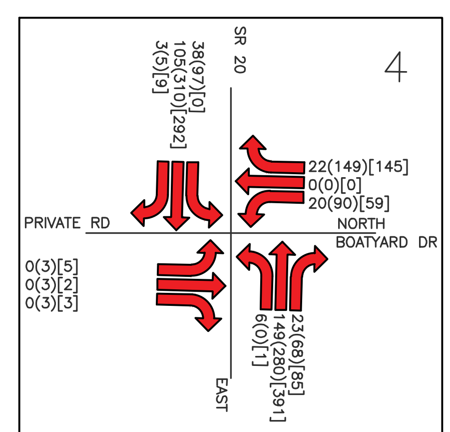
APPENDIX 3

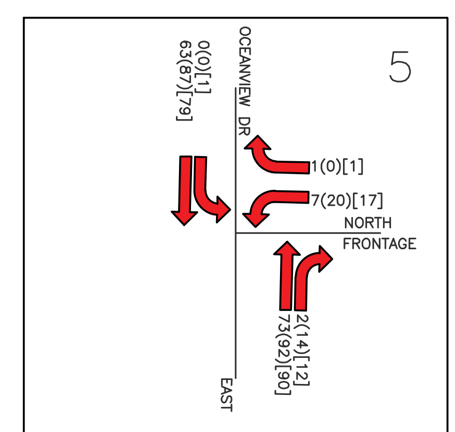
Traffic Volumes Figures











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(XX)	WEEKDAY PM (4–6 PM)
[XX]	WEEKEND MID–DAY PEAK HOUR VOLUME
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1151 S MAIN ST, FORT BRAGG, CA ; APN:018-440-58

EXISTING TRAFFIC VOLUME

AUTO ZONE, INC.
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

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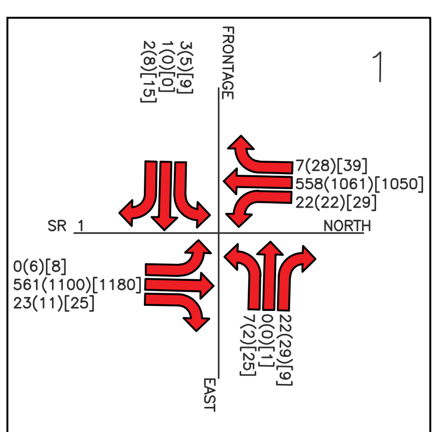
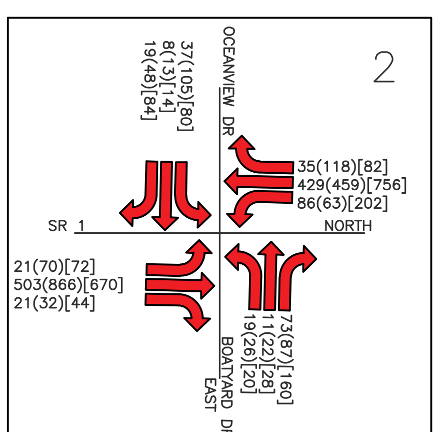
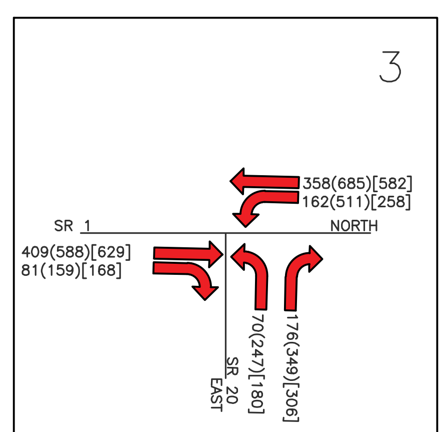
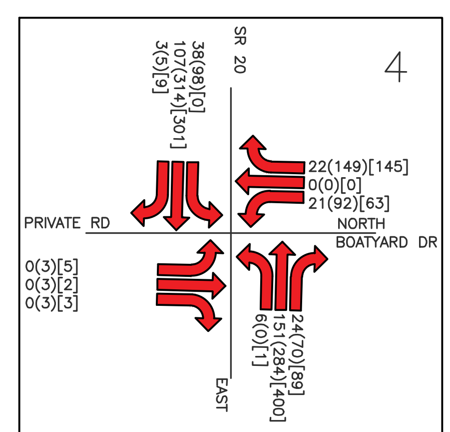
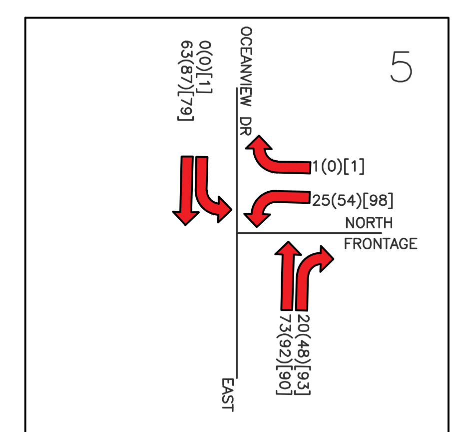
SHEET	VOL 1











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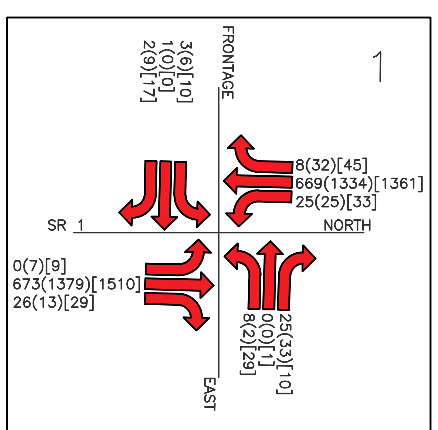

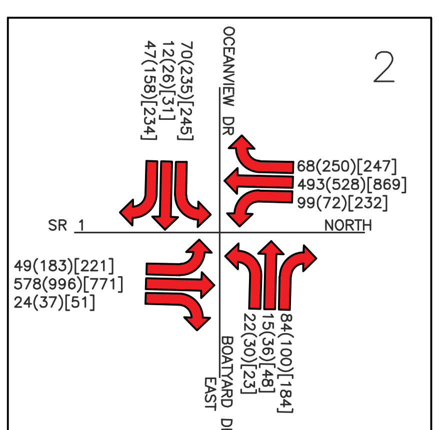

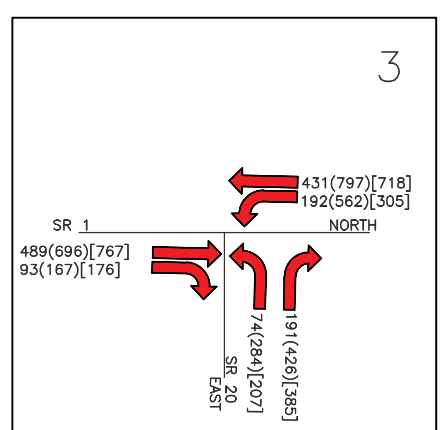

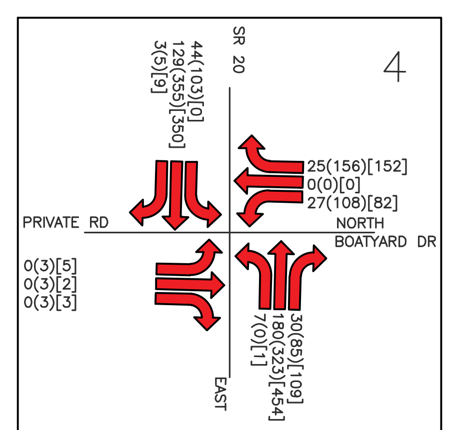

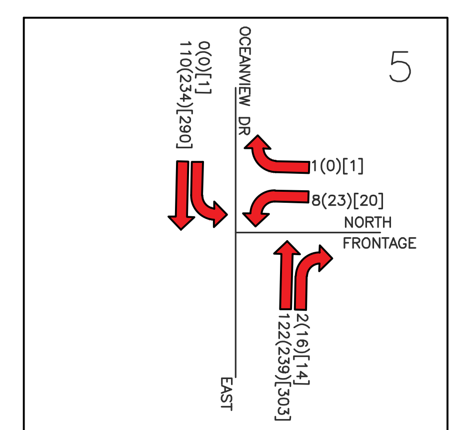

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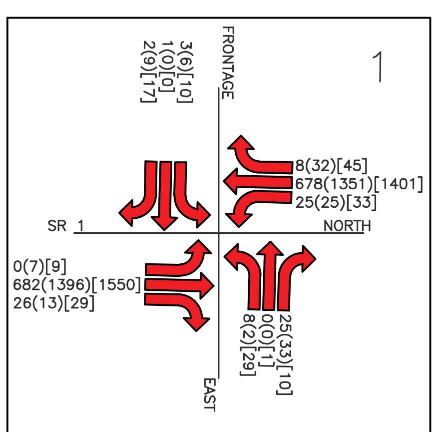

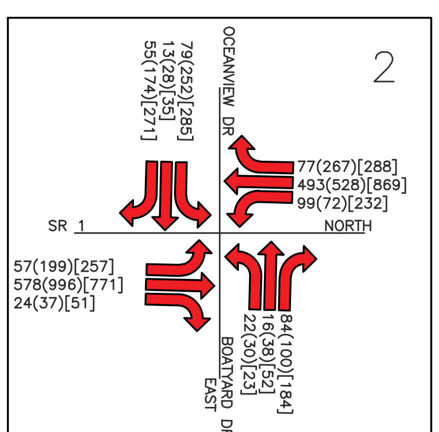

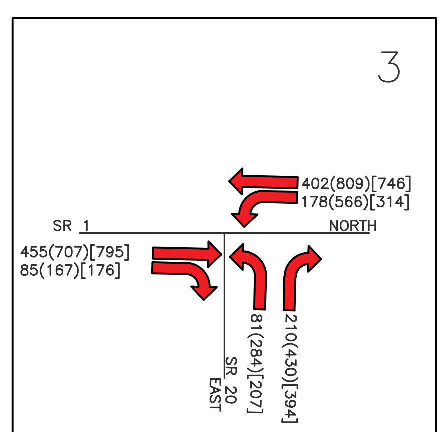

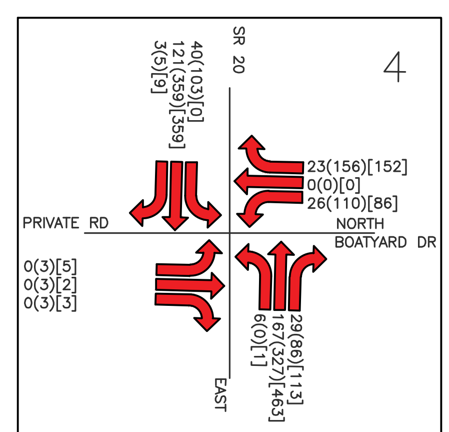

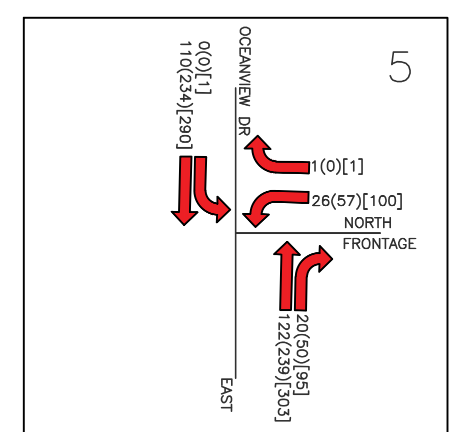

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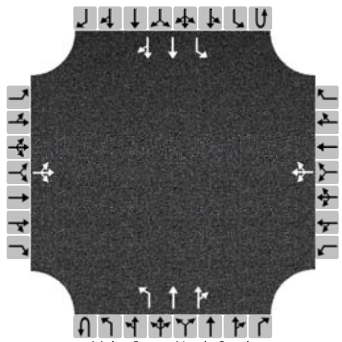
APPENDIX 4

Existing Conditions Results

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS AM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		3	1	2		7	0	22	0	0	552	23	0	22	549	7
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.386	0.386	0.000		0.386	0.386	0.386						0.386		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			7				32			0				24		
Capacity, c (veh/h)			580				654			983				991		
v/c Ratio			0.01				0.05			0.00				0.02		
95% Queue Length, Q_{95} (veh)			0.0				0.2			0.0				0.1		
Control Delay (s/veh)			11.3				10.8			8.7				8.7		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	11.3				10.8				0.0				0.3			
Approach LOS	B				B											

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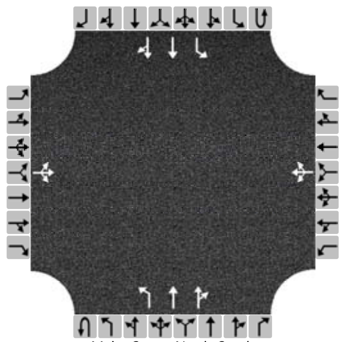
Intersection #1 Existing Am peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed	3:40	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS PM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		5	0	8		2	0	29	0	6	1083	11	0	22	1044	28
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.598	0.598	0.000		0.598	0.598	0.598		0.000				0.598		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

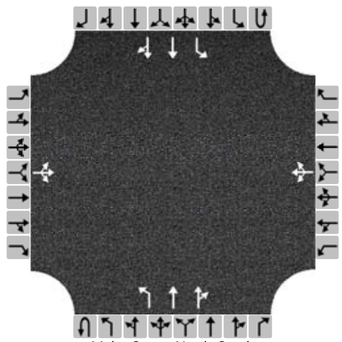
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)			14				34			7				24		
Capacity, c (veh/h)			406				433			607				648		
v/c Ratio			0.03				0.08			0.01				0.04		
95% Queue Length, Q_{95} (veh)			0.1				0.3			0.0				0.1		
Control Delay (s/veh)			14.2				14.0			11.0				10.8		
Level of Service (LOS)			B				B			B				B		
Approach Delay (s/veh)	14.2				14.0				0.1				0.2			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed	3:40	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS Weekend peak hour		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		9	0	15		25	1	9	0	8	1140	25	0	29	1010	39
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.520	0.520	0.000		0.520	0.520	0.520		0.000				0.520		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

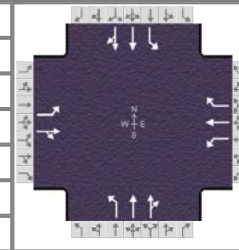
	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)			26				38			9				32		
Capacity, c (veh/h)			305				401			620				773		
v/c Ratio			0.09				0.09			0.01				0.04		
95% Queue Length, Q_{95} (veh)			0.3				0.3			0.0				0.1		
Control Delay (s/veh)			17.9				14.9			10.9				9.9		
Level of Service (LOS)			C				B			B				A		
Approach Delay (s/veh)	17.9				14.9				0.1				0.3			
Approach LOS	C				B											

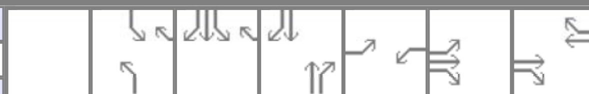
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Existing AM.xus		
Project Description	SR1 & Ocean View				

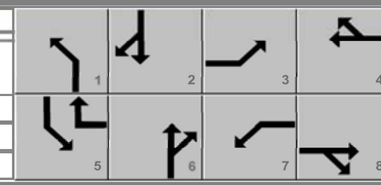


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	28	7	11	19	10	73	13	503	21	86	429	26

Signal Information			
Cycle, s	32.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.6	2.9	7.1	1.0	0.4	4.2
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	5.5	8.6	5.0	8.2	4.6	11.1	7.5	14.0
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	3.0	3.1	3.0
Queue Clearance Time (g_s), s	2.5	2.3	2.4	3.3	2.2	5.4	3.6	5.4
Green Extension Time (g_e), s	0.0	0.2	0.0	0.2	0.0	1.6	0.2	1.6
Phase Call Probability	0.24	0.72	0.17	0.69	0.10	1.00	0.57	1.00
Max Out Probability	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	30	20		21	11	79	11	225	223	93	249	245
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1712		1810	1900	1610	1810	1900	1873	1810	1900	1861
Queue Service Time (g_s), s	0.5	0.3		0.4	0.2	1.3	0.2	3.4	3.4	1.6	3.4	3.4
Cycle Queue Clearance Time (g_c), s	0.5	0.3		0.4	0.2	1.3	0.2	3.4	3.4	1.6	3.4	3.4
Green Ratio (*g/C*)	0.05	0.14		0.03	0.13	0.24	0.02	0.22	0.22	0.11	0.31	0.31
Capacity (*c*), veh/h	83	247		59	249	386	33	421	415	196	592	580
Volume-to-Capacity Ratio (*X*)	0.365	0.079		0.349	0.044	0.206	0.333	0.535	0.537	0.476	0.421	0.423
Back of Queue (*Q*), ft/ln (50 th percentile)	4.6	2.2		3.3	1.3	7.5	1.6	23.4	23.2	12.5	21.2	20.8
Back of Queue (*Q*), veh/ln (50 th percentile)	0.2	0.1		0.1	0.1	0.3	0.1	0.9	0.9	0.5	0.8	0.8
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	15.0	12.0		15.4	12.3	9.9	15.7	11.2	11.2	13.6	8.9	8.9
Incremental Delay (d_2), s/veh	1.0	0.1		1.3	0.0	0.1	0.2	0.0	0.0	0.7	0.2	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	16.0	12.1		16.7	12.4	10.0	15.9	11.2	11.2	14.3	9.0	9.0
Level of Service (LOS)	B	B		B	B	A	B	B	B	B	A	A
Approach Delay, s/veh / LOS	14.5	B		11.5	B		11.3	B		9.9	A	
Intersection Delay, s/veh / LOS	10.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.26	B	2.26	B	2.08	B	1.88	B
Bicycle LOS Score / LOS	0.57	A	0.67	A	0.97	A	0.97	A

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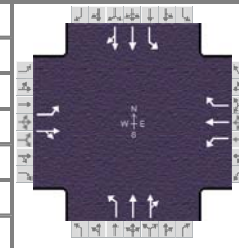
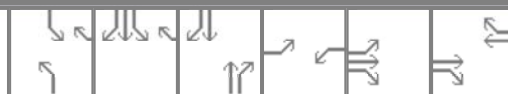
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Existing PM.xus		
Project Description	SR1 & Ocean View				

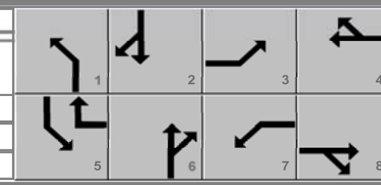


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	88	11	33	26	20	87	55	866	32	63	459	101

Signal Information			
Cycle, s	41.8	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.7	0.7	12.9	1.7	2.4	5.4
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



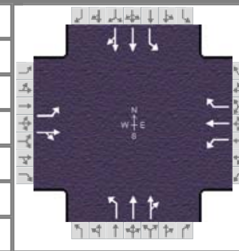
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	8.1	11.8	5.7	9.4	6.7	16.9	7.4	17.5
Change Period, (Y+R c), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (MAH), s	3.1	3.2	3.1	3.2	3.1	3.0	3.1	3.0
Queue Clearance Time (g s), s	4.1	3.0	2.6	4.1	3.1	10.0	3.5	7.7
Green Extension Time (g e), s	0.1	0.3	0.0	0.3	0.1	2.7	0.1	2.7
Phase Call Probability	0.67	0.95	0.28	0.89	0.44	1.00	0.55	1.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	96	48		28	22	95	50	409	404	68	313	296
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1674		1810	1900	1610	1810	1900	1876	1810	1900	1781
Queue Service Time (g s), s	2.1	1.0		0.6	0.4	2.1	1.1	8.0	8.0	1.5	5.6	5.7
Cycle Queue Clearance Time (g c), s	2.1	1.0		0.6	0.4	2.1	1.1	8.0	8.0	1.5	5.6	5.7
Green Ratio (g/C)	0.10	0.19		0.04	0.13	0.21	0.06	0.31	0.31	0.08	0.32	0.32
Capacity (c), veh/h	179	312		76	246	340	119	589	582	147	619	581
Volume-to-Capacity Ratio (X)	0.535	0.153		0.370	0.088	0.278	0.420	0.694	0.694	0.465	0.505	0.510
Back of Queue (Q), ft/ln (50 th percentile)	19.3	7.8		6.2	3.8	15.2	9.8	61.6	60.8	14	43.4	41.1
Back of Queue (Q), veh/ln (50 th percentile)	0.8	0.3		0.2	0.2	0.6	0.4	2.5	2.4	0.6	1.7	1.6
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d 1), s/veh	18.1	14.3		19.6	16.1	13.9	18.9	12.8	12.8	18.5	11.5	11.5
Incremental Delay (d 2), s/veh	0.9	0.1		1.1	0.1	0.2	0.1	0.1	0.1	0.8	0.2	0.3
Initial Queue Delay (d 3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	19.0	14.4		20.7	16.2	14.1	19.0	12.8	12.8	19.3	11.7	11.7
Level of Service (LOS)	B	B		C	B	B	B	B	B	B	B	B
Approach Delay, s/veh / LOS	17.5	B		15.7	B		13.2	B		12.5	B	
Intersection Delay, s/veh / LOS	13.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.26	B	2.27	B	2.08	B	1.89	B
Bicycle LOS Score / LOS	0.72	A	0.73	A	1.34	A	1.05	A

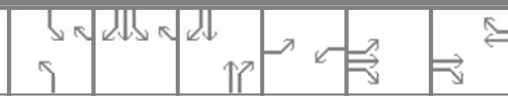
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Existing Weekend.xus		
Project Description	SR1 & Ocean View				

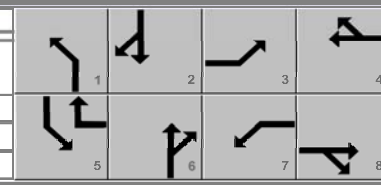


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	48	20	24	160	36	670	44	202	756	42

Signal Information			
Cycle, s	43.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.1	0.9	12.1	1.4	1.1	5.8
Yellow	4.0	4.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	6.5	10.9	5.4	9.8	6.1	16.1	11.0	21.0
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	3.0	3.1	3.0
Queue Clearance Time (g_s), s	3.0	3.5	2.5	5.7	2.8	9.0	7.0	9.9
Green Extension Time (g_e), s	0.1	0.5	0.0	0.1	0.1	3.0	0.4	2.8
Phase Call Probability	0.41	0.98	0.23	0.97	0.34	1.00	0.93	1.00
Max Out Probability	0.00	0.00	0.41	1.00	0.00	0.00	0.00	0.07

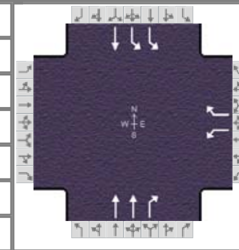
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	43	63		22	26	174	35	346	339	220	438	430
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1654		1810	1900	1610	1810	1900	1858	1810	1900	1864
Queue Service Time (g_s), s	1.0	1.5		0.5	0.5	3.7	0.8	7.0	7.0	5.0	7.9	7.9
Cycle Queue Clearance Time (g_c), s	1.0	1.5		0.5	0.5	3.7	0.8	7.0	7.0	5.0	7.9	7.9
Green Ratio (*g/C*)	0.06	0.16		0.03	0.13	0.30	0.05	0.28	0.28	0.16	0.39	0.39
Capacity (*c*), veh/h	104	263		59	255	477	87	531	520	293	747	733
Volume-to-Capacity Ratio (*X*)	0.417	0.240		0.368	0.102	0.365	0.395	0.651	0.653	0.749	0.586	0.586
Back of Queue (*Q*), ft/ln (50 th percentile)	9.7	11.5		5.2	4.8	25.7	7.3	57.1	56	45.3	58.3	57.2
Back of Queue (*Q*), veh/ln (50 th percentile)	0.4	0.5		0.2	0.2	1.0	0.3	2.3	2.2	1.8	2.3	2.3
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	19.8	16.0		20.7	16.6	12.1	20.1	13.8	13.8	17.4	10.4	10.4
Incremental Delay (d_2), s/veh	1.0	0.2		1.4	0.1	0.2	0.1	0.0	0.0	1.5	0.3	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	20.8	16.2		22.1	16.7	12.3	20.2	13.9	13.9	18.9	10.7	10.7
Level of Service (LOS)	C	B		C	B	B	C	B	B	B	B	B
Approach Delay, s/veh / LOS	18.1	B		13.8	B		14.2	B		12.4	B	
Intersection Delay, s/veh / LOS	13.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.27	B	2.09	B	1.88	B
Bicycle LOS Score / LOS	0.66	A	0.85	A	1.16	A	1.38	A

 HCS™ Streets Version 7.6 Generated: 9/21/2018 2:16:20 PM

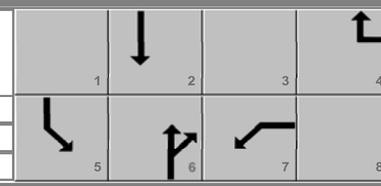
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Existing AM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				70		174		403	81	160	352	

Signal Information										
Cycle, s	28.3	Reference Phase	2							
Offset, s	9	Reference Point	End	Green	4.3	6.8	5.3	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				9.3		10.8	8.3	19.1
Change Period, ($Y+R_c$), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		3.0	3.1	3.0
Queue Clearance Time (g_s), s				5.1		5.0	3.1	4.9
Green Extension Time (g_e), s				0.1		1.8	0.4	1.8
Phase Call Probability				0.88		1.00	0.71	1.00
Max Out Probability				1.00		0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (v), veh/h				76		189		438	88	156	343	
Adjusted Saturation Flow Rate (s), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				1.0		3.1		3.0	1.2	1.1	2.9	
Cycle Queue Clearance Time (g_c), s				1.0		3.1		3.0	1.2	1.1	2.9	
Green Ratio (*g/C*)				0.19		0.19		0.24	0.24	0.15	0.53	
Capacity (c), veh/h				337		300		868	386	532	1011	
Volume-to-Capacity Ratio (X)				0.226		0.630		0.505	0.228	0.293	0.339	
Back of Queue (Q), ft/ln (50 th percentile)				6.4		18.1		17.1	6.4	7	3.8	
Back of Queue (Q), veh/ln (50 th percentile)				0.3		0.7		0.7	0.3	0.3	0.2	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				9.8		10.7		9.3	8.7	10.7	3.8	
Incremental Delay (d_2), s/veh				0.1		0.8		0.2	0.1	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh				9.9		11.5		9.5	8.8	10.8	3.9	
Level of Service (LOS)				A		B		A	A	B	A	

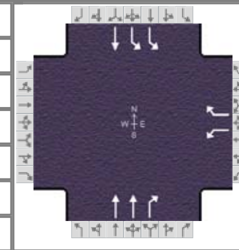
	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		11.0	B	9.4	A	6.0	A
Intersection Delay, s/veh / LOS	8.4				A			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	2.28	B	2.07	B	0.65	A
Bicycle LOS Score / LOS				F	0.92	A	1.41	A

 HCS™ Streets Version 7.6 Generated: 9/21/2018 1:21:43 PM

HCS7 Signalized Intersection Results Summary

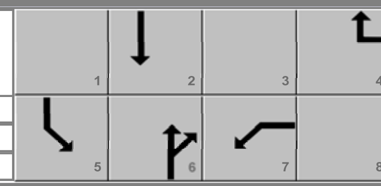
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Existing PM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				247		345		576	159	507	673	

Signal Information			
Cycle, s	41.2	Reference Phase	2
Offset, s	76	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.7	11.0	12.4	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				16.4		15.0	9.7	24.7
Change Period, (*Y+R c*), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		3.0	3.1	3.0
Queue Clearance Time (*g s*), s				10.8		8.4	4.7	6.2
Green Extension Time (*g e*), s				1.4		2.5	0.6	2.5
Phase Call Probability				1.00		1.00	0.94	1.00
Max Out Probability				0.00		0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				268		375		626	173	242	321	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (*g s*), s				5.1		8.8		6.4	3.7	2.7	4.2	
Cycle Queue Clearance Time (*g c*), s				5.1		8.8		6.4	3.7	2.7	4.2	
Green Ratio (*g/C*)				0.30		0.30		0.27	0.27	0.14	0.50	
Capacity (*c*), veh/h				551		491		977	435	484	956	
Volume-to-Capacity Ratio (*X*)				0.487		0.764		0.641	0.397	0.500	0.336	
Back of Queue (*Q*), ft/ln (50 th percentile)				38.1		60.5		49.2	25.4	21.9	23.6	
Back of Queue (*Q*), veh/ln (50 th percentile)				1.5		2.4		2.0	1.0	0.9	0.9	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (*d 1*), s/veh				11.8		13.2		13.4	12.5	16.7	6.2	
Incremental Delay (*d 2*), s/veh				0.2		0.9		0.3	0.2	0.3	0.1	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				12.1		14.1		13.7	12.7	16.9	6.3	
Level of Service (LOS)				B		B		B	B	B	A	

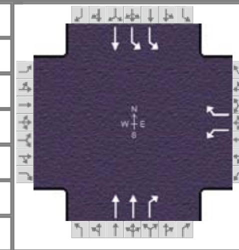
	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		13.3	B	13.5	B	10.8	B
Intersection Delay, s/veh / LOS	12.7				B			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.12	B	2.29	B	2.08	B	0.66	A
Bicycle LOS Score / LOS				F	1.15	A	2.60	C

 HCS™ Streets Version 7.6 Generated: 9/21/2018 1:33:32 PM

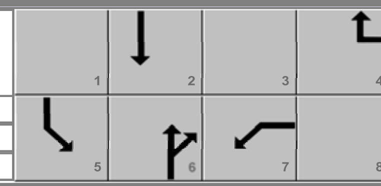
HCS7 Signalized Intersection Results Summary

General Information				**Intersection Information**	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Existing Weekend.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				180		297		602	168	249	555	

Signal Information										
Cycle, s	37.7	Reference Phase	2							
Offset, s	14	Reference Point	End	Green	5.7	10.0	10.0	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				14.0		14.0	9.7	23.7
Change Period, ($Y+R_c$), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		3.0	3.1	3.0
Queue Clearance Time (g_s), s				9.0		8.2	4.8	10.8
Green Extension Time (g_e), s				1.0		1.7	0.6	1.0
Phase Call Probability				1.00		1.00	0.95	1.00
Max Out Probability				0.00		0.03	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				196		323		654	183	277	618	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				3.4		7.0		6.2	3.6	2.8	8.8	
Cycle Queue Clearance Time (g_c), s				3.4		7.0		6.2	3.6	2.8	8.8	
Green Ratio (*g/C*)				0.27		0.27		0.26	0.26	0.15	0.52	
Capacity (*c*), veh/h				484		431		961	428	531	991	
Volume-to-Capacity Ratio (*X*)				0.404		0.750		0.681	0.427	0.523	0.624	
Back of Queue (*Q*), ft/ln (50 th percentile)				24.8		47.1		45.1	23.4	21.6	44.2	
Back of Queue (*Q*), veh/ln (50 th percentile)				1.0		1.9		1.8	0.9	0.9	1.8	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				11.4		12.7		12.5	11.6	14.9	6.4	
Incremental Delay (d_2), s/veh				0.2		1.0		0.3	0.3	0.2	0.7	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				11.6		13.7		12.8	11.8	15.1	7.2	
Level of Service (LOS)				B		B		B	B	B	A	

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		12.9	B	12.6	B	9.6	A
Intersection Delay, s/veh / LOS	11.5				B			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.12	B	2.28	B	2.08	B	0.66	A
Bicycle LOS Score / LOS				F	1.18	A	1.93	B

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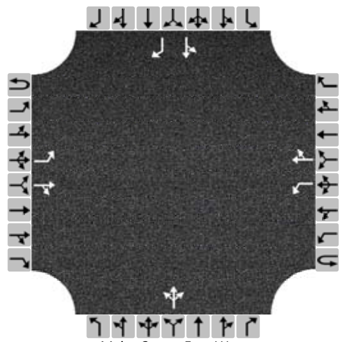
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Existing AM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		38	105	3		6	149	23		0	0	0		20	0	22
Percent Heavy Vehicles (%)		100				2				3	0	4		3	3	3
Proportion Time Blocked		0.000				0.293					0.200	0.293		0.293	0.293	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		5.10				4.12				7.13	6.50	6.24		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		3.10				2.22				3.53	4.00	3.34		3.53	4.03	3.33

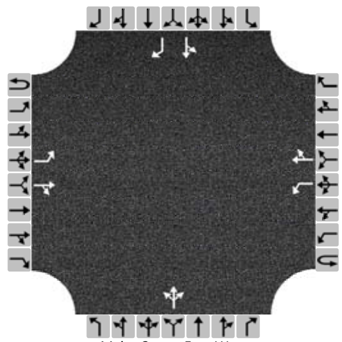
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		41				7					0			22		24
Capacity, c (veh/h)		965				1148								672		866
v/c Ratio		0.04				0.01								0.03		0.03
95% Queue Length, Q_{95} (veh)		0.1				0.0								0.1		0.1
Control Delay (s/veh)		8.9				8.2								10.5		9.3
Level of Service (LOS)		A				A								B		A
Approach Delay (s/veh)	2.3				0.3								9.9			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and the City
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Existing PM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		98	310	5		0	280	68		3	3	3		90	0	149
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked		0.000								0.235	0.235	0.235		0.235	0.235	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

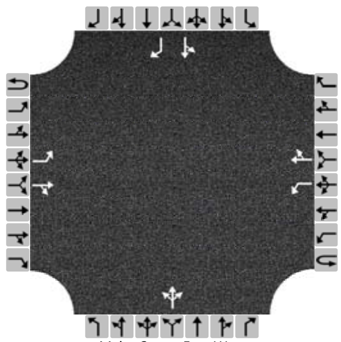
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		107				0					10			98		162
Capacity, c (veh/h)		1191				1220					471			451		704
v/c Ratio		0.09				0.00					0.02			0.22		0.23
95% Queue Length, Q_{95} (veh)		0.3				0.0					0.1			0.8		0.9
Control Delay (s/veh)		8.3				8.0					12.8			15.2		11.6
Level of Service (LOS)		A				A					B			C		B
Approach Delay (s/veh)	2.0				0.0				12.8				13.0			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Existing Mid day Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		0	292	9		1	391	85		5	2	3		59	0	145
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked						0.000				0.257	0.257	0.257		0.257	0.257	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

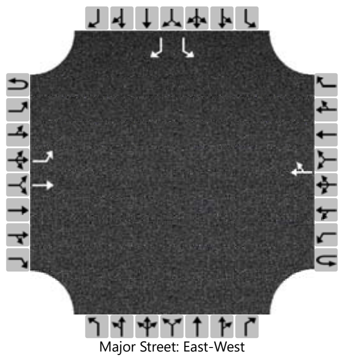
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				1					11			64		158
Capacity, c (veh/h)		1059				1236					475			546		595
v/c Ratio		0.00				0.00					0.02			0.12		0.26
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1			0.4		1.1
Control Delay (s/veh)		8.4				7.9					12.8			12.5		13.2
Level of Service (LOS)		A				A					B			B		B
Approach Delay (s/veh)	0.0				0.0				12.8				13.0			
Approach LOS									B				B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study AM Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	63				73	2						7		1
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.000		0.000
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0												8		1
Capacity, c (veh/h)		1507												653		968
v/c Ratio		0.00												0.01		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.0		0.0
Control Delay (s/veh)		7.4												10.6		8.7
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												10.3			
Approach LOS	A				A								B			

 HCS™ TWSC Version 7.6 Generated: 9/21/2018 12:40:49 PM

Intersection #5 Existing AM peak hour TWSC .xtw

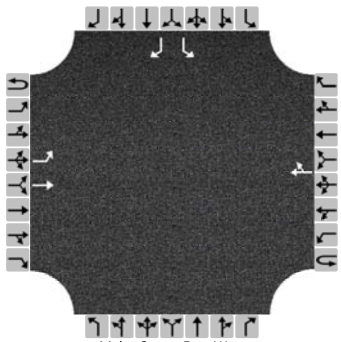
HCS7 Two-Way Stop-Control Report

General Information

Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/8/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed	11:30	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study PM Peak		

Site Information

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	87				90	12						17		1
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.000		0.000
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0												18		1
Capacity, c (veh/h)		1473												608		937
v/c Ratio		0.00												0.03		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.1		0.0
Control Delay (s/veh)		7.4												11.1		8.8
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												11.0			
Approach LOS	B				A								B			

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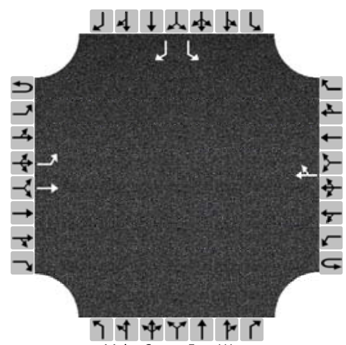
Intersection #5 Existing PM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/10/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study Mid day Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		1	79				90	12						17		1
Percent Heavy Vehicles (%)		3												25		3
Proportion Time Blocked		0.000												0.000		0.000
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.65		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.73		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1												18		1
Capacity, c (veh/h)		1473												741		937
v/c Ratio		0.00												0.02		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.1		0.0
Control Delay (s/veh)		7.4												10.0		8.8
Level of Service (LOS)		A												A		A
Approach Delay (s/veh)	0.1												9.9			
Approach LOS	B				B								A			

APPENDIX 5

Trip Generation Calculations

AutoZone Project Trip Generation

Land Use (#)	Units (ksf)	Daily		a.m. Peak Hour		p.m. Peak Hour		Weekend Peak Hour	
		Rate	**Trips**	**Rate**	**Trips**	**Rate**	**Trips**	**Rate**	**Trips**
AutoZone (843)	7	55.34	387.38	2.59	18.13	4.91	34.37	11.53	80.71
Total Project new Trips			**387**		**18**		**34**		**81**

Hare Creek Project Trip Generation

Land Use (#)	Units (ksf)	Daily		a.m. Peak Hour		p.m. Peak Hour		Weekend Peak Hour	
		Rate	**Trips**	**Rate**	**Trips**	**Rate**	**Trips**	**Rate**	**Trips**
Shopping Center (820)	29.5	104.73	3090	2.53	76	9.01	267	13.48	398
Total Project new Trips			**3090**		**76**		**267**		**398**

Automobile Parts Sales
(843)

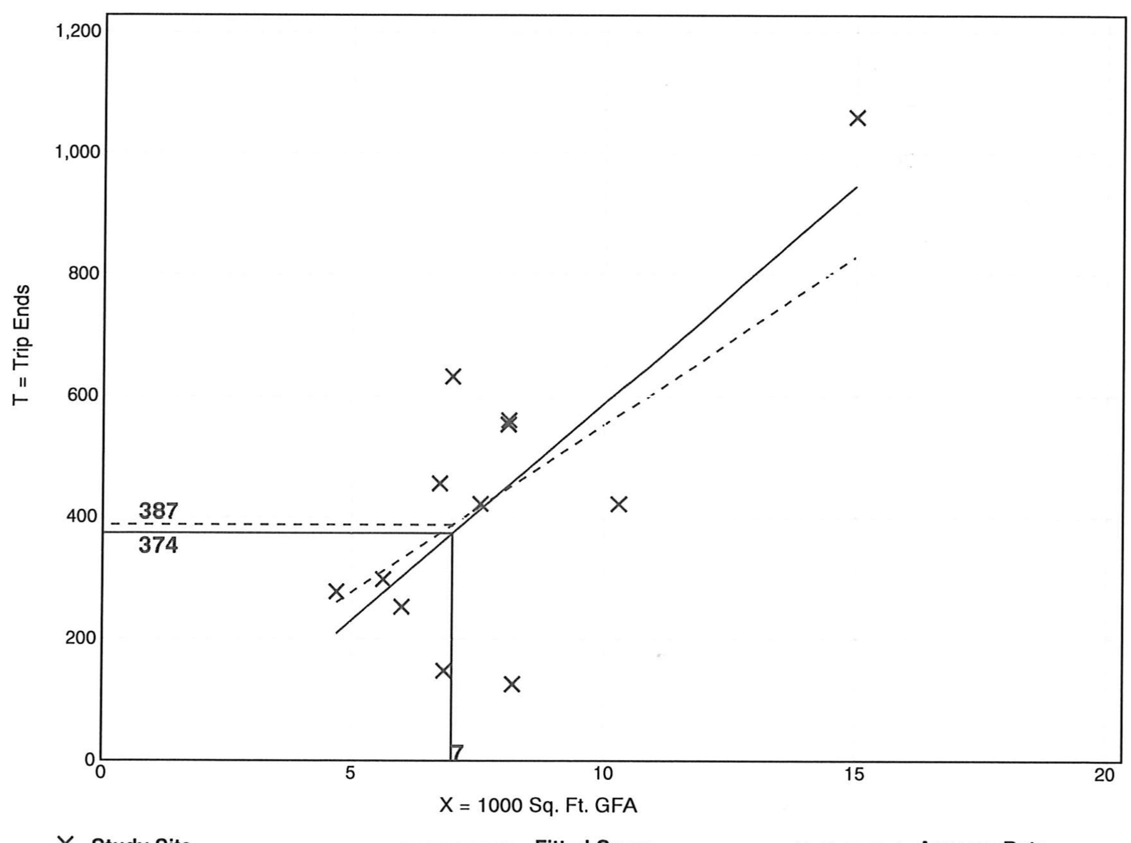
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 12
Avg. 1000 Sq. Ft. GFA: 8
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
55.34	15.38 - 90.41	21.57

Data Plot and Equation



Fitted Curve Equation: T = 71.62(X) - 127.66

R^2= 0.56

Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

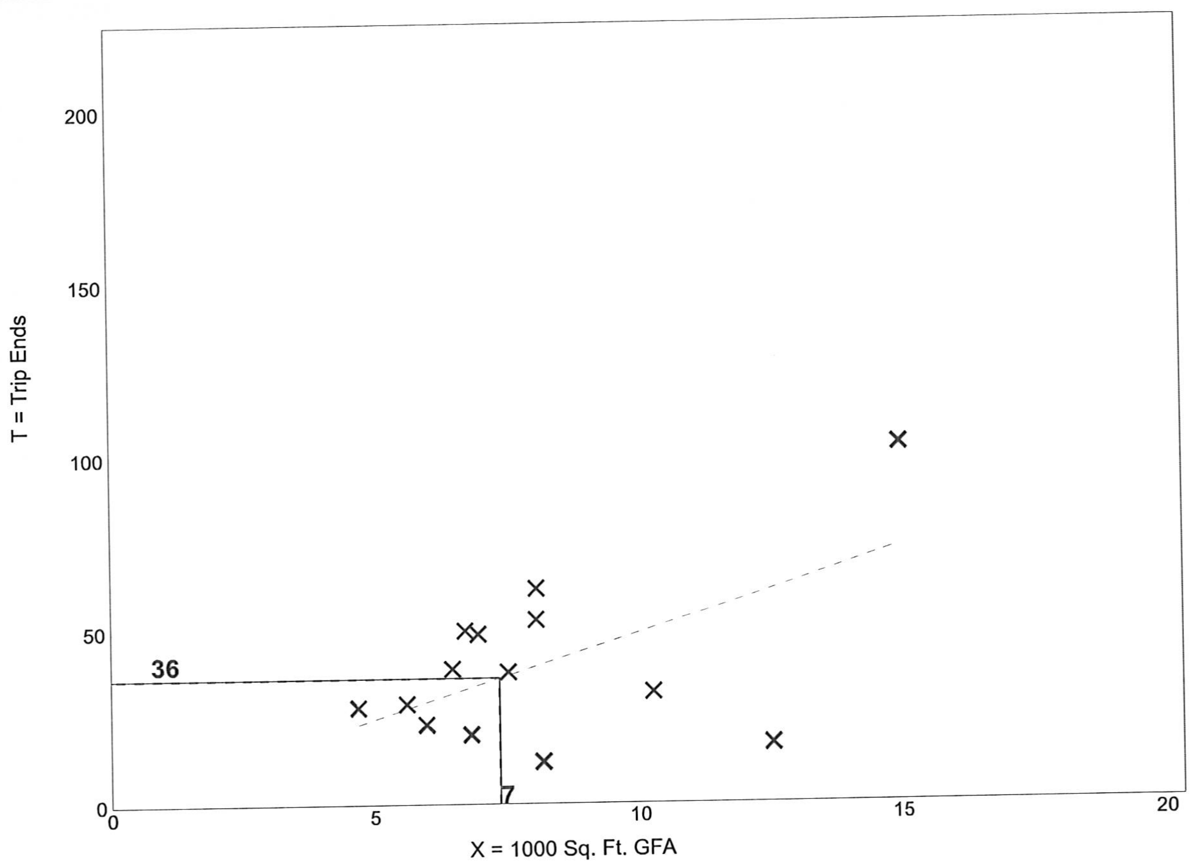
Automobile Parts Sales
(843)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. 1000 Sq. Ft. GFA: 8
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.91	1.36 - 7.65	2.29

Data Plot and Equation



× **Study Site**

- - - - **Average Rate**

Fitted Curve Equation: Not Given

R^2= ****

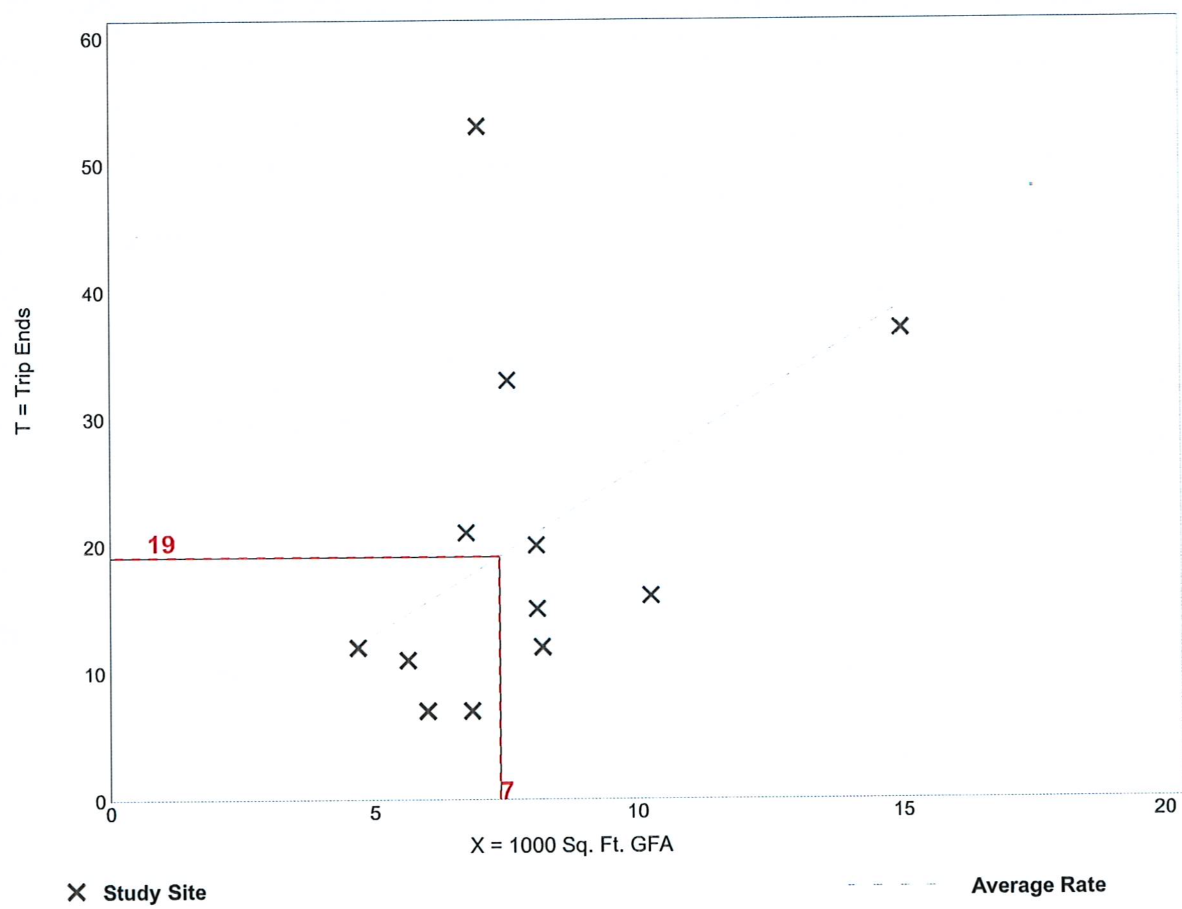
Automobile Parts Sales
(843)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 7 and 9 a.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	12
Avg. 1000 Sq. Ft. GFA:	8
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.59	1.02 - 7.58	1.73

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

Automobile Parts Sales
(843)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

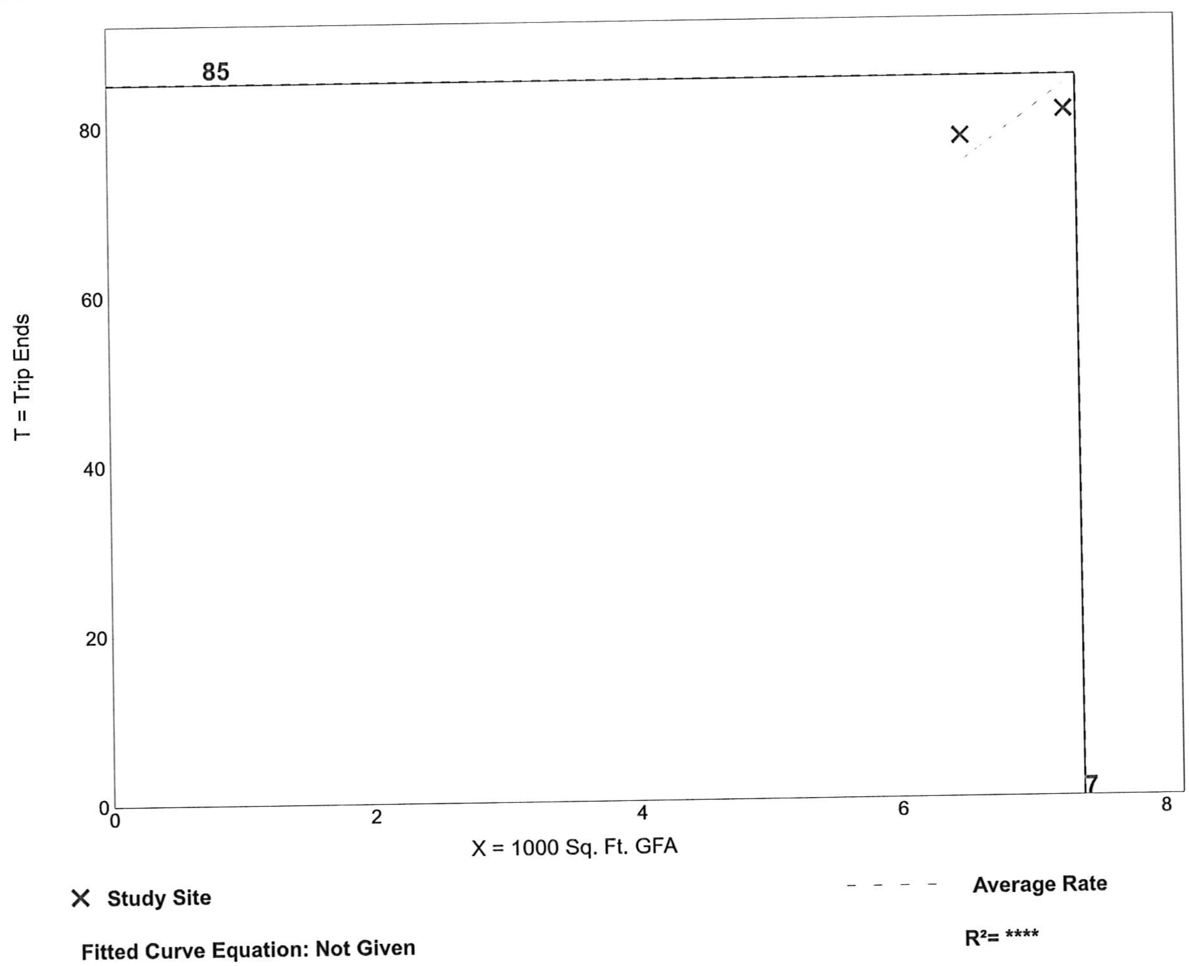
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 7
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.53	11.11 - 12.00	*

Data Plot and Equation

Caution – Small Sample Size



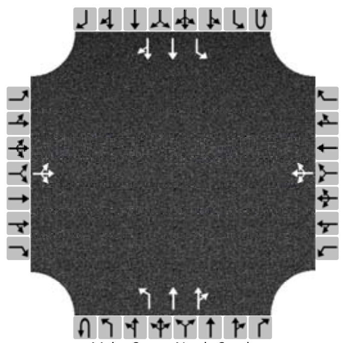
APPENDIX 6

Existing Conditions with Project Results

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS AM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		3	1	2		7	0	22	0	0	561	23	0	22	558	7
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.525	0.525	0.000		0.525	0.525	0.525						0.525		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			7				32			0				24		
Capacity, c (veh/h)			486				507			975				767		
v/c Ratio			0.01				0.06			0.00				0.03		
95% Queue Length, Q_{95} (veh)			0.0				0.2			0.0				0.1		
Control Delay (s/veh)			12.5				12.6			8.7				9.8		
Level of Service (LOS)			B				B			A				A		
Approach Delay (s/veh)	12.5				12.6				0.0				0.4			
Approach LOS	B				B											

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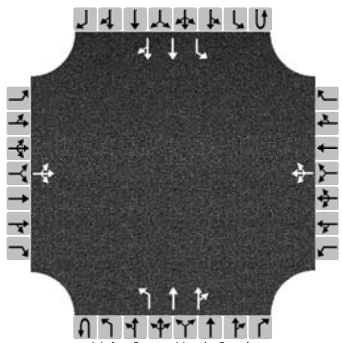
Intersection #1 Existing Plus Project AM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS PM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		5	0	8		2	0	29	0	6	110	11	0	22	1061	28
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.579	0.579	0.000		0.579	0.579	0.579		0.000				0.579		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

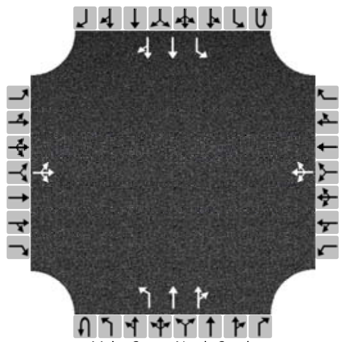
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			14				34			7				24		
Capacity, c (veh/h)			412				453			597				678		
v/c Ratio			0.03				0.07			0.01				0.04		
95% Queue Length, Q_{95} (veh)			0.1				0.2			0.0				0.1		
Control Delay (s/veh)			14.0				13.6			11.1				10.5		
Level of Service (LOS)			B				B			B				B		
Approach Delay (s/veh)	14.0				13.6				0.5				0.2			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed	3:40	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS Weekend peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		9	0	15		25	1	9	0	8	1180	25	0	29	1050	39
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.541	0.541	0.000		0.541	0.541	0.541		0.000				0.541		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

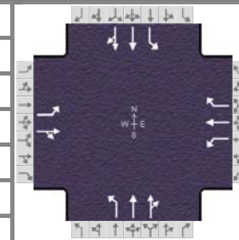
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			26				38			9				32		
Capacity, c (veh/h)			289				384			597				740		
v/c Ratio			0.09				0.10			0.01				0.04		
95% Queue Length, Q_{95} (veh)			0.3				0.3			0.0				0.1		
Control Delay (s/veh)			18.7				15.4			11.1				10.1		
Level of Service (LOS)			C				C			B				B		
Approach Delay (s/veh)	18.7				15.4				0.1				0.3			
Approach LOS	C				C											

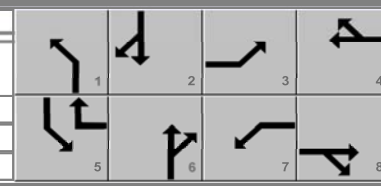
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Existing Plus Project AM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	37	8	19	19	11	73	21	503	21	86	429	35

Signal Information										
Cycle, s	33.5	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	1.0	2.5	7.7	1.1	0.8	4.4
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



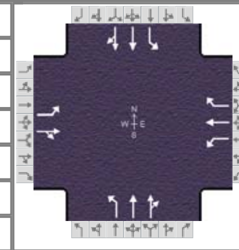
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	5.9	9.3	5.1	8.4	5.0	11.7	7.5	14.2
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	3.0	3.1	3.0
Queue Clearance Time (g_s), s	2.7	2.5	2.4	3.3	2.4	5.9	3.6	5.6
Green Extension Time (g_e), s	0.1	0.2	0.0	0.1	0.0	1.7	0.2	1.7
Phase Call Probability	0.31	0.78	0.18	0.73	0.17	1.00	0.58	1.00
Max Out Probability	0.00	0.00	0.30	0.19	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	40	29		21	12	79	20	246	244	93	255	250
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1686		1810	1900	1610	1810	1900	1873	1810	1900	1849
Queue Service Time (g_s), s	0.7	0.5		0.4	0.2	1.3	0.4	3.9	3.9	1.6	3.6	3.6
Cycle Queue Clearance Time (g_c), s	0.7	0.5		0.4	0.2	1.3	0.4	3.9	3.9	1.6	3.6	3.6
Green Ratio (*g/C*)	0.06	0.16		0.03	0.13	0.24	0.03	0.23	0.23	0.11	0.30	0.30
Capacity (*c*), veh/h	103	265		58	251	383	56	435	429	191	577	562
Volume-to-Capacity Ratio (*X*)	0.390	0.111		0.357	0.048	0.207	0.351	0.566	0.568	0.490	0.442	0.444
Back of Queue (*Q*), ft/ln (50 th percentile)	6.2	3.5		3.5	1.5	8.1	2.9	27.3	27	13.2	23.8	23.3
Back of Queue (*Q*), veh/ln (50 th percentile)	0.2	0.1		0.1	0.1	0.3	0.1	1.1	1.1	0.5	1.0	0.9
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	15.3	12.1		15.9	12.7	10.3	16.0	11.5	11.5	14.2	9.4	9.4
Incremental Delay (d_2), s/veh	0.9	0.1		1.4	0.0	0.1	0.1	0.0	0.0	0.7	0.2	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	16.2	12.2		17.3	12.8	10.4	16.1	11.5	11.5	14.9	9.6	9.6
Level of Service (LOS)	B	B		B	B	B	B	B	B	B	A	A
Approach Delay, s/veh / LOS	14.5	B		11.9	B		11.7	B		10.4	B	
Intersection Delay, s/veh / LOS	11.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.26	B	2.26	B	2.08	B	1.88	B
Bicycle LOS Score / LOS	0.60	A	0.67	A	0.98	A	0.98	A

HCS7 Signalized Intersection Results Summary

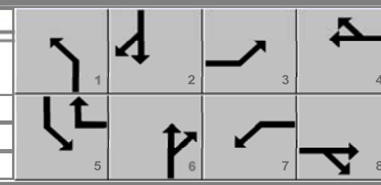
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Existing Plus Project PM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	105	13	48	26	22	87	70	866	32	63	459	118

Signal Information			
Cycle, s	39.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.6	0.6	10.6	1.6	2.7	5.3
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	8.3	12.0	5.6	9.3	6.6	14.6	7.2	15.2
Change Period, (Y+R_c), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.0	3.1	3.0
Queue Clearance Time (g_s), s	4.4	3.3	2.6	3.9	3.1	8.2	3.4	7.9
Green Extension Time (g_e), s	0.1	0.1	0.0	0.2	0.0	2.4	0.0	2.3
Phase Call Probability	0.71	0.96	0.27	0.90	0.43	1.00	0.53	1.00
Max Out Probability	0.00	1.00	0.00	0.00	0.00	0.00	0.10	0.02

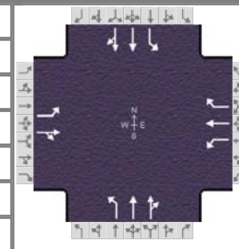
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	114	66		28	24	95	52	334	330	68	324	304
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1664		1810	1900	1610	1810	1900	1876	1810	1900	1766
Queue Service Time (g_s), s	2.4	1.3		0.6	0.4	1.9	1.1	6.2	6.2	1.4	5.8	5.9
Cycle Queue Clearance Time (g_c), s	2.4	1.3		0.6	0.4	1.9	1.1	6.2	6.2	1.4	5.8	5.9
Green Ratio (g/C)	0.11	0.20		0.04	0.13	0.22	0.07	0.27	0.27	0.08	0.28	0.28
Capacity (c), veh/h	198	337		75	256	347	121	514	507	147	541	502
Volume-to-Capacity Ratio (X)	0.576	0.197		0.379	0.094	0.272	0.429	0.651	0.652	0.466	0.599	0.604
Back of Queue (Q), ft/ln (50 th percentile)	21	9.6		5.8	3.8	13.6	9.3	47.7	47.1	12.9	45.7	43.2
Back of Queue (Q), veh/ln (50 th percentile)	0.8	0.4		0.2	0.2	0.5	0.4	1.9	1.9	0.5	1.8	1.7
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	16.7	13.1		18.5	15.0	12.9	17.7	12.8	12.8	17.4	12.2	12.2
Incremental Delay (d_2), s/veh	1.0	0.1		1.2	0.1	0.2	0.1	0.0	0.0	0.9	0.4	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	17.7	13.2		19.7	15.1	13.1	17.8	12.8	12.8	18.2	12.6	12.7
Level of Service (LOS)	B	B		B	B	B	B	B	B	B	B	B
Approach Delay, s/veh / LOS	16.1	B		14.7	B		13.2	B		13.2	B	
Intersection Delay, s/veh / LOS	13.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.26	B	2.27	B	2.08	B	1.89	B
Bicycle LOS Score / LOS	0.79	A	0.73	A	1.36	A	1.06	A

 HCS™ Streets Version 7.6 Generated: 9/21/2018 12:05:55 PM

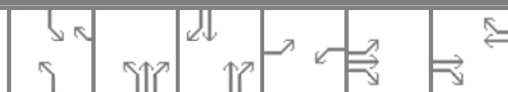
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Existing Plus Project Weekend.xus		
Project Description	SR1 & Ocean View				

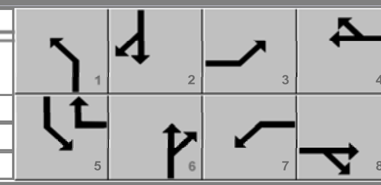


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	80	14	84	20	28	160	72	67	44	202	756	82

Signal Information			
Cycle, s	51.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.1	2.0	15.4	1.6	2.7	6.0
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



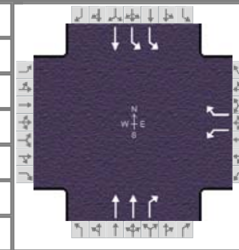
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	8.3	12.7	5.6	10.0	14.1	21.5	12.1	19.4
Change Period, (Y+R c), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (MAH), s	3.1	3.3	3.1	3.3	3.1	3.0	3.1	3.0
Queue Clearance Time (g s), s	4.4	5.0	2.6	6.6	9.9	7.0	8.0	13.8
Green Extension Time (g e), s	0.1	0.5	0.0	0.0	0.3	0.0	0.4	1.6
Phase Call Probability	0.71	1.00	0.27	0.99	0.98	1.00	0.96	1.00
Max Out Probability	0.00	0.00	0.00	1.00	0.01	1.00	0.00	0.09

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	87	107		22	30	174	288	233	211	220	463	447
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1646		1810	1900	1610	1810	1900	1652	1810	1900	1834
Queue Service Time (g s), s	2.4	3.0		0.6	0.7	4.6	7.9	4.8	5.0	6.0	11.8	11.8
Cycle Queue Clearance Time (g c), s	2.4	3.0		0.6	0.7	4.6	7.9	4.8	5.0	6.0	11.8	11.8
Green Ratio (g/C)	0.08	0.17		0.03	0.12	0.27	0.20	0.34	0.34	0.16	0.30	0.30
Capacity (c), veh/h	150	275		57	220	438	354	640	557	283	566	546
Volume-to-Capacity Ratio (X)	0.579	0.387		0.382	0.139	0.397	0.814	0.364	0.379	0.776	0.819	0.819
Back of Queue (Q), ft/ln (50 th percentile)	24	25.3		6.4	7.4	35.4	71	41.3	37.5	58.6	108.4	104.8
Back of Queue (Q), veh/ln (50 th percentile)	1.0	1.0		0.3	0.3	1.4	2.8	1.7	1.5	2.3	4.3	4.2
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d 1), s/veh	22.9	19.3		24.7	20.6	15.4	20.0	13.0	13.1	21.0	16.9	16.9
Incremental Delay (d 2), s/veh	1.3	0.3		1.6	0.1	0.2	0.2	0.0	0.0	1.7	1.1	1.2
Initial Queue Delay (d 3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	24.2	19.6		26.2	20.7	15.6	20.1	13.0	13.1	22.8	18.1	18.1
Level of Service (LOS)	C	B		C	C	B	C	B	B	C	B	B
Approach Delay, s/veh / LOS	21.7	C		17.3	B		15.8	B		19.0	B	
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.28	B	2.09	B	1.90	B
Bicycle LOS Score / LOS	0.81	A	0.86	A	0.65	A	1.42	A

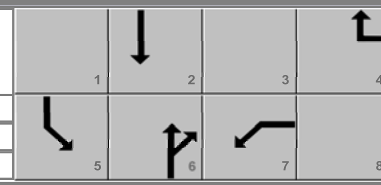
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Existing AM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				70		174		403	81	160	352	

Signal Information										
Cycle, s	28.3	Reference Phase	2							
Offset, s	9	Reference Point	End	Green	4.3	6.8	5.3	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				9.3		10.8	8.3	19.1
Change Period, (*Y+R c*), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		3.0	3.1	3.0
Queue Clearance Time (g_s), s				5.1		5.0	3.1	4.9
Green Extension Time (g_e), s				0.1		1.8	0.4	1.8
Phase Call Probability				0.88		1.00	0.71	1.00
Max Out Probability				1.00		0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				76		189		438	88	156	343	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				1.0		3.1		3.0	1.2	1.1	2.9	
Cycle Queue Clearance Time (g_c), s				1.0		3.1		3.0	1.2	1.1	2.9	
Green Ratio (*g/C*)				0.19		0.19		0.24	0.24	0.15	0.53	
Capacity (*c*), veh/h				337		300		868	386	532	1011	
Volume-to-Capacity Ratio (*X*)				0.226		0.630		0.505	0.228	0.293	0.339	
Back of Queue (*Q*), ft/ln (50 th percentile)				6.4		18.1		17.1	6.4	7	3.8	
Back of Queue (*Q*), veh/ln (50 th percentile)				0.3		0.7		0.7	0.3	0.3	0.2	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				9.8		10.7		9.3	8.7	10.7	3.8	
Incremental Delay (d_2), s/veh				0.1		0.8		0.2	0.1	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				9.9		11.5		9.5	8.8	10.8	3.9	
Level of Service (LOS)				A		B		A	A	B	A	

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		11.0	B	9.4	A	6.0	A
Intersection Delay, s/veh / LOS	8.4				A			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	2.28	B	2.07	B	0.65	A
Bicycle LOS Score / LOS				F	0.92	A	1.41	A

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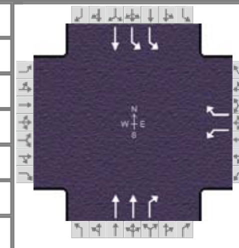
HCS7 Signalized Intersection Results Summary

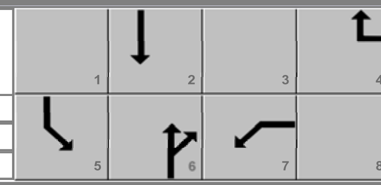
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Existing Plus Project AM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				70		176		409	81	162	358	

Signal Information			
Cycle, s	27.7	Reference Phase	2
Offset, s	14	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.3	6.1	5.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				9.3		10.1	8.3	18.4
Change Period, (*Y+R c*), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		3.0	3.1	3.0
Queue Clearance Time (g_s), s				5.0		5.0	3.1	5.0
Green Extension Time (g_e), s				0.5		1.0	0.4	1.4
Phase Call Probability				0.87		1.00	0.71	1.00
Max Out Probability				0.00		0.00	0.00	0.11

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				76		191		445	88	158	349	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				1.0		3.0		3.0	1.3	1.1	3.0	
Cycle Queue Clearance Time (g_c), s				1.0		3.0		3.0	1.3	1.1	3.0	
Green Ratio (*g/C*)				0.19		0.19		0.22	0.22	0.15	0.52	
Capacity (*c*), veh/h				346		308		803	357	545	989	
Volume-to-Capacity Ratio (*X*)				0.220		0.622		0.554	0.246	0.290	0.353	
Back of Queue (*Q*), ft/ln (50 th percentile)				6		17.3		17.6	6.5	6.8	4.6	
Back of Queue (*Q*), veh/ln (50 th percentile)				0.2		0.7		0.7	0.3	0.3	0.2	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				9.5		10.3		9.6	8.9	10.4	3.9	
Incremental Delay (d_2), s/veh				0.1		0.8		0.2	0.1	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				9.6		11.1		9.8	9.0	10.5	4.0	
Level of Service (LOS)				A		B		A	A	B	A	

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		10.7	B	9.7	A	6.0	A
Intersection Delay, s/veh / LOS	8.5				A			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	2.28	B	2.07	B	0.65	A
Bicycle LOS Score / LOS				F	0.93	A	1.42	A

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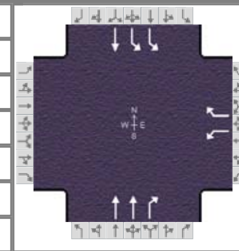
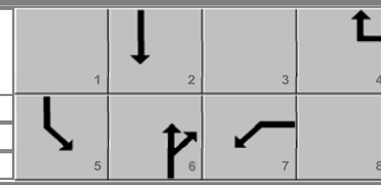
HCS7 Signalized Intersection Results Summary



General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Existing Plus Project Weekend.xus		
Project Description	SR1 & Ocean View				

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				180		306		629	168	258	582	

Signal Information										
Cycle, s	37.5	Reference Phase	2							
Offset, s	40	Reference Point	End	Green	5.7	9.9	9.9	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				13.9		13.9	9.7	23.6
Change Period, ($Y+R_c$), s				4.0		4.0	4.0	4.0
Max Allow Headway (MAH), s				3.2		3.0	3.1	3.0
Queue Clearance Time (g_s), s				9.2		8.5	4.8	11.3
Green Extension Time (g_e), s				0.7		1.3	0.7	0.8
Phase Call Probability				1.00		1.00	0.95	1.00
Max Out Probability				0.24		0.35	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (v), veh/h				196		333		684	183	287	648	
Adjusted Saturation Flow Rate (s), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				3.4		7.2		6.5	3.5	2.8	9.3	
Cycle Queue Clearance Time (g_c), s				3.4		7.2		6.5	3.5	2.8	9.3	
Green Ratio (g/C)				0.26		0.26		0.26	0.26	0.15	0.52	
Capacity (c), veh/h				479		427		954	425	536	992	
Volume-to-Capacity Ratio (X)				0.408		0.780		0.716	0.430	0.536	0.653	
Back of Queue (Q), ft/ln (50 th percentile)				24.5		50.2		47.1	23.1	21.9	45.2	
Back of Queue (Q), veh/ln (50 th percentile)				1.0		2.0		1.9	0.9	0.9	1.8	
Queue Storage Ratio (RQ) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				11.4		12.8		12.6	11.5	14.7	6.5	
Incremental Delay (d_2), s/veh				0.2		1.7		0.4	0.3	0.2	0.7	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (d), s/veh				11.6		14.5		13.0	11.8	14.9	7.2	
Level of Service (LOS)				B		B		B	B	B	A	
Approach Delay, s/veh / LOS	0.0			13.4	B		12.7	B		9.6	A	
Intersection Delay, s/veh / LOS	11.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.12	B	2.28	B	2.08	B	0.66	A
Bicycle LOS Score / LOS				F	1.20	A	1.99	B

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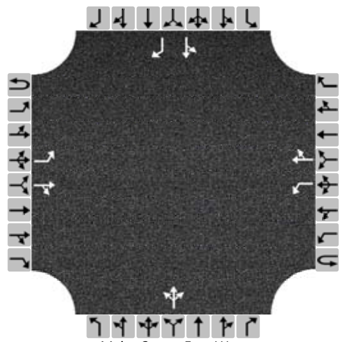
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and the City
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (AM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		38	107	3		6	151	24		0	0	0		21	0	22
Percent Heavy Vehicles (%)		100				2				3	0	4		0	0	0
Proportion Time Blocked		0.000				0.293					0.293	0.293		0.293	0.293	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		5.10				4.12				7.13	6.50	6.24		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		3.10				2.22				3.53	4.00	3.34		3.50	4.00	3.30

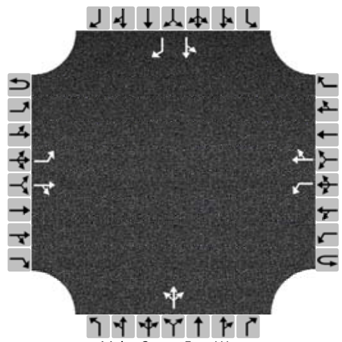
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		41				7					0			23		24
Capacity, c (veh/h)		962				1148								677		871
v/c Ratio		0.04				0.01								0.03		0.03
95% Queue Length, Q_{95} (veh)		0.1				0.0								0.1		0.1
Control Delay (s/veh)		8.9				8.2								10.5		9.2
Level of Service (LOS)		A				A								B		A
Approach Delay (s/veh)	2.3				0.3								9.9			
Approach LOS													A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and the City
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		98	314	5		0	284	70		3	3	3		92	0	149
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked		0.000								0.299	0.299	0.299		0.299	0.299	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		107				0					10			100		162
Capacity, c (veh/h)		1185				1216					459			448		699
v/c Ratio		0.09				0.00					0.02			0.22		0.23
95% Queue Length, Q_{95} (veh)		0.3				0.0					0.1			0.8		0.9
Control Delay (s/veh)		8.3				8.0					13.0			15.3		11.7
Level of Service (LOS)		A				A					B			C		B
Approach Delay (s/veh)	2.0				0.0				13.0				13.1			
Approach LOS									B				B			

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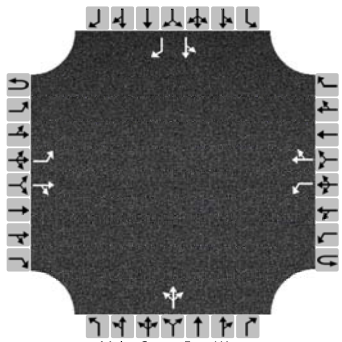
Intersection #4 Existing Plus Project PM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Existing Plus Projec midPeak Hour)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		0	301	9		1	400	89		5	2	3		63	0	145
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked						0.258				0.258	0.258	0.258		0.258	0.258	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				1					11			68		158
Capacity, c (veh/h)		1046				1208					468			544		586
v/c Ratio		0.00				0.00					0.02			0.13		0.27
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1			0.4		1.1
Control Delay (s/veh)		8.4				8.0					12.9			12.6		13.4
Level of Service (LOS)		A				A					B			B		B
Approach Delay (s/veh)	0.0				0.0				12.9				13.1			
Approach LOS									B				B			

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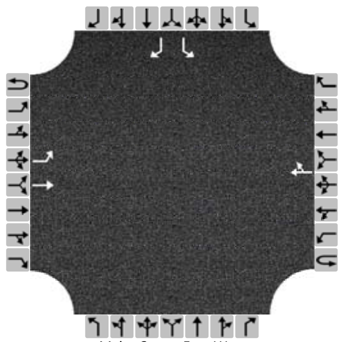
Intersection #4 Existing Plus Project Weekend peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/8/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study AM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	63				73	20						25		1
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.000		0.000
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0												27		1
Capacity, c (veh/h)		1482												643		956
v/c Ratio		0.00												0.04		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.1		0.0
Control Delay (s/veh)		7.4												10.8		8.8
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												10.8			
Approach LOS	A				A								B			

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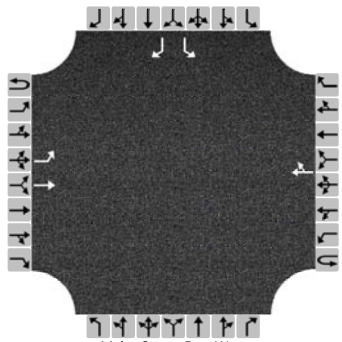
Intersection #5 Existing Plus Project AM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/8/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study PM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	87				92	48						54		0
Percent Heavy Vehicles (%)		3												35		3
Proportion Time Blocked														0.000		0.000
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.75		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.82		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0												59		0
Capacity, c (veh/h)		1422												695		911
v/c Ratio		0.00												0.08		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.3		0.0
Control Delay (s/veh)		7.5												10.7		9.0
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												10.7			
Approach LOS	B				B								B			

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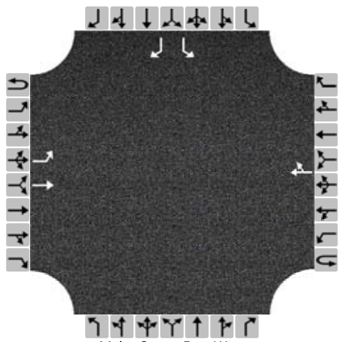
Intersection #5 Existing Plus Project PM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/8/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed	11:30	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study PM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	79				90	93						98		1
Percent Heavy Vehicles (%)		3												6		3
Proportion Time Blocked														0.000		0.000
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.46		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.55		3.33

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)		0												107		1
Capacity, c (veh/h)		1367												740		886
v/c Ratio		0.00												0.14		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.5		0.0
Control Delay (s/veh)		7.6												10.7		9.1
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												10.7			
Approach LOS	B				B								B			

APPENDIX 7

Caltrans District 1 2014 Growth Factors

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Flex your power!
Be energy efficient!

To: CHARLIE FIELDER
JANA HOLLIFIELD
MATT BRADY
MARK SUCHANEK

Date: February 3, 2014

File: Growth Factors

From: BRAD METTAM
Deputy District Director,
Planning and Local Assistance

Subject: 2014 Growth Factors

Attached are the 2014 District 1 growth factor summary, the 2014 District Growth Factor Map, and a "Using D1 Growth Factors" tutorial.

Prior to 1984, Caltrans District 1 projected future traffic volumes based solely on historical growth. Future volumes were calculated using an annual percent increase that was derived from historical traffic volumes. We found that this method produced acceptable results in the short to mid-term, but due to compounding, long-range predictions (20 years or more) tended to be overestimated.

In 1984, in order to eliminate that long-range distortion noted above, we began calculating growth factors as a 20-year straight-line determinant. For example, a segment of highway with a growth factor of 1.4 is predicted to have a 40% increase in traffic over the next 20-years. Likewise, it is predicted to have a 20% increase over 10 years.

Historically, District staff has developed growth factors based on both projected travel trends and historical growth from two data sources—the "California Motor Vehicle Stock Travel and Fuel Forecast" (CMVSTAFF) and historical Average Vehicle Mile Traveled (AVMT) comparisons from "Traffic Volumes on the California State Highway System." Since CMVSTAFF was not available for the 2014 growth factor update, county growth factor targets were developed based on California Air Resources Board traffic growth projections and historic traffic growth data.

Our growth factors are applied over highway segments that were determined using observed conditions; these segments vary in length, but they are not longer than fifty miles. Traffic volumes over segments are based on a calculated weighted average of

BRAD METTAM
February 3, 2014
Page 2

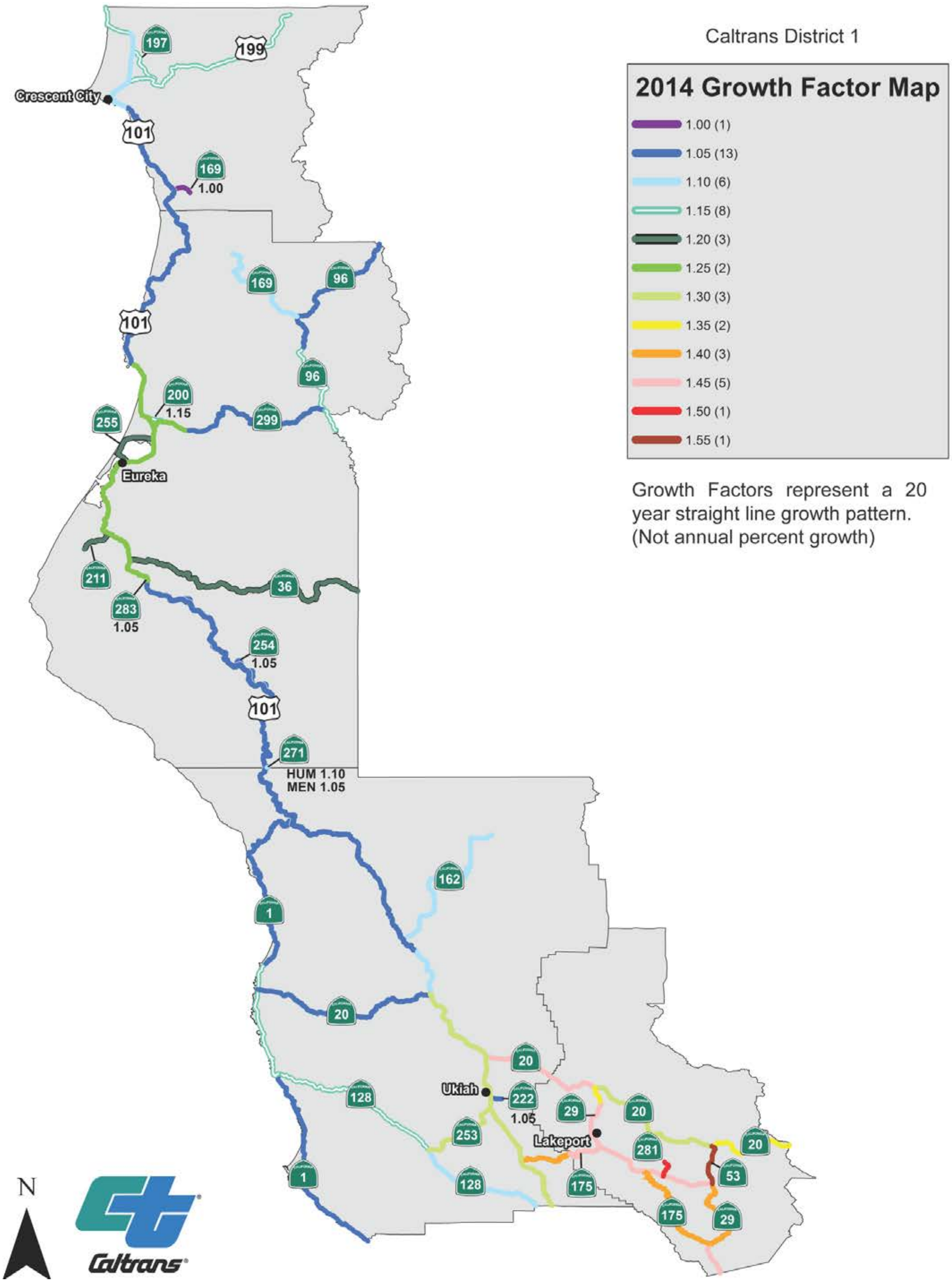
volumes (Annual Average Daily Traffic) for the entire segment. While actual growth at the local level can vary considerably, we are looking at overall growth over the long-term. If more specific data or information are available for a particular location (actual counts, planned growth, etc.) it may be advisable to calculate a location-specific rate. However, for the purposes of facility design (20-year design-life) our generalized segment growth factors are appropriate. It should be noted that our growth factors forecast traffic growth only for the mainline (State Routes); local streets should be examined separately.

District planning staff reviews growth factors every two years, and typically revise them every two to four years. Growth factors were not updated for several years following 2006, since MVSTAFF data supported higher growth rates at a time when traffic counts were generally level or declining. The most recent MVSTAFF has been removed from the Division of Transportation Planning, Office of Transportation Forecasting and Analysis website, and they recommended using the use of the Air Resources Board EMFAC database as a substitute. Therefore, we based our 20-year District vehicle miles of travel target on ARB data. District staff would prefer to use county travel demand models to project traffic growth, or the MVSTAFF to develop growth factor targets, and we hope to do so in the future. However, neither of these data sources is currently supportable.

If you have any questions regarding the growth factors, please call Rex Jackman at (707) 445-6412 or Chris Dosch at (707) 441-4542.

Attachments:
2014 Growth Factor Summary
2014 Growth Factor Map
Using District 1 Growth Factors Tutorial

c: TROY ARSENEAU
DAVID MORGAN
JOHN CARSON
RALPH MARTINELLI
GARRY BANDUCCI
SANDRA ROSAS
STEVE HUGHES
SUSAN ZANCHI
ROYAL McCARTHY
REX JACKMAN


Caltrans District 1
2014 Growth Factor Map
1.00 (1)
1.05 (13)
1.10 (6)
1.15 (8)
1.20 (3)
1.25 (2)
1.30 (3)
1.35 (2)
1.40 (3)
1.45 (5)
1.50 (1)
1.55 (1)
Growth Factors represent a 20 year straight line growth pattern. (Not annual percent growth)
Crescent City
197
199
101
169
1.00
96
200
1.15
255
299
Eureka
211
36
283
1.05
254
1.05
271
HUM 1.10
MEN 1.05
162
1
20
128
Ukiah
222
1.05
29
253
Lakeport
281
53
175
N
Caltrans

DISTRICT 1 - GROWTH FACTOR SUMMARY

20 YEAR GROWTH FACTORS

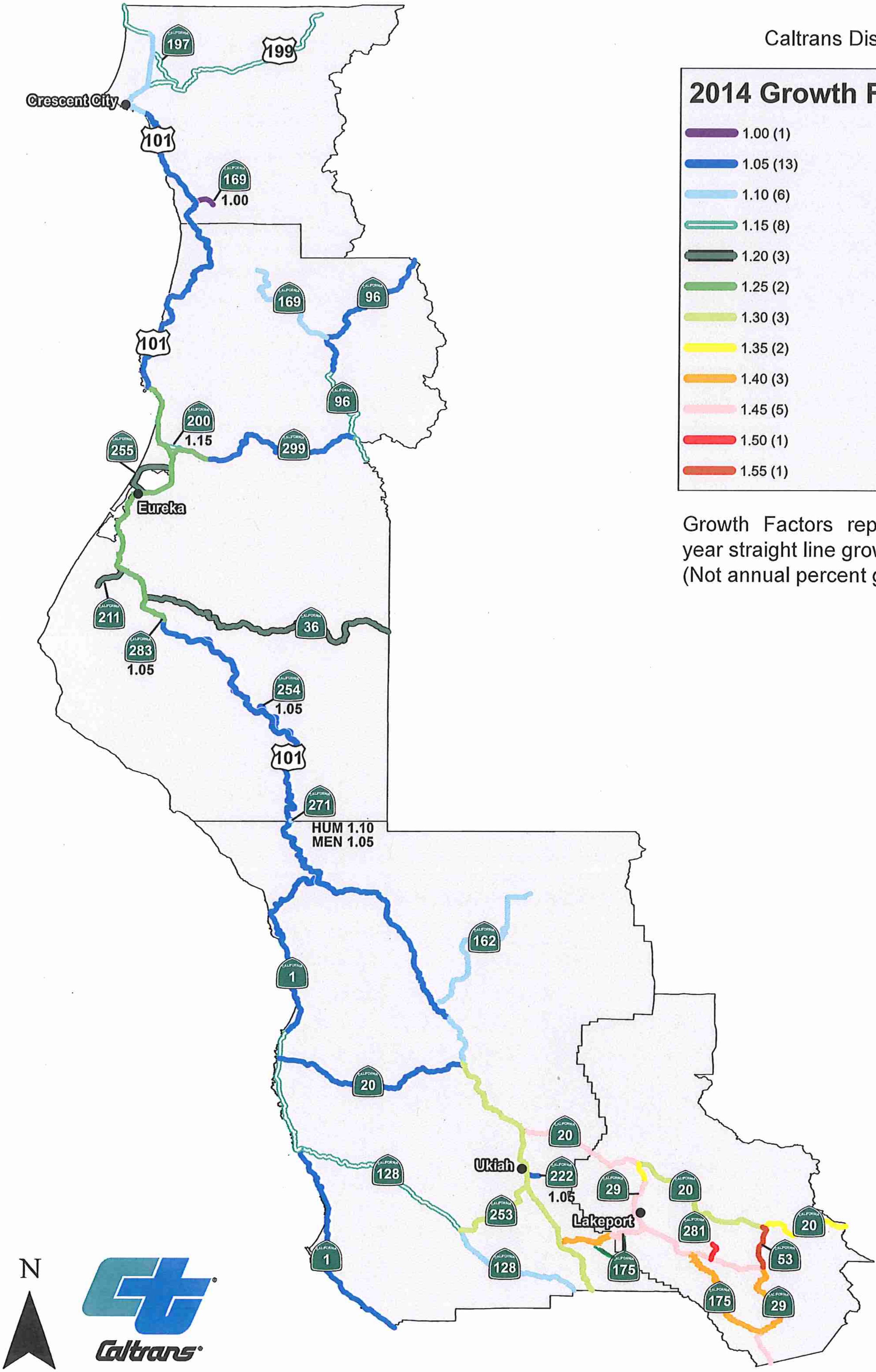
SEGMENT	2/2014 G.F.
MEN-1-0.00/40.27	1.05
MEN-1-40.27/64.86	1.15
MEN-1-64.86/105.57	1.05
MEN-20-0.00/33.16	1.05
MEN-20-33.22/44.11	1.45
LAK-20-0.00/8.34	1.45
LAK-20-8.34/31.62	1.30
LAK-20-31.62/46.48	1.35
LAK-29-0.00/5.81	1.45
LAK-29-5.81/20.31	1.40
LAK-29-20.31/48.40	1.45
LAK-29-48.40/52.54	1.35
HUM-36-0.00/45.68	1.20
LAK-53-0.00/7.45	1.55
HUM-96-0.00/16.00	1.15
HUM-96-16.00/44.98	1.05
MEN-101-0.10/47.27	1.30
MEN-101-47.27/55.90	1.10
MEN-101-55.90/104.15	1.05
HUM-101-0.00/51.84	1.05
HUM-101-51.84/100.71	1.25
HUM-101-100.71/137.14	1.05
DN-101-0.00/23.85	1.05
DN-101-23.85/39.98	1.10
DN-101-39.98/46.49	1.15
MEN-128-0.00/29.58	1.15
MEN-128-29.58/50.90	1.10
MEN-162-0.00/34.05	1.10
DN-169-0.0/3.52	1.00
HUM-169-13.20/33.84	1.10
MEN-175-0.00/9.85	1.40
LAK-175-0.00/8.19	1.45
LAK-175-8.25/28.04	1.40
DN-197-0.00/7.08	1.15
DN-199-0.51/36.41	1.15
HUM-200-0.00/2.68	1.15
HUM-211-73.20/79.16	1.20
MEN-222-0.00/2.15	1.05
MEN-253-0.00/17.18	1.30
HUM-254-0.00/46.53	1.05
HUM-255-0.0/8.80	1.20
MEN-271-0.0/22.72	1.05
HUM-271-0.00/0.31	1.10
LAK-281-14.00/17.00	1.50
HUM-283-0.00/0.36	1.05
HUM-299-0.00/5.93	1.25
HUM-299-5.93/38.83	1.05
HUM-299-38.83/43.04	1.15
DISTRICT GROWTH FACTOR (Weighted Average)	1.24

Caltrans District 1

2014 Growth Factor Map

- 1.00 (1)
- 1.05 (13)
- 1.10 (6)
- 1.15 (8)
- 1.20 (3)
- 1.25 (2)
- 1.30 (3)
- 1.35 (2)
- 1.40 (3)
- 1.45 (5)
- 1.50 (1)
- 1.55 (1)

Growth Factors represent a 20 year straight line growth pattern. (Not annual percent growth)



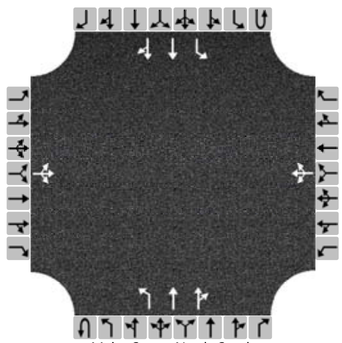
APPENDIX 8

Future Conditions Results

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS AM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		4	1	3		10	0	31	0	0	811	32	0	0	807	10
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.673	0.673	0.673		0.673	0.673	0.000								
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

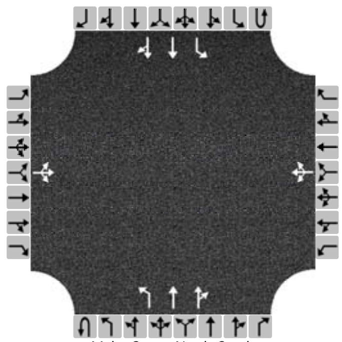
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			9				45			0				0		
Capacity, c (veh/h)			327				457			771				734		
v/c Ratio			0.03				0.10			0.00				0.00		
95% Queue Length, Q_{95} (veh)			0.1				0.3			0.0				0.0		
Control Delay (s/veh)			16.3				13.7			9.7				9.9		
Level of Service (LOS)			C				B			A				A		
Approach Delay (s/veh)	16.3				13.7				0.0				0.0			
Approach LOS	C				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/7/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS PM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		7	0	11		3	0	41	0	8	1650	15	0	31	1595	39
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.648	0.648	0.000		0.648	0.648	0.648		0.000				0.648		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

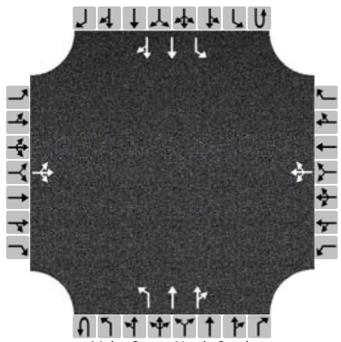
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			20				48			9				34		
Capacity, c (veh/h)			137				366			355				567		
v/c Ratio			0.14				0.13			0.02				0.06		
95% Queue Length, Q_{95} (veh)			0.5				0.4			0.1				0.2		
Control Delay (s/veh)			35.6				16.3			15.4				11.7		
Level of Service (LOS)			E				C			C				B		
Approach Delay (s/veh)	35.6				16.3				0.1				0.2			
Approach LOS	E				C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/11/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS Weekend peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		13	0	21		35	1	13	0	11	1795	35	0	41	1613	55
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.579	0.579	0.000		0.579	0.579	0.579		0.000				0.579		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

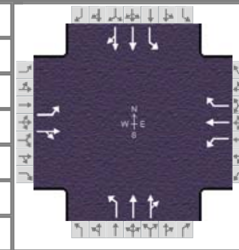
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			37				53			12				45		
Capacity, c (veh/h)			126				190			343				405		
v/c Ratio			0.29				0.28			0.03				0.11		
95% Queue Length, Q_{95} (veh)			1.1				1.1			0.1				0.4		
Control Delay (s/veh)			45.1				31.2			15.9				15.0		
Level of Service (LOS)			E				D			C				B		
Approach Delay (s/veh)	45.1				31.2				0.1				0.4			
Approach LOS	E				D											

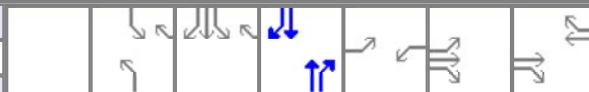
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Future AM.xus		
Project Description	SR1 & Ocean View				

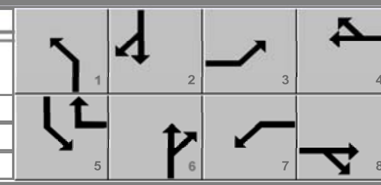


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	77	14	50	27	18	102	52	704	29	120	601	74

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	1.9	27.9	2.3	2.2	5.9
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	8.5	12.1	6.3	9.9	7.8	31.9	9.7	33.8
Change Period, (*Y+R* $_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	4.7	4.3	3.0	5.6	3.9		6.2	
Green Extension Time (g_e), s	0.0	0.3	0.0	0.3	0.1	0.0	0.2	0.0
Phase Call Probability	0.75	0.99	0.39	0.98	0.64		0.89	
Max Out Probability	0.04	0.00	0.00	0.00	0.00		0.00	

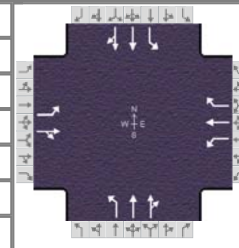
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	84	70		29	20	111	61	430	424	130	374	360
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1666		1810	1900	1610	1810	1900	1873	1810	1900	1827
Queue Service Time (g_s), s	2.7	2.3		1.0	0.6	3.6	1.9	7.4	7.5	4.2	7.4	7.4
Cycle Queue Clearance Time (g_c), s	2.7	2.3		1.0	0.6	3.6	1.9	7.4	7.5	4.2	7.4	7.4
Green Ratio (*g/C*)	0.08	0.13		0.04	0.10	0.19	0.06	0.47	0.47	0.09	0.50	0.50
Capacity (*c*), veh/h	136	224		70	186	310	115	885	872	171	944	907
Volume-to-Capacity Ratio (*X*)	0.615	0.311		0.419	0.105	0.358	0.527	0.486	0.487	0.761	0.396	0.397
Back of Queue (*Q*), ft/ln (50 th percentile)	28.1	20.6		10.2	5.9	30.6	19.8	61.8	61.6	44.3	66.8	64.7
Back of Queue (*Q*), veh/ln (50 th percentile)	1.1	0.8		0.4	0.2	1.2	0.8	2.5	2.5	1.8	2.7	2.6
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	26.9	23.5		28.2	24.7	21.0	26.6	7.6	7.6	26.5	9.5	9.5
Incremental Delay (d_2), s/veh	1.7	0.3		1.5	0.1	0.3	1.3	1.8	1.8	2.6	1.2	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	28.6	23.8		29.7	24.8	21.3	27.9	9.3	9.4	29.1	10.7	10.8
Level of Service (LOS)	C	C		C	C	C	C	A	A	C	B	B
Approach Delay, s/veh / LOS	26.4	C		23.2	C		10.6	B		13.5	B	
Intersection Delay, s/veh / LOS	13.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.29	B	2.07	B	1.88	B
Bicycle LOS Score / LOS	0.74	A	0.75	A	1.19	A	1.20	A

 HCS™ Streets Version 7.6 Generated: 9/21/2018 11:38:56 AM

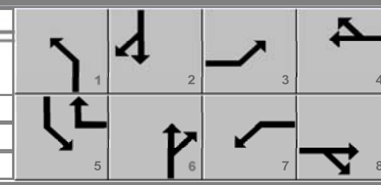
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Future PM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	257	29	166	36	41	122	197	1212	45	88	643	275

Signal Information										
Cycle, s	90.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	6.2	2.0	36.5	3.7	8.2	9.4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	19.9	25.6	7.7	13.4	16.2	46.5	10.2	40.5
Change Period, (*Y+R c*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (*g s*), s	15.5	12.1	3.9	8.7	11.9		6.7	
Green Extension Time (*g e*), s	0.4	0.8	0.0	0.7	0.4	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	0.62	1.00	0.99		0.91	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

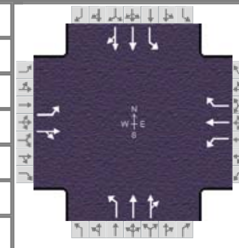
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	279	212		39	45	133	208	666	658	96	526	472
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1648		1810	1900	1610	1810	1900	1876	1810	1900	1706
Queue Service Time (*g s*), s	13.5	10.1		1.9	1.9	6.7	9.9	19.9	20.5	4.7	20.5	20.5
Cycle Queue Clearance Time (*g c*), s	13.5	10.1		1.9	1.9	6.7	9.9	19.9	20.5	4.7	20.5	20.5
Green Ratio (*g/C*)	0.18	0.24		0.04	0.10	0.17	0.14	0.47	0.47	0.07	0.41	0.41
Capacity (*c*), veh/h	320	395		75	199	279	245	897	886	124	771	692
Volume-to-Capacity Ratio (*X*)	0.873	0.537		0.520	0.224	0.476	0.848	0.742	0.743	0.770	0.682	0.682
Back of Queue (*Q*), ft/ln (50 th percentile)	151	96.5		21.7	22	63.5	100.8	143.9	150.2	53.6	235.2	213.7
Back of Queue (*Q*), veh/ln (50 th percentile)	6.0	3.9		0.9	0.9	2.5	4.0	5.8	6.0	2.1	9.4	8.5
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (*d 1*), s/veh	36.1	29.9		42.2	37.0	33.5	34.8	10.4	11.0	41.2	22.0	22.0
Incremental Delay (*d 2*), s/veh	3.9	0.4		2.1	0.2	0.5	2.2	3.9	4.0	3.8	4.8	5.4
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.0	30.3		44.3	37.2	34.0	37.0	14.3	14.9	45.0	26.8	27.4
Level of Service (LOS)	D	C		D	D	C	D	B	B	D	C	C
Approach Delay, s/veh / LOS	35.8	D		36.5	D		17.6	B		28.6	C	
Intersection Delay, s/veh / LOS	25.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.30	B	2.09	B	1.91	B
Bicycle LOS Score / LOS	1.30	A	0.84	A	1.79	B	1.39	A

 HCS™ Streets Version 7.6 Generated: 9/21/2018 11:42:40 AM

HCS7 Signalized Intersection Results Summary

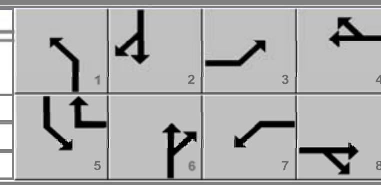
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Future Weekend.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	255	34	246	28	54	224	230	938	62	283	1058	258

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	18.1	1.0	38.9	3.4	7.6	11.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



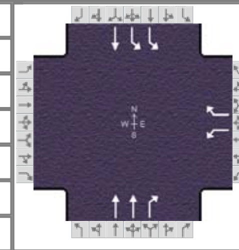
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	19.0	26.6	7.4	15.0	22.1	42.9	23.1	43.9
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	17.0	19.6	3.7	13.0	17.5		18.6	
Green Extension Time (g_e), s	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	0.57	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	277	304		30	59	243	292	642	629	308	735	696
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1641		1810	1900	1610	1810	1900	1858	1810	1900	1771
Queue Service Time (g_s), s	15.0	17.6		1.7	2.8	11.0	15.5	29.2	29.6	16.6	37.9	38.8
Cycle Queue Clearance Time (g_c), s	15.0	17.6		1.7	2.8	11.0	15.5	29.2	29.6	16.6	37.9	38.8
Green Ratio (g/C)	0.15	0.23		0.03	0.11	0.30	0.18	0.39	0.39	0.19	0.40	0.40
Capacity (c), veh/h	271	370		62	209	484	327	739	723	345	759	708
Volume-to-Capacity Ratio (X)	1.021	0.822		0.491	0.281	0.503	0.895	0.868	0.870	0.891	0.968	0.983
Back of Queue (Q), ft/ln (50 th percentile)	275.1	203.3		19.1	32.7	116.4	153.3	291.9	299.1	185	535.9	529.1
Back of Queue (Q), veh/ln (50 th percentile)	11.0	8.1		0.8	1.3	4.7	6.1	11.7	12.0	7.4	21.4	21.2
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	42.5	36.8		47.4	40.9	28.8	35.6	20.5	21.4	39.4	29.4	29.7
Incremental Delay (d_2), s/veh	60.2	13.0		2.2	0.3	0.3	2.5	9.6	9.9	3.2	25.8	29.9
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	102.7	49.8		49.7	41.1	29.1	38.1	30.2	31.3	42.6	55.2	59.6
Level of Service (LOS)	F	D		D	D	C	D	C	C	D	E	E
Approach Delay, s/veh / LOS	75.0	E		33.1	C		32.1	C		54.7	D	
Intersection Delay, s/veh / LOS	47.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.30	B	2.11	B	1.91	B
Bicycle LOS Score / LOS	1.45	A	1.04	A	1.59	B	1.92	B

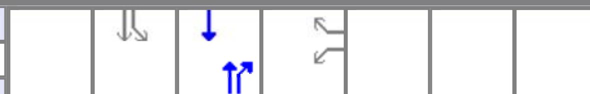
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Future AM.xus		
Project Description	SR1 & Ocean View				

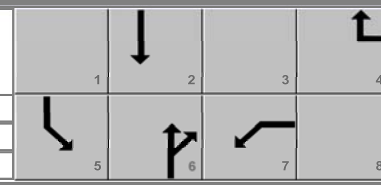


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				98		252		590	113	232	519	

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	27	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	29.7	12.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				16.3		33.7	10.0	43.7
Change Period, ($Y+R_c$), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				11.8			5.8	
Green Extension Time (g_e), s				0.6		0.0	0.4	0.0
Phase Call Probability				1.00			0.98	
Max Out Probability				0.02			0.00	

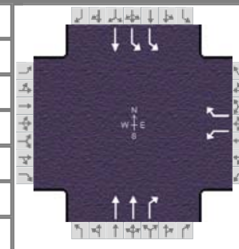
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				107		274		641	123	228	509	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				3.0		9.8		6.5	2.5	3.8	3.4	
Cycle Queue Clearance Time (g_c), s				3.0		9.8		6.5	2.5	3.8	3.4	
Green Ratio (*g/C*)				0.21		0.21		0.49	0.49	0.10	0.66	
Capacity (*c*), veh/h				372		331		1790	797	350	1256	
Volume-to-Capacity Ratio (*X*)				0.286		0.828		0.358	0.154	0.651	0.405	
Back of Queue (*Q*), ft/ln (50 th percentile)				28.4		86.4		52.9	19.2	36.9	21.1	
Back of Queue (*Q*), veh/ln (50 th percentile)				1.1		3.5		2.1	0.8	1.5	0.8	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				20.1		22.8		9.3	8.3	26.3	1.6	
Incremental Delay (d_2), s/veh				0.2		2.0		0.6	0.4	0.7	0.9	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				20.3		24.9		9.9	8.7	27.0	2.5	
Level of Service (LOS)				C		C		A	A	C	A	

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		23.6	C	9.7	A	10.1	B
Intersection Delay, s/veh / LOS	12.7				B			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.13	B	2.30	B	2.07	B	0.65	A
Bicycle LOS Score / LOS				F	1.12	A	1.83	B

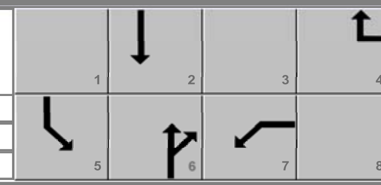
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Future PM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				346		512		897	223	739	1033	

Signal Information										
Cycle, s	90.0	Reference Phase	2							
Offset, s	35	Reference Point	End	Green	11.8	32.4	33.8	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				37.8		36.4	15.8	52.2
Change Period, ($Y+R_c$), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				31.7			10.9	
Green Extension Time (g_e), s				2.1		0.0	0.9	0.0
Phase Call Probability				1.00			1.00	
Max Out Probability				0.00			0.00	

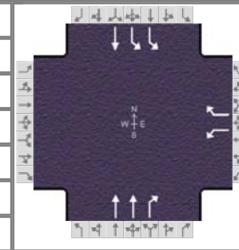
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				376		557		975	242	383	535	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				14.7		29.7		21.3	10.2	8.9	11.1	
Cycle Queue Clearance Time (g_c), s				14.7		29.7		21.3	10.2	8.9	11.1	
Green Ratio (*g/C*)				0.38		0.38		0.36	0.36	0.13	0.54	
Capacity (*c*), veh/h				680		605		1302	580	461	1017	
Volume-to-Capacity Ratio (*X*)				0.553		0.920		0.749	0.418	0.831	0.526	
Back of Queue (*Q*), ft/ln (50 th percentile)				146.5		272		229.6	99.2	71.6	86.4	
Back of Queue (*Q*), veh/ln (50 th percentile)				5.9		10.9		9.2	4.0	2.9	3.5	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				22.1		26.8		25.2	21.7	27.7	7.1	
Incremental Delay (d_2), s/veh				0.3		2.7		4.0	2.2	1.1	1.4	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				22.4		29.5		29.2	23.9	28.8	8.5	
Level of Service (LOS)				C		C		C	C	C	A	

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		26.6	C	28.2	C	17.0	B
Intersection Delay, s/veh / LOS	24.3				C			

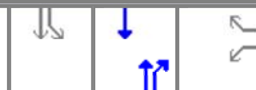
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	2.11	B	0.69	A
Bicycle LOS Score / LOS				F	1.49	A	3.67	D

HCS7 Signalized Intersection Results Summary

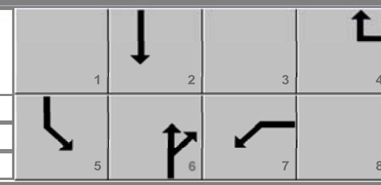
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Future Weekend.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				252		460		978	235	392	912	



Signal Information										
Cycle, s	100.0	Reference Phase	2							
Offset, s	51	Reference Point	End	Green	14.6	39.8	33.6	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				37.6		43.8	18.6	62.4
Change Period, (*Y+R c*), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				31.9			13.6	
Green Extension Time (g_e), s				1.7		0.0	1.0	0.0
Phase Call Probability				1.00			1.00	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				274		500		1063	255	435	1013	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				11.8		29.9		25.0	11.3	11.6	40.0	
Cycle Queue Clearance Time (g_c), s				11.8		29.9		25.0	11.3	11.6	40.0	
Green Ratio (*g/C*)				0.34		0.34		0.40	0.40	0.15	0.58	
Capacity (*c*), veh/h				608		541		1440	641	512	1109	
Volume-to-Capacity Ratio (*X*)				0.450		0.924		0.738	0.398	0.850	0.913	
Back of Queue (*Q*), ft/ln (50 th percentile)				122.6		285		268.5	109.7	99.6	170.1	
Back of Queue (*Q*), veh/ln (50 th percentile)				4.9		11.4		10.7	4.4	4.0	6.8	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				26.0		32.0		25.7	21.5	33.3	8.5	
Incremental Delay (d_2), s/veh				0.2		3.0		3.4	1.8	0.4	3.7	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				26.2		35.0		29.1	23.4	33.6	12.2	
Level of Service (LOS)				C		C		C	C	C	B	

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	0.0		31.9	C	28.0	C	18.6	B
Intersection Delay, s/veh / LOS	25.0				C			

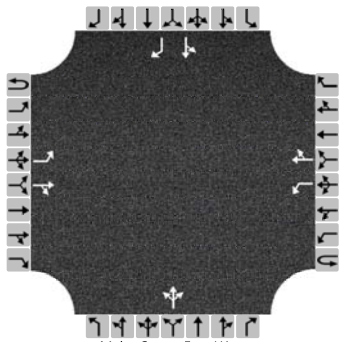
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.32	B	2.10	B	0.69	A
Bicycle LOS Score / LOS				F	1.58	B	2.83	C

 HCS™ Streets Version 7.6 Generated: 9/21/2018 11:29:39 AM

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (AM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		53	155	4		8	217	36		0	0	0		32	0	31
Percent Heavy Vehicles (%)		100				2				3	0	4		3	0	3
Proportion Time Blocked		0.000				0.166					0.166	0.166		0.166	0.166	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		5.10				4.12				7.13	6.50	6.24		7.13	6.50	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		3.10				2.22				3.53	4.00	3.34		3.53	4.00	3.33

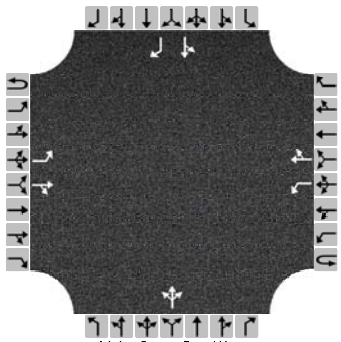
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)		58				9					0			35		34
Capacity, c (veh/h)		883				1354								677		781
v/c Ratio		0.07				0.01								0.05		0.04
95% Queue Length, Q_{95} (veh)		0.2				0.0								0.2		0.1
Control Delay (s/veh)		9.4				7.7								10.6		9.8
Level of Service (LOS)		A				A								B		A
Approach Delay (s/veh)	2.3				0.2								10.2			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and the City
Date Performed	8/13/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (PM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		137	463	7		0	421	109		4	4	4		139	0	209
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked		0.000								0.175	0.175	0.175		0.175	0.175	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

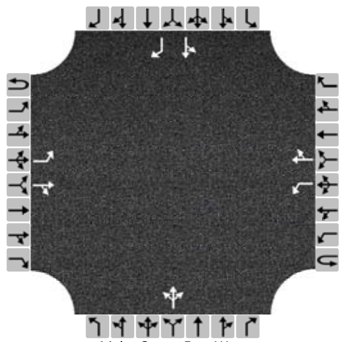
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		149				0					13			151		227
Capacity, c (veh/h)		1007				1058					234			303		561
v/c Ratio		0.15				0.00					0.06			0.50		0.40
95% Queue Length, Q_{95} (veh)		0.5				0.0					0.2			2.6		1.9
Control Delay (s/veh)		9.2				8.4					21.3			28.1		15.7
Level of Service (LOS)		A				A					C			D		C
Approach Delay (s/veh)	2.1				0.0				21.3				20.7			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Future Mid day Peak Hours)		

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		0	453	13		1	591	139		7	3	4		103	0	203
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked						0.186				0.186	0.186	0.186		0.186	0.186	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

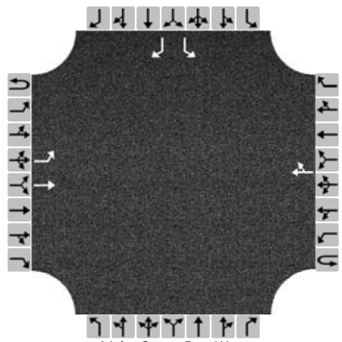
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				1					15			112		221
Capacity, c (veh/h)		836				1047					257			399		431
v/c Ratio		0.00				0.00					0.06			0.28		0.51
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2			1.1		2.8
Control Delay (s/veh)		9.3				8.4					19.9			17.5		21.8
Level of Service (LOS)		A				A					C			C		C
Approach Delay (s/veh)	0.0				0.0				19.9				20.3			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study AM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	126				140	3						10		1
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.295		0.295
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0												11		1
Capacity, c (veh/h)		1416												575		760
v/c Ratio		0.00												0.02		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.1		0.0
Control Delay (s/veh)		7.5												11.4		9.7
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												11.2			
Approach LOS													B			

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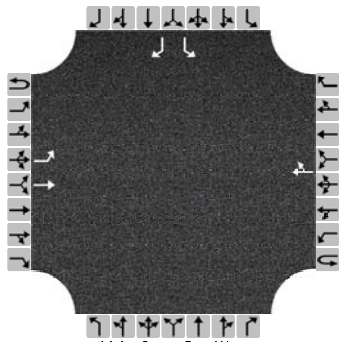
Intersection #5 Future AM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study PM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	255				262	20						28		0
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.284		0.284
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

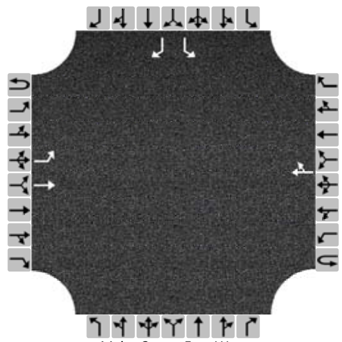
Delay, Queue Length, and Level of Service

	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Flow Rate, v (veh/h)		0												30		0
Capacity, c (veh/h)		1248												431		771
v/c Ratio		0.00												0.07		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.2		0.0
Control Delay (s/veh)		7.9												14.0		9.7
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												14.0			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study Mid day Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		1	310				325	17						24		1
Percent Heavy Vehicles (%)		3												25		3
Proportion Time Blocked		0.000												0.371		0.371
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.65		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.73		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1												26		1
Capacity, c (veh/h)		1181												442		677
v/c Ratio		0.00												0.06		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.2		0.0
Control Delay (s/veh)		8.1												13.7		10.3
Level of Service (LOS)		A												B		B
Approach Delay (s/veh)	0.0												13.5			
Approach LOS													B			

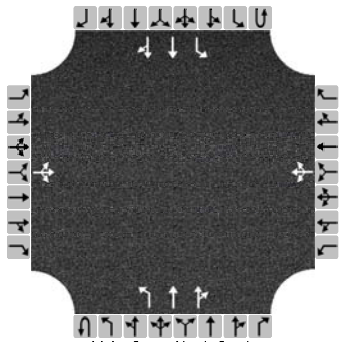
APPENDIX 9

Future Conditions with Project Results

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/13/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS AM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		4	1	3		10	0	31	0	0	820	32	0	31	816	10
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.745	0.745	0.000		0.745	0.745	0.745						0.745		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Approach	Eastbound				Westbound				Northbound				Southbound			
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

Approach	Eastbound				Westbound				Northbound				Southbound			
Flow Rate, v (veh/h)			9				45			0				34		
Capacity, c (veh/h)			255				272			765				412		
v/c Ratio			0.03				0.16			0.00				0.08		
95% Queue Length, Q_{95} (veh)			0.1				0.6			0.0				0.3		
Control Delay (s/veh)			19.6				20.8			9.7				14.5		
Level of Service (LOS)			C				C			A				B		
Approach Delay (s/veh)	19.6				20.8				0.0				0.5			
Approach LOS	C				C											

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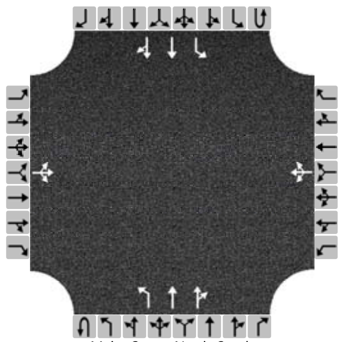
Intersection #1 Future Plus Project AM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/13/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS PM peak hour		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		7	0	11		3	0	41	0	8	1667	15	0	31	1612	39
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.647	0.647	0.000		0.647	0.647	0.647		0.000				0.647		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			20				48			9				34		
Capacity, c (veh/h)			134				366			349				569		
v/c Ratio			0.15				0.13			0.02				0.06		
95% Queue Length, Q_{95} (veh)			0.5				0.4			0.1				0.2		
Control Delay (s/veh)			36.4				16.3			15.6				11.7		
Level of Service (LOS)			E				C			C				B		
Approach Delay (s/veh)	36.4				16.3				0.1				0.2			
Approach LOS	E				C											

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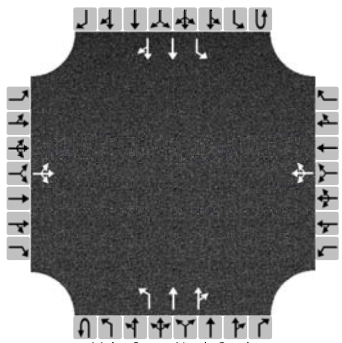
Intersection #1 Future Plus Project PM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#1
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and City of Fort
Date Performed	8/13/2018	East/West Street	Driveway
Analysis Year	2018	North/South Street	HWY 1
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Auto zone TIS Weekend peak hour		

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		13	0	21		35	1	13	0	11	1835	35	0	41	1653	55
Percent Heavy Vehicles (%)		0	0	0		0	0	0	3	0			3	3		
Proportion Time Blocked		0.629	0.629	0.000		0.629	0.629	0.629		0.000				0.629		
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.50	6.50	6.90		7.50	6.50	6.90		4.10				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.23		

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)			37				53			12				45		
Capacity, c (veh/h)			119				198			330				426		
v/c Ratio			0.31				0.27			0.04				0.10		
95% Queue Length, Q_{95} (veh)			1.2				1.0			0.1				0.3		
Control Delay (s/veh)			48.1				29.8			16.3				14.4		
Level of Service (LOS)			E				D			C				B		
Approach Delay (s/veh)	48.1				29.8				0.1				0.3			
Approach LOS	E				D											

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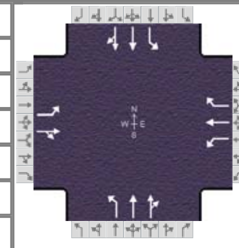
Intersection #1 Future Plus Project Weekend peak hour TWSC .xtw

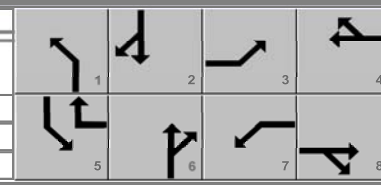
HCS7 Signalized Intersection Results Summary



General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Future Plus Project AM.xus		
Project Description	SR1 & Ocean View				

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	86	15	58	27	19	102	61	704	29	120	601	83

Signal Information										
Cycle, s	100.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	5.2	3.9	59.9	3.3	3.3	8.4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.6	15.7	7.3	12.4	9.2	63.9	13.0	67.8
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (MAH), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	7.1	6.4	3.6	8.1	5.9		9.1	
Green Extension Time (g_e), s	0.1	0.4	0.0	0.4	0.1	0.0	0.2	0.0
Phase Call Probability	0.93	1.00	0.56	1.00	0.86		0.97	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	93	79		29	21	111	71	429	423	130	379	364
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1662		1810	1900	1610	1810	1900	1873	1810	1900	1819
Queue Service Time (g_s), s	5.1	4.4		1.6	1.0	6.1	3.9	8.1	8.4	7.1	9.0	9.1
Cycle Queue Clearance Time (g_c), s	5.1	4.4		1.6	1.0	6.1	3.9	8.1	8.4	7.1	9.0	9.1
Green Ratio (g/C)	0.07	0.12		0.03	0.08	0.17	0.05	0.60	0.60	0.09	0.64	0.64
Capacity (c), veh/h	120	195		61	161	281	93	1138	1122	163	1211	1160
Volume-to-Capacity Ratio (X)	0.780	0.407		0.485	0.129	0.394	0.759	0.377	0.377	0.799	0.313	0.314
Back of Queue (Q), ft/ln (50 th percentile)	59.1	44.8		18.4	11.7	58.9	44.9	69.7	71.8	80.8	85.5	82.3
Back of Queue (Q), veh/ln (50 th percentile)	2.4	1.8		0.7	0.5	2.4	1.8	2.8	2.9	3.2	3.4	3.3
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	46.0	40.9		47.5	42.4	36.6	46.3	6.2	6.5	44.6	8.2	8.2
Incremental Delay (d_2), s/veh	4.1	0.5		2.2	0.1	0.3	4.5	0.9	0.9	3.4	0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	50.1	41.4		49.7	42.5	36.9	50.8	7.1	7.4	48.0	8.9	8.9
Level of Service (LOS)	D	D		D	D	D	D	A	A	D	A	A
Approach Delay, s/veh / LOS	46.1	D		40.0	D		10.6	B		14.7	B	
Intersection Delay, s/veh / LOS	17.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.31	B	2.07	B	1.87	B
Bicycle LOS Score / LOS	0.77	A	0.75	A	1.20	A	1.21	A

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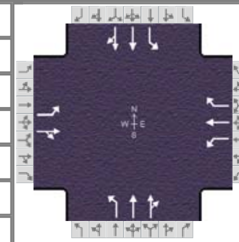
HCS7 Signalized Intersection Results Summary

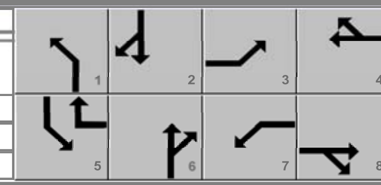
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Future Plus Project PM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	274	30	182	36	43	122	213	1212	45	88	643	292

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	2.9	34.6	3.7	9.1	9.5
Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



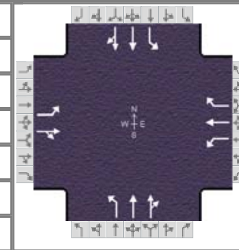
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	20.9	26.6	7.7	13.5	17.1	45.4	10.2	38.6
Change Period, ($Y+R_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	16.4	13.0	3.9	8.7	12.7		6.7	
Green Extension Time (g_e), s	0.5	0.8	0.0	0.8	0.4	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	0.62	1.00	1.00		0.91	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	298	230		39	47	133	224	666	659	96	537	480
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1646		1810	1900	1610	1810	1900	1876	1810	1900	1698
Queue Service Time (g_s), s	14.4	11.0		1.9	2.0	6.7	10.7	23.8	23.9	4.7	21.8	21.8
Cycle Queue Clearance Time (g_c), s	14.4	11.0		1.9	2.0	6.7	10.7	23.8	23.9	4.7	21.8	21.8
Green Ratio (*g/C*)	0.19	0.25		0.04	0.11	0.17	0.15	0.46	0.46	0.07	0.38	0.38
Capacity (*c*), veh/h	339	413		75	201	281	263	875	864	125	730	652
Volume-to-Capacity Ratio (*X*)	0.879	0.557		0.520	0.233	0.472	0.854	0.761	0.762	0.768	0.735	0.736
Back of Queue (*Q*), ft/ln (50 th percentile)	158.1	104.3		21.7	23.1	63.3	109.4	217.4	214.3	53.6	258.8	234.6
Back of Queue (*Q*), veh/ln (50 th percentile)	6.3	4.2		0.9	0.9	2.5	4.4	8.7	8.6	2.1	10.4	9.4
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	35.6	29.3		42.2	36.9	33.4	34.6	15.4	15.3	41.2	23.8	23.8
Incremental Delay (d_2), s/veh	2.9	0.4		2.1	0.2	0.5	2.1	4.3	4.4	3.7	6.5	7.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.5	29.8		44.3	37.1	33.9	36.7	19.7	19.8	44.9	30.3	31.0
Level of Service (LOS)	D	C		D	D	C	D	B	B	D	C	C
Approach Delay, s/veh / LOS	34.7	C		36.4	D		22.2	C		31.9	C	
Intersection Delay, s/veh / LOS	28.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.30	B	2.09	B	1.91	B
Bicycle LOS Score / LOS	1.36	A	0.85	A	1.81	B	1.40	A

HCS7 Signalized Intersection Results Summary

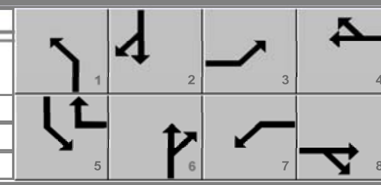
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & Ocean View	File Name	Combined Future Plus Project Weekend.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	295	38	283	28	58	224	266	938	62	283	1058	298

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	18.0	1.1	40.9	3.4	10.6	6.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



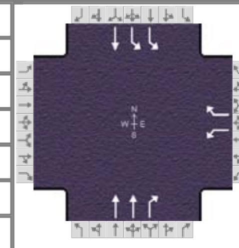
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	22.0	24.6	7.4	10.0	22.0	44.9	23.1	46.0
Change Period, (*Y+R* $_c$), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	19.7	22.6	3.7	8.0	20.0		18.6	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	0.57	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	0.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	321	349		30	63	243	337	639	626	308	758	716
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1640		1810	1900	1610	1810	1900	1858	1810	1900	1757
Queue Service Time (g_s), s	17.7	20.6		1.7	3.2	6.0	18.0	27.1	27.5	16.6	38.5	39.9
Cycle Queue Clearance Time (g_c), s	17.7	20.6		1.7	3.2	6.0	18.0	27.1	27.5	16.6	38.5	39.9
Green Ratio (*g/C*)	0.18	0.21		0.03	0.06	0.25	0.18	0.41	0.41	0.19	0.42	0.42
Capacity (*c*), veh/h	326	337		62	114	404	326	777	760	346	798	738
Volume-to-Capacity Ratio (*X*)	0.984	1.034		0.491	0.553	0.602	1.034	0.823	0.824	0.890	0.950	0.970
Back of Queue (*Q*), ft/ln (50 th percentile)	291.7	335		19.1	39.8	130.3	281	246.9	256.2	184.7	523.8	521.3
Back of Queue (*Q*), veh/ln (50 th percentile)	11.7	13.4		0.8	1.6	5.2	11.2	9.9	10.2	7.4	21.0	20.9
Queue Storage Ratio (*RQ*) (50 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	40.9	39.7		47.4	45.7	33.0	36.6	18.1	19.0	39.4	28.0	28.4
Incremental Delay (d_2), s/veh	45.4	58.1		2.2	3.4	1.8	48.8	6.3	6.5	3.2	21.8	26.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	86.3	97.8		49.7	49.1	34.8	85.3	24.5	25.5	42.6	49.8	54.9
Level of Service (LOS)	F	F		D	D	C	F	C	C	D	D	D
Approach Delay, s/veh / LOS	92.3	F		38.8	D		37.7	D		50.6	D	
Intersection Delay, s/veh / LOS	51.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.31	B	2.10	B	1.91	B
Bicycle LOS Score / LOS	1.59	B	1.04	A	1.62	B	1.96	B

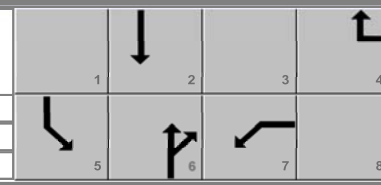
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Future Plus Project AM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				98		254		596	113	234	525	

Signal Information										
Cycle, s	100.0	Reference Phase	2							
Offset, s	51	Reference Point	End	Green	8.9	59.7	19.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				23.5		63.7	12.9	76.5
Change Period, ($Y+R_c$), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				18.7			8.4	
Green Extension Time (g_e), s				0.8		0.0	0.5	0.0
Phase Call Probability				1.00			1.00	
Max Out Probability				0.00			0.00	

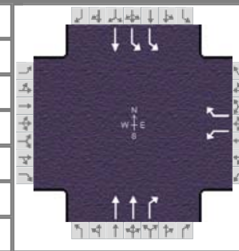
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				107		276		648	123	230	516	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (g_s), s				5.0		16.7		8.8	3.3	6.4	15.3	
Cycle Queue Clearance Time (g_c), s				5.0		16.7		8.8	3.3	6.4	15.3	
Green Ratio (*g/C*)				0.19		0.19		0.60	0.60	0.09	0.73	
Capacity (*c*), veh/h				352		313		2158	961	312	1378	
Volume-to-Capacity Ratio (*X*)				0.303		0.881		0.300	0.128	0.736	0.374	
Back of Queue (*Q*), ft/ln (50 th percentile)				54.2		165.5		80.1	27.9	69	168.3	
Back of Queue (*Q*), veh/ln (50 th percentile)				2.2		6.6		3.2	1.1	2.8	6.7	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				34.5		39.1		9.9	8.8	44.5	9.6	
Incremental Delay (d_2), s/veh				0.2		3.2		0.4	0.3	1.2	0.7	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				34.6		42.4		10.3	9.1	45.7	10.3	
Level of Service (LOS)				C		D		B	A	D	B	
Approach Delay, s/veh / LOS	0.0			40.2	D		10.1	B		21.2	C	
Intersection Delay, s/veh / LOS	20.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.32	B	2.07	B	0.65	A
Bicycle LOS Score / LOS				F	1.12	A	1.85	B

 HCS™ Streets Version 7.6 Generated: 9/21/2018 11:47:21 AM

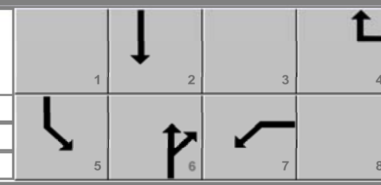
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Future Plus Project PM.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				346		516		909	223	743	1045	

Signal Information										
Cycle, s	90.0	Reference Phase	2							
Offset, s	45	Reference Point	End	Green	11.9	32.0	34.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0.0	0.0	0.0



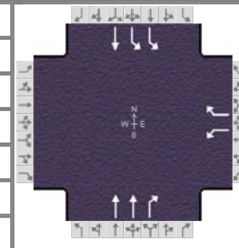
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				38.0		36.0	15.9	52.0
Change Period, (*Y+R c*), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				31.9			11.1	
Green Extension Time (*g e*), s				2.1		0.0	0.9	0.0
Phase Call Probability				1.00			1.00	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				376		561		988	242	389	547	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (*g s*), s				14.7		29.9		21.8	10.3	9.1	12.5	
Cycle Queue Clearance Time (*g c*), s				14.7		29.9		21.8	10.3	9.1	12.5	
Green Ratio (*g/C*)				0.38		0.38		0.36	0.36	0.13	0.53	
Capacity (*c*), veh/h				685		609		1287	573	466	1012	
Volume-to-Capacity Ratio (*X*)				0.549		0.921		0.768	0.423	0.834	0.540	
Back of Queue (*Q*), ft/ln (50 th percentile)				145.9		273.2		236.7	100.1	71.3	99.4	
Back of Queue (*Q*), veh/ln (50 th percentile)				5.8		10.9		9.5	4.0	2.9	4.0	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (*d 1*), s/veh				22.0		26.7		25.7	22.0	27.2	8.2	
Incremental Delay (*d 2*), s/veh				0.3		2.6		4.4	2.3	1.0	1.4	
Initial Queue Delay (*d 3*), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				22.2		29.3		30.1	24.3	28.2	9.6	
Level of Service (LOS)				C		C		C	C	C	A	
Approach Delay, s/veh / LOS	0.0			26.4	C		29.0	C		17.3	B	
Intersection Delay, s/veh / LOS	24.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.31	B	2.11	B	0.69	A
Bicycle LOS Score / LOS				F	1.50	B	3.69	D

HCS7 Signalized Intersection Results Summary

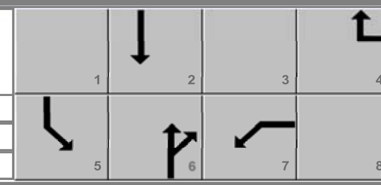
General Information				Intersection Information	
Agency				Duration, h	0.25
Analyst		Analysis Date	9/19/2018	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	State Route 1	Analysis Year	2018	Analysis Period	1> 7:00
Intersection	SR1 & HWY20	File Name	Combined Future Plus Project Weekend.xus		
Project Description	SR1 & Ocean View				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				252		468		1006	235	401	940	

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	50	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.7	39.2	34.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	0.0	0.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6	5	2
Case Number				9.0		7.3	2.0	4.0
Phase Duration, s				38.1		43.2	18.7	61.9
Change Period, (*Y+R c*), s				4.0		4.0	4.0	4.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				32.4			13.8	
Green Extension Time (*g e*), s				1.7		0.0	0.9	0.0
Phase Call Probability				1.00			1.00	
Max Out Probability				0.00			0.00	

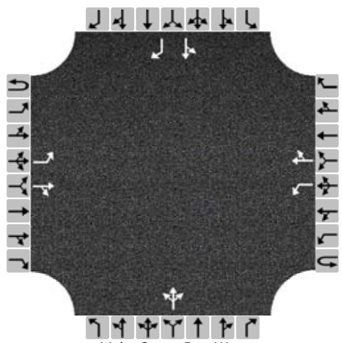
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7		14		6	16	5	2	
Adjusted Flow Rate (*v*), veh/h				274		509		1093	255	442	1036	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810		1610		1809	1610	1757	1900	
Queue Service Time (*g s*), s				11.7		30.4		26.4	11.5	11.8	46.4	
Cycle Queue Clearance Time (*g c*), s				11.7		30.4		26.4	11.5	11.8	46.4	
Green Ratio (*g/C*)				0.34		0.34		0.39	0.39	0.15	0.58	
Capacity (*c*), veh/h				618		550		1417	631	517	1099	
Volume-to-Capacity Ratio (*X*)				0.443		0.926		0.772	0.405	0.855	0.942	
Back of Queue (*Q*), ft/ln (50 th percentile)				121.4		305.6		285.7	111.4	99.7	256.7	
Back of Queue (*Q*), veh/ln (50 th percentile)				4.9		12.2		11.4	4.5	4.0	10.3	
Queue Storage Ratio (*RQ*) (50 th percentile)				0.00		0.00		0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh				25.6		31.7		26.5	22.0	32.9	10.9	
Incremental Delay (d_2), s/veh				0.2		7.3		4.1	1.9	0.3	4.1	
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				25.7		39.0		30.7	23.9	33.2	15.0	
Level of Service (LOS)				C		D		C	C	C	B	
Approach Delay, s/veh / LOS	0.0			34.3	C		29.4	C		20.5	C	
Intersection Delay, s/veh / LOS	26.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.32	B	2.11	B	0.69	A
Bicycle LOS Score / LOS				F	1.60	B	2.89	C

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (AM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		53	157	4		8	219	37		0	0	0		33	0	31
Percent Heavy Vehicles (%)		100				2				0	0	4		3	0	3
Proportion Time Blocked		0.129				0.000					0.129	0.129		0.129	0.129	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		5.10				4.12				7.10	6.50	6.24		7.13	6.50	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		3.10				2.22				3.50	4.00	3.34		3.53	4.00	3.33

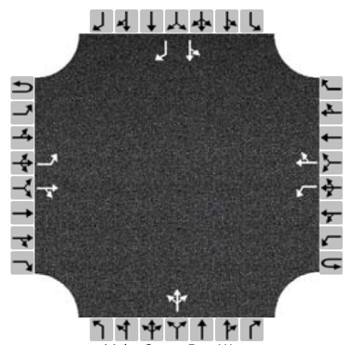
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		58				9					0			36		34
Capacity, c (veh/h)		919				1401								643		778
v/c Ratio		0.06				0.01								0.06		0.04
95% Queue Length, Q_{95} (veh)		0.2				0.0								0.2		0.1
Control Delay (s/veh)		9.2				7.6								10.9		9.8
Level of Service (LOS)		A				A								B		A
Approach Delay (s/veh)	2.3				0.2								10.4			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans and the City
Date Performed	8/14/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (PM Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		137	467	7		0	425	110		4	4	4		141	0	209
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked		0.176								0.176	0.176	0.176		0.176	0.176	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		149				0					13			153		227
Capacity, c (veh/h)		976				1054					242			300		558
v/c Ratio		0.15				0.00					0.05			0.51		0.41
95% Queue Length, Q_{95} (veh)		0.5				0.0					0.2			2.7		2.0
Control Delay (s/veh)		9.4				8.4					20.7			28.8		15.8
Level of Service (LOS)		A				A					C			D		C
Approach Delay (s/veh)	2.1				0.0				20.7				21.1			
Approach LOS									C				C			

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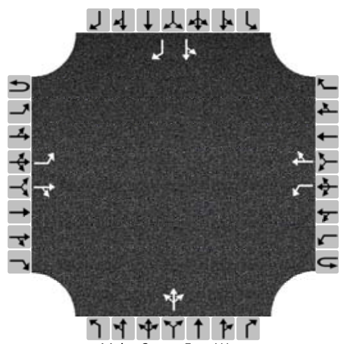
Intersection #4 Future Plus Project PM peak hour TWSC .xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#4
Agency/Co.	Laco Associates	Jurisdiction	Caltrans
Date Performed	8/13/2018	East/West Street	HWY 20
Analysis Year	2018	North/South Street	Boatyard drive
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone TIS (Mid day Peak Hours)		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	1
Configuration		L		TR		L		TR			LTR			LT		R
Volume (veh/h)		0	461	13		1	600	143		7	3	4		107	0	203
Percent Heavy Vehicles (%)		0				1				2	0	2		3	0	0
Proportion Time Blocked						0.187				0.187	0.187	0.187		0.187	0.187	0.000
Percent Grade (%)									0				0			
Right Turn Channelized													No			
Median Type | Storage	Left + Thru								5							

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.11				7.12	6.50	6.22		7.13	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.21				3.52	4.00	3.32		3.53	4.00	3.30

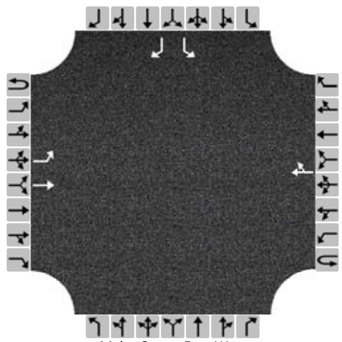
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0				1					15			116		221
Capacity, c (veh/h)		826				1038					250			393		425
v/c Ratio		0.00				0.00					0.06			0.30		0.52
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2			1.2		2.9
Control Delay (s/veh)		9.4				8.5					20.3			18.0		22.3
Level of Service (LOS)		A				A					C			C		C
Approach Delay (s/veh)	0.0				0.0				20.3				20.8			
Approach LOS									C				C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study AM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	126				140	21						28		1
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.216		0.216
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

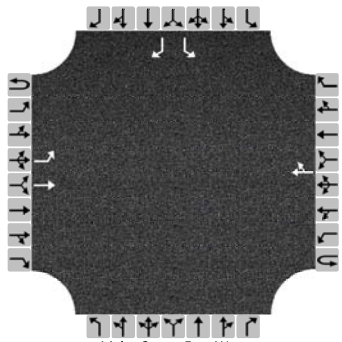
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		0												30		1
Capacity, c (veh/h)		1393												639		845
v/c Ratio		0.00												0.05		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.1		0.0
Control Delay (s/veh)		7.6												10.9		9.3
Level of Service (LOS)		A												B		A
Approach Delay (s/veh)	0.0												10.9			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study PM Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		0	255				262	54						62		0
Percent Heavy Vehicles (%)		3												100		3
Proportion Time Blocked														0.295		0.295
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												7.40		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												4.40		3.33

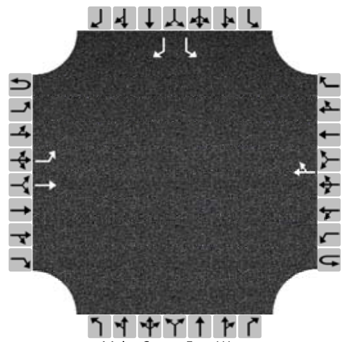
Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)		0												67		0
Capacity, c (veh/h)		1210												420		759
v/c Ratio		0.00												0.16		0.00
95% Queue Length, Q_{95} (veh)		0.0												0.6		0.0
Control Delay (s/veh)		8.0												15.2		9.7
Level of Service (LOS)		A												C		A
Approach Delay (s/veh)	0.0												15.2			
Approach LOS													C			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	NH/ATW	Intersection	#5
Agency/Co.	Laco Associates	Jurisdiction	City of Fort Bragg
Date Performed	8/13/2018	East/West Street	Ocean view
Analysis Year	2018	North/South Street	Frontage Road
Time Analyzed		Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Autozone Traffic Impact Study Mid day Peak		

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		1	0	1
Configuration		L	T					TR						L		R
Volume (veh/h)		1	310				325	98						105		1
Percent Heavy Vehicles (%)		3												25		3
Proportion Time Blocked		0.000												0.320		0.320
Percent Grade (%)													0			
Right Turn Channelized													No			
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.65		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.73		3.33

Delay, Queue Length, and Level of Service

	EB U	EB L	EB T	EB R	WB U	WB L	WB T	WB R	NB U	NB L	NB T	NB R	SB U	SB L	SB T	SB R
Flow Rate, v (veh/h)		1												114		1
Capacity, c (veh/h)		1096												384		732
v/c Ratio		0.00												0.30		0.00
95% Queue Length, Q_{95} (veh)		0.0												1.2		0.0
Control Delay (s/veh)		8.3												18.3		9.9
Level of Service (LOS)		A												C		A
Approach Delay (s/veh)	0.0												18.2			
Approach LOS													C			

APPENDIX 10

Fort Bragg Coastal General Plan: Circulation

5. CIRCULATION ELEMENT

A. Purpose

Government Code Section 65302[b] requires that every General Plan include a Circulation Element which consists of "the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element of the Plan."

The Circulation Element discusses transportation issues for the Fort Bragg Planning Area; it briefly describes the existing circulation system and travel characteristics and projects future traffic based on the land uses and growth projections described in the Land Use Element. Policies and programs contained in this element provide a guide for decisions regarding transportation system improvements to accommodate Fort Bragg's anticipated growth. Detailed description and analysis of Fort Bragg's transportation system are contained in the Draft EIR.

The main objectives of the Circulation Element are to:

- Ensure that Fort Bragg's circulation network is sufficient to accommodate anticipated development;
- Minimize the intrusion of through-traffic onto local streets;
- Encourage public transportation, bicycle, and pedestrian movement, and other alternatives to the single-occupant vehicle; and
- Provide improvements to the transportation system which complement and support the other goals of this Coastal General Plan.

B. Existing Conditions

1. Roadway Classifications

The street system in Fort Bragg is laid out in a grid pattern with Main Street (Highway One) functioning as the primary north-south roadway. Franklin Street is located one block east of Main Street and provides access along the main commercial corridor. A number of streets, including Cypress Street, Chestnut Street, Oak Street, Redwood Avenue, Pine Street, and Elm Street provide east-west connections. Streets in Fort Bragg are classified according to their function as defined and shown in Table C-1 and Map C-1: Existing Roadway System.

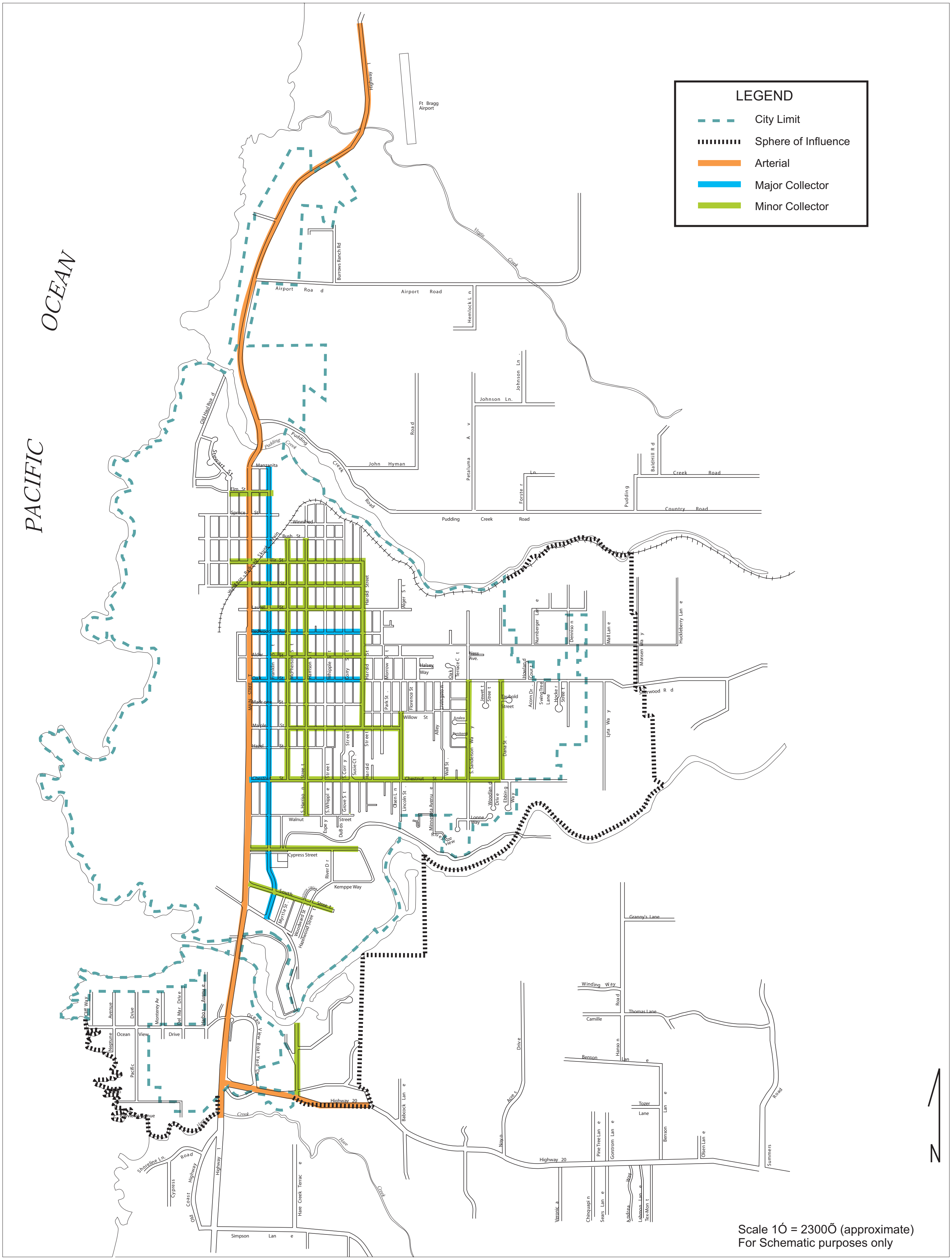
The Roadway Classification System

Highway:	A high-speed, limited access roadway serving primarily regional and county-wide travel. California State Department of Transportation (Caltrans) controls the design, operation, and maintenance of highways. Fort Bragg does not have any limited access roadways.
Arterial:	A medium-speed, medium capacity roadway that provides travel and access within the City and access to highways. Main Street (Highway One) and Highway 20 are considered arterial roadways.
Major Collector:	A relatively low-speed, street that provides access within and between neighborhoods. Major Collectors usually serve short trips and are intended for collecting trips from local streets and distributing them to Arterial streets.
Minor Collector:	A relatively low-speed street that provides a connection between Arterials and Major Collectors and direct access to parcels. They handle a lower volume of traffic than Major Collectors.
Local Street:	A low-speed, low-volume street that provides access to adjacent land. Local streets are designed for trips within neighborhoods and to Collector and Arterial streets, and not to serve through-traffic.

Table C-1
Fort Bragg Roadway Classification

Roadway Classification	Location
Arterials	
Main Street	Full Length
Highway 20	Full Length
Major Collectors	
Chestnut Street	Main Street to Franklin Street
Franklin Street	Full Length
Redwood Avenue	Main Street to Harold Street
Oak Street	Alley West of Main Street to Harold Street
Minor Collectors	
Chestnut Street	Franklin Street to Dana Street
Maple Street	Main Street to Lincoln Street
Alder Street	Main Street to Harold Street
Laurel Street	Block West of Main Street to Harold Street
Pine Street	Stewart Street to Harold Street
Fir Street	Stewart Street to Harold Street
Elm Street	Glass Beach Drive to Franklin Street
McPherson Street	Chestnut Street to Bush Street
Harrison Street	Walnut Street to Bush Street
Harold Street	Maple Street to Fir Street
Lincoln Street	Chestnut Street to Willow Street
Sanderson Way	Chestnut Street to Oak Street
Dana Street	Chestnut Street to Oak Street
Cypress Street	Full Length
South Harbor Drive	Full Length
South Street	Main Street to River Drive
Local Streets	
All remaining streets will be considered local streets.	

Map C-1
EXISTING ROADWAY SYSTEM



2. Level of Service Standards

Level of Service (LOS) standards provide a qualitative indicator based on a quantitative analysis of the functional capacity of a roadway or intersection. LOS standards describe the relative ease or congestion of traffic movement on a roadway or at an intersection. LOS "A" represents free flow conditions and LOS "F" represents jammed conditions where traffic flow is at or over the capacity of the roadway and consequently moves very slowly. Table C-2 below explains in more detail the LOS concept. LOS is normally used to describe peak-hour conditions.

Table C-2
Level of Service Definitions

Level of Service	Description	V/C Ratio*
Free Flowing LOS A	Relatively free-flow. No restrictions to vehicle maneuverability or speed. Very slight delay.	0.00-0.60
Minimal Delays LOS B	Stable Flow. Some slight reduction in maneuverability and speed. Vehicle platoons form. This is a suitable level of operation for rural design. Slight delay	0.61-0.70
Acceptable Delays LOS C	Stable flow operation. Higher volumes. More restrictions on maneuverability and speed. Acceptable delay.	0.71-0.80
Tolerable Delays LOS D	Approaching unstable flow operation. Queues develop. Little freedom to maneuver. Tolerable delays for short periods.	0.81-0.90
Significant Delays LOS E	Unstable flow or operation. Low operating speed; momentary stoppages. This condition is not uncommon in peak hours. Congestion and intolerable delays.	0.91-1.00
Excessive Delays LOS F	Forced flow or operation. There are many stoppages. The highway acts as a vehicle storage area. Jammed. Gridlock.	1.00+

Source: Highway Capacity Manual, HRB Special Report 87.

C. Existing and Projected Traffic Patterns

Fort Bragg is built along Highway One which is also called Main Street within the City. Highway One is the only continuous north-south road serving the north coast of Mendocino County, providing a local transportation corridor for many communities and the primary access route for visitors. Traffic volumes on this roadway have increased steadily over the years.

Traffic into and out of Fort Bragg is constrained by the capacity of two bridges: Hare Creek and Pudding Creek, and by the two-lane (i.e., one through lane in each direction) roadway sections along Highway One. The Hare Creek and Pudding Creek bridges are limited to one lane of traffic in each direction.

The most congested street in the City is Main Street between the northbound merge area located just south of Laurel Street through Elm Street. The northbound section of this road currently operates at LOS D to LOS E during peak hours.

Caltrans recently replaced the Noyo River Bridge with a four lane bridge, a center lane for emergency vehicles, and a sidewalk on both sides. The new bridge provides improved access at the south end of the City and to Highway 20 and operates at LOS A.

Although the volume of traffic on Main Street has increased over the past few years, intersections with traffic signals – Highway 20, Ocean View Drive, Cypress Street, Chestnut Street, Oak Street, Elm Street, and Redwood Avenue - are operating at LOS B or better. The side street stop sign controlled intersections with Main Street are also operating at LOS B or better for traffic traveling on Main Street, although traffic turning onto Main Street from some side streets can experience LOS D, E, or F during peak hours.

D. Projected Traffic Volumes

Land use and transportation must be coordinated so that the capacity of the transportation system will accommodate the traffic generated by the development of the community. To understand the relationship between land use and transportation, the new traffic that would be generated by the 10-year buildout projections listed in Table LU-1 and Table LU-2 of the Land Use Element was added to existing traffic volumes on major streets. See the Draft EIR for the General Plan for a full description of the trip generation and trip assignment methods that were used.

The traffic projections take into account the type and intensity of existing and future development, areas of vacant developable land, and the policies established by the Coastal General Plan. The traffic projections estimate how much traffic will be generated by new development, what traffic problems will occur, and what roadway improvements would relieve traffic congestion. This projected traffic increase would be generated by development within the City and its Sphere of Influence, new development in the County, and tourist traffic which will continue to increase in Fort Bragg and the coastal areas of Mendocino County.

The traffic projections include the existing roadway network as shown in Map C-1.

Tables C-3 and C-4 summarize the Levels of Service for roadway segments and intersections for a summer Friday mid-day peak hour when traffic is generally the most congested. These tables show the projected LOS with and without the roadway improvements recommended in this element.

E. Roadway Deficiencies

Traffic projections in Tables C-3 and C-4 indicate that, without intersection signalization and roadway widening, Levels of Service will decline at several intersections and roadway segments below the standards established by the General Plan. The recommended transportation improvements recognize that it may not be feasible to accommodate all of the projected traffic at established LOS standards. This would require extensive street widening on Main Street between the northbound merge area (south of Laurel Street) and Elm Street where there is limited right-of-way. Roadway widening in this area could have adverse impacts on businesses fronting Main Street due to the loss of on-street parking.

F. Alternatives to the Automobile

Effective alternatives to automobile use are needed. These include:

- Better public transit;
- Expansion of bicycle routes;
- Provision of safe sidewalks throughout the City; and
- Land use designations which reduce the need to drive from home to work, schools, and/or commercial outlets.

By improving alternative modes of transit, the City best serves those individuals who lack access to a vehicle and those who would prefer to use alternate modes of transport to conserve energy, reduce air and noise pollution, and/or reduce the costs of constructing and maintaining roads and parking facilities.

Table C-3

INTERSECTION LEVEL OF SERVICE (FRIDAY PM PEAK HOUR IN AUGUST)

Intersection	Existing (August 2001)	Year 2006	Year 2011
Highway One/Hwy. 20 (Signal)	B-17.3(1)	B-18.9	C-21.0
Highway One/Ocean View Dr. (Signal)	B-16.0(1)	C-20.6	C-24.3
Highway One/Cypress St. (Signal)	B-16.7(1)	B-18.7	C-21.0
Highway One/Chestnut St. (Signal)	A-8.7(1)	A-9.3	B-10.1
Highway One/Oak St. (Signal)	B-10.2(1)	B-11.3	B-12.5
Highway One/Redwood Ave. (Signal)	B-16.6(1)	B-17.0	B-17.5
Highway One/Laurel St. (Side Street Stop)	E-35.4/B-10.3(2)	A-8.3(1)	A-9.2
Highway One/Pine St. (Side Street Stop)	D-26.6/F-55.8/ A-9.0/A-9.4(3)	E-40.6/F-99.8/ A-9.3/A-9.7	F-65.9/F-193/ A-9.7/B-10.1
Highway One/Elm St. (Signal)	A-7.9(1)	A-8.3	A-8.9
Highway One/Pudding Creek Rd. (Side Street Stop)	E-38.7/A-9.1(4)	F-60.7/A-9.4	F-103/A-9.6
Franklin St./South St. (Side Street Stop)	A-6.6/A-6.6(5)	A-8.0/A-6.8	A-8.3/A-7.0
Franklin St./Cypress St. (All Way Stop)	B-11.6(6)	B-13.5	C-16.0
Franklin St./Chestnut St. (All Way Stop)	B-12.4(6)	B-14.0	C-16.1
Franklin St./Oak St. (All Way Stop)	C-16.8(6)	C-20.7	D-27.0
Franklin St./Redwood Ave. (All Way Stop)	B-10.9(6)	B-11.7	B-12.7
Franklin St./Laurel St. (Side Street Stop)	B-13.7/A-8.0(7)	B-14.5/A-8.0	C-15.4/A-8.1

(1) Signalized level of service–control delay in seconds.

(2) Unsignalized level of service–average control delay in seconds. Laurel St. eastbound stop sign controlled approach to Highway One/Highway One southbound left turn to Laurel St.

(3) Unsignalized LOS–average control delay in seconds. Pine St. eastbound stop sign controlled approach to Highway One/Pine St. westbound stop sign controlled approach to Highway One/southbound Highway One left turn/northbound Highway One left turn.

(4) Unsignalized LOS–average control delay in seconds. Pudding Creek Rd. westbound stop sign controlled approach to Highway One/Highway One southbound left turn to Pudding Creek Rd.

(5) Unsignalized LOS–average control delay in seconds. Franklin St. northbound stop sign controlled approach/Franklin St. southbound stop sign controlled approach.

(6) All way stop level of service–average control delay in seconds.

(7) Unsignalized LOS–average control delay in seconds. Laurel St. eastbound stop sign controlled approach/Franklin St. southbound left turn.

Year 2000 Highway Capacity Manual Analysis Methodology

Source: Crane Transportation Group, February, 2002

Table C-4

G. Goals, Policies and Programs

The following policies demarcated with the Fort Bragg City seal: are not part of the certified LCP and do not govern the review and approval of coastal development permits: Policy C-2.11, Policy C-9.4, Policy C-9.7, Policy C-12.1, Policy C-12.1, Policy C-12.3, Policy C-13.1, and Policy C-15.1.

1. Transportation Planning

Goal C-1 Coordinate land use and transportation planning.

Policy C-1.1 Level of Service Standards: Establish the following Level of Service (LOS) standards:

Signalized and All-Way-Stop Intersections Along Highway One	LOS D
Side Street Stop Sign Controlled Intersections Along Highway One (Side Street Approach)	LOS D, or LOS F if there are less than 15 vehicles/hour left turns plus through movements from the side street and the volumes do not exceed Caltrans rural peak hour signal warrant criteria levels.
Signalized and All-Way Stop Intersections Not Along Highway One	LOS C
Side Street Stop Sign Controlled Intersections Not Along Highway One (Side Street Approach)	LOS C, or LOS E if there are less than 15 vehicles/hour left turns plus through movements from the side street and the volumes do not exceed Caltrans rural peak hour signal warrant criteria levels.

- If volumes at an unsignalized intersection are increased to meet or exceed Caltrans rural peak hour signal Warrant #11 criteria levels and the intersection is operating at an unacceptable level of service, then signalization of the intersection is warranted.
- LOS E for Main Street (Highway One) between the northbound lane merge area and Manzanita Street.
- LOS D for Main Street south of the northbound merge lane and north of Manzanita Street and other City-designated arterials and collectors.
- LOS C on all City-designated local streets.
- The maximum allowable LOS standards for Main Street apply to the p.m. peak hour weekdays during the summer and to the p.m. peak hour on weekdays and weekends during the remainder of the year. They do not apply to p.m. peak hours on weekends and holidays during the summer. During the p.m. peak hours on summer weekends and holidays, Main Street can operate at LOS F.

Policy C-1.2 Coordinate Land Use and Transportation: Ensure that the amount and phasing of development can be adequately served by transportation facilities.

> Program C-1.2.1: Review development proposals for their direct and cumulative effects on roadway Level of Service standards. During the development review process, City staff will determine whether traffic studies need to be carried out and the scope of such studies.

Policy C-1.3: Do not permit new development that would result in the exceedance of roadway and intersection Levels of Service standards unless one of the following conditions is met:

a) Revisions are incorporated in the proposed development project which prevent the Level of Service from deteriorating below the adopted Level of Service standards; or

b) Funding of prorata share of the cost of circulation improvements and/or the construction of roadway improvements needed to maintain the established Level of Service is included as a condition or development standard of project approval.

Policy C-1.4: Include specific time frames for the funding and completion of roadway improvements for projects which cause adopted roadway and intersection Level of Service standards to be exceeded. Require security, bonding or other means acceptable to the City to ensure the timely implementation of roadway mitigations.

Policy C-1.5: Traffic Impact Fees. When traffic impact fees are collected, establish a schedule from the date of collection of said fee for the expenditure of funds to construct roadway improvements that meets project needs. Where a project would cause a roadway or intersection to operate below the adopted traffic Level of Service standards, the roadway or intersection improvements should be completed in a timely manner but no later than five years after project completion.

2. Recommended Roadway Improvements

Goal C-2 Develop and manage a roadway system that accommodates future growth and maintains acceptable Levels of Service while considering the other policies and programs of the Coastal General Plan.

Policy C-2.1 Roadway Improvements: In coordination with Caltrans and Mendocino County, plan for and seek funding for on-going improvements to the local and regional road system to ensure that the roadway system operates safely and efficiently and to ensure that Highway 1 in rural areas outside the Mendocino County urban/rural boundary will remain a scenic two-lane road consistent with Section 30254 of the Coastal Act. Project applicants are fiscally responsible for their fair share of roadway improvements necessary to serve their projects.

Policy C-2.2: Improvements to major road intersections for public safety or increased vehicle capacity shall be permitted, as necessary, in existing developed areas and where such improvements are sited and designed to be consistent with all policies of the LCP.

Policy C-2.3: Design Roadways to Protect Scenic Views. In scenic areas, roadway improvements, including culverts, bridges or overpasses, shall be designed and constructed to protect public views and avoid or minimize visual impacts and to blend in with the natural setting to the maximum extent feasible.

Program C-2.3.1: When a traffic analysis of levels of service and/or safety hazards indicates the need, construct the following roadway improvements where such roadway improvements are found to be consistent with all applicable policies of the LCP including, but not limited to, the wetland, environmentally sensitive habitat area, public access, and visual protection policies:

a) Signalize the Main Street/Pudding Creek Road intersection;
b) Signalize the Franklin Street/Oak Street intersection;
c) Widen the section of Main Street from the Pudding Creek Bridge to the northern City Limits to three lanes, adding a center turn lane;
d) Reconstruct the Main Street/Ocean View Drive intersection at time of development of the property between the College of the Redwoods and Main Street. Require a traffic engineering analysis of the intersection to determine appropriate geometrics and signal timing. Construct turning lane mitigations as needed.
e) Signalize the Main Street/Laurel Street intersection or provide some other improvement to provide for pedestrian safety;
f) Signalize the Main Street/Pine Street intersection;
g) Construct bicycle lane and pedestrian improvements on Chestnut Street and Oak Street;
h) Consider extending Harrison Street south from Walnut Street to Cypress Street.
i) Continue the two northbound through lanes on Main Street from Oak Street to just north of Laurel Street. Stripe the curb lane as a right turn only lane between Redwood Avenue and Laurel Street. This improvement shall only be implemented if there are no other feasible circulation improvements that would result in the street operating at a LOS E or better.
j) Construct a second southbound through travel lane on Main Street from Elm Street to Laurel Street. This improvement shall only be implemented if there are no other feasible circulation improvements that would result in the street operating at a LOS E or better.

Policy C-2.4 Roadway Standards: Continue to provide consistent standards for the City's street system.

Program C-2.4.1: Establish standards for public streets, which allow for the following:
a) traffic "calming" measures;
b) sidewalks with curbs, gutters, and a planting strip between the sidewalk and the roadway;
c) rounded street corners with "bulb-outs" at key intersections;
d) continuation of the grid street system; and
e) standards for radius returns for local, collector, and arterial streets.

Program C-2.4.1.2: Adopt standards for alleyways which address parking restrictions, shared access, lighting, and maintenance.

Policy C-2.5: Continue to prohibit the establishment of private roads.

Policy C-2.6: Traffic Studies for High Trip Generating Uses: Traffic studies shall be required for all major development proposals, including but not limited to, drive-through facilities, fast food outlets, convenience markets, major tourist accommodations, shopping centers, commercial development, residential subdivisions, and other generators of high traffic volumes that would affect a Level of Service. Traffic studies shall identify, at a minimum:

(a) the amount of traffic to be added to the street system by the proposed development;
(b) other known and foreseeable projects and their effects on the street system;
(c) the direct, indirect, and cumulative adverse impacts of project traffic on street system operations, safety, and public access to the coast;
(d) mitigation measures necessary to provide for project traffic while maintaining City Level of Service standards;
(e) the responsibility of the developer to provide improvements; and
(f) the timing of all improvements.

Policy C-2.7: Consider Impacts to Roads for LCP Amendments. Direct, indirect, and cumulative adverse impacts to Highway 1 capacity in the rural areas surrounding Fort Bragg shall be considered during the review of proposed LCP amendments that would increase density or change land use classifications to ensure that Highway 1 in rural areas outside the Mendocino County urban/rural boundary remains a scenic two-lane road consistent with Section 30254 of the Coastal Act.

Policy C-2.8 Continuation of Streets: Require the continuation of streets and bicycle and pedestrian paths through new developments wherever possible.

Policy C-2.9: Facilitate Street Connections. Review site plans for new development to facilitate the continuation of streets to improve local circulation. Priority shall be given to providing pedestrian and bicycle trails that establish connections to streets wherever possible.

Policy C-2.10 Continue Grid System onto Mill Site: Ensure that the grid street system and a north/south arterial on the Mill Site be designed to ensure the maximum benefit to local traffic, pedestrian, and bicycle circulation and to provide maximum public access to the coast.

Policy C-2.11 Right-of-Way Acquisition: Require right-of-way acquisition for new development to meet the City's roadway width standards.

Policy C-2.12 Roadway Safety: Improve the safety of the roadway system. All safety improvements shall be consistent with the applicable policies of the LCP including, but not limited to, the wetlands, environmentally sensitive habitat area, public access, and visual protection policies.

> Program C-2.12.1: Periodically analyze the locations of traffic accidents to identify problems and use this information to set priorities for improvements as a part of the City's Capital Improvement Program.

3. Residential Areas

The City's residential neighborhoods need to be protected from excessive through-traffic. When Main Street and other arterial streets become congested, drivers may seek alternate routes to their destination, often taking local streets through residential areas.

Excessive traffic on local streets has an impact on the quality of life. Through-traffic can generate excessive noise and present potential safety hazards to children. The goals, policies, and programs below are intended to address this issue.

Goal C-3 Preserve the peace and quiet of residential areas.

Policy C-3.1 Reduce Through-Traffic on Local Streets: Reduce through-traffic on local streets to preserve the peace and quiet of residential areas.

> Program C-3.1.1: Develop measures to limit through-traffic on residential streets when traffic studies indicate that traffic volumes on such streets exceed the adopted Levels of Service and/or safety concerns warrant such measures.
>
> Program C-3.1.2: Consider the following measures, as appropriate, to reduce through-traffic from using local streets in residential areas:
>
> a) narrow and landscape the street entrances to residential areas that experience heavy traffic;
> b) restrict turning movements into residential areas; and
> c) use traffic calming measures such as permitting wider sidewalks, additional on-street parking, and landscape strips between the sidewalk and the road.

Policy C-3.2 Additional Connector Streets: Establish additional connectors between residential streets to improve emergency access, particularly on dead-end streets south of Chestnut Street.

4. Main Street Corridor

Transportation improvements to Main Street and principal streets in the Central Business District will enhance the character, sense of place and economic well-being of this area. However, the need to accommodate traffic flow through the City should be considered in the context of the community's desire to preserve and enhance the historic character of Fort Bragg's Central Business District.

Goal C-4 Regard the quality of life in Fort Bragg and maintaining community identity as more important than accommodating through-traffic.

Policy C-4.1 Community Priorities for Transportation Improvements: Place a higher priority on maintaining a sense of place and enhancing the attractiveness of the Central Business District than on efficient traffic flow and movement. (The adopted Level of Service Standards make an exception for Main Street between the northbound lane merge area, currently located just south of Laurel Street, to Manzanita Streets, to prevent street widening and/or elimination of on-street parking which would require acquisition of the right-of-way, and consequently change the character of the City's historic downtown. Widening this segment of Main Street would require acquisition of right-of-way and reduction in on-street parking, thereby changing the intimate, pedestrian-oriented downtown the City wishes to preserve and enhance.)

> Program C-4.1.1: Consider traffic safety, the ease and safety of pedestrian movement across Main Street, and adequacy of on-street parking as key factors in evaluation of proposed roadway improvements along Main Street.

Program C-4.1.2: Ensure that property and business owners in the Central Business District are informed and actively involved in planning future improvements to Main Street and other nearby streets.

Program C-4.1.4: Consider signalizing the intersection of Pine Street and Main Street to provide adequate pedestrian safety.

Program C-4.1.5: Consider options for increasing the capacity of Main Street north of the northbound lane merge area south of Laurel Street that do not require elimination of parking.

5. Parking

Adequate off-street parking is essential for Central Business District businesses[1]. Fort Bragg has implemented an in-lieu fee to build additional off-street parking facilities. Providing additional off-street parking facilities in the Central Business District will have a community-wide benefit.

Goal C-5 Provide additional parking spaces in the Central Business District.

Policy C-5.1 Additional Off-Street Parking: Continue to construct additional off-street parking spaces in the Central Business District.

Program C-5.1.1: Continue, and update, as needed, the City's parking in-lieu fee program for the Central Business District.

Program C-5.1.2: Define priorities for the acquisition of property and the construction of additional parking facilities.

Program C-5.1.3: Encourage the use of reciprocal access agreements and interconnecting off-street parking and circulation between adjacent commercial uses.

Program C-5.1.4: Revise the Coastal LUDC to allow shared parking and driveways for commercial uses having day/night activity patterns.

Program C-5.1.5: Develop a comprehensive signage program within the Central Business District to direct vehicles to off-street parking areas.

Program C-5.1.6: Develop incentives for employers and employees to park off-street in the Central Business District.

Program C-5.1.7: Continue enforcing parking restrictions in alleyways to ensure access for emergency and delivery vehicles.

Program C-5.1.8: Review building setback standards from alleyways to ensure adequate emergency vehicle access.

1 Refer to the Downtown Parking Study, City of Fort Bragg, 1999.

6. Additional Access to Noyo Harbor

Currently, access to the north side of Noyo Harbor is limited to North Harbor Drive. Another access is required to improve traffic circulation and to ensure that emergency vehicles can reach Noyo Harbor in the event North Harbor Drive is obstructed. Improved access to the Noyo Harbor would be considered if and when the City annexes the harbor.

Goal C-6 Improve access to the North Part of the Noyo Harbor.

Policy C-6.1 Provide Additional Access Routes to Noyo Harbor: Consider constructing a new access route from the west side of Main Street to the north side of the Noyo Harbor. Any new access route to the north side of the Noyo Harbor shall be consistent with all applicable policies of the LCP including, but not limited to, the wetland, environmentally sensitive habitat area, public access, and visual protection policies.

> Program C-6.1.1: Evaluate the economic and environmental feasibility of acquiring an access route to Noyo Harbor using existing road alignments extended onto the Georgia-Pacific site.

Policy C-6.2 Improve Existing North Harbor Drive: Consider improvements to North Harbor Drive to increase capacity and safety for vehicles and pedestrians. Any improvements to North Harbor Drive shall be consistent with all applicable policies of the LCP including, but not limited to, the wetland, environmentally sensitive habitat area, public access, and visual protection policies.

> Program C-6.2.1: Develop a plan to improve North Harbor Drive by enlarging lane widths and constructing a sidewalk along one side of the street.

7. Additional Eastern Emergency Route

The City needs to establish an emergency route to the east for emergency vehicles and for evacuation in the event bridges are blocked or destroyed.

Goal C-7 Improve emergency access to the City.

Policy C-7.1 Emergency Access: Establish an access route out of Fort Bragg that could be used in the event of damage to the Noyo River and Pudding Creek Bridges.

> Program C-7.1.1: Work with the Georgia-Pacific Corporation to obtain temporary use, in the event of an emergency, of the logging road that begins on Cypress Street and provides access to Highway 20, east of Fort Bragg.

> Program C-7.1.2: Prepare an emergency evacuation route plan for the City.

8. Public Transit

Fort Bragg is served by the Mendocino Transit Authority (MTA). MTA provides daily bus service (the "65 CC Rider") between Fort Bragg, Willits, Ukiah, and Santa Rosa. A separate bus route (the "60 The Coaster") provides weekday service between Fort Bragg, Mendocino, and the Navarro River.

MTA has a fixed-route weekday bus service (the "5 BraggAbout") in Fort Bragg with seven fixed stops that connect the College of the Redwoods, shopping centers, the Central Business District, and the hospital. Local trips within the Fort Bragg area are also provided by MTA's dial-a-ride service where riders can call to be picked up and delivered to their destination Monday through Saturday. In addition, the Redwood Senior Center provides transportation services for seniors in the community.

Goal C-8 Provide better public transportation.

Policy C-8.1: Encourage Transit Use.

Program C-8.1.1: Continue to support the expansion of transit services provided by MTA and other public transit providers.

Policy C-8.2: Bus Shelters: Encourage attractive, well-lighted, and comfortable bus shelters placed in convenient locations.

Program C-8.2.1: Continue to require the provision of bus stops, bus shelters, benches, turnouts, and related facilities in all major new commercial, industrial, residential, and institutional developments, and identify, in collaboration with MTA, additional locations for bus stops and shelters.

Policy C-8.3: Transit Facilities in New Development. Continue to require the provision of bus stops, bus shelters, benches, turnouts, and related facilities in all major new commercial, industrial, residential, and institutional developments.

9. Pedestrian Facilities

Most areas of Fort Bragg have sidewalks for pedestrians. There are, however, a number of residential streets which lack sidewalks, and substandard sidewalk facilities exist throughout the City. Better pedestrian access across Fort Bragg's bridges and along Main Street from the Noyo Bridge to the southern City limits and from Elm Street north is needed. New development must be served by adequate pedestrian facilities. In addition to the policies and programs listed below, see the Conservation, Open Space, and Parks Element regarding policies and programs recommended for increasing and improving the trail system within the Planning Area.

Goal C-9 Make it easier and safer for people to walk in Fort Bragg.

Policy C-9.1: Provide Continuous Sidewalks: Provide a continuous system of sidewalks throughout the City.

Policy C-9.2: Require Sidewalks. Require a sidewalk on both sides of all collector and arterial streets and on at least one side of local streets as a condition of approval for new development.

Program C-9.2.1: Consider implementing the following funding sources for the purpose of installing sidewalks in existing developed areas of the City:

a) special benefit assessment districts; and/or
b) a low-interest revolving loan fund.

Program C-9.2.2: Work with the Mendocino Council of Governments and Caltrans to construct pedestrian walkways over the Hare Creek and Pudding Creek Bridges. These facilities may qualify for Transportation Enhancement Activities (TEA) funding available through Mendocino Council of Governments (MCOG).

Policy C-9.3: Where feasible, incorporate pedestrian facilities into the design and construction of all road improvements.

Program C-9.3.1: Incorporate additional sidewalks from the Noyo Bridge to Ocean View Drive in the Capital Improvement Program.

Policy C-9.4: Sidewalk Maintenance: Ensure that property owners maintain sidewalks in a safe manner.

Program C-9.4.1: Continue to implement City regulations that require sidewalks to be maintained by property owners. Carry out regular inspections, notification, and enforcement of this requirement.

Program C-9.4.2: Financial Concerns: Consider the financial ability of property owners when establishing proposed sidewalk assessment districts.

Program C-9.4.3: Seek available funding from grants and other funding sources for the construction of sidewalks in existing developed areas.

Program C-9.4.4: Consider deferring payment for sidewalk installations for property owners with low incomes and/or on fixed incomes.

Policy C-9.5 Pedestrian Paths: Develop a series of continuous pedestrian walkways throughout the commercial districts and residential neighborhoods.

Program C-9.5.1: Allow asphalt or other approved surface pedestrian paths in very low density single-family residential areas where sidewalks are not required.

Program C-9.5.2: Revise the Subdivision and Coastal Program to allow approved surface pedestrian paths within developments to create pedestrian connections to nearby streets, community facilities, and adjacent developments as a part of on- and off-site improvements.

Policy C-9.6: Ensure that pedestrian paths are sited to avoid wetlands and other environmentally sensitive areas.

Policy C-9.7: Improve Pedestrian Safety.

Program C-9.7.1: Continue to provide traffic controls and well-lit intersections in areas with a high volume of pedestrian movement.

Program C-9.7.2: Consider expanded use of illuminated crosswalks.

10. Bikeways

With better facilities and trails, bicycling can become a more significant part of the transportation system and an alternative to automobile use. Fort Bragg has few constraints to bicycling: most of the City is flat, the weather is mild, and the City is compact with relatively short distances between residential areas, schools, parks, and commercial centers.

The California Street and Highway Code has established three categories of bicycle trails based on the physical conditions of the right-of-way.

Class 1 Bikeway - Bike Path or Bike Trail: These facilities are constructed on a separate right-of-way, are completely separated from street traffic, and have minimal cross flows of automobile traffic. The State standard for minimum paved width of a two-way bike trail is eight feet.

Class 2 Bikeway - Bike Lane: A restricted right-of-way for the exclusive use of bicycles with vehicle parking and cross flow by pedestrians and motorists permitted. Bike lanes are normally striped within paved areas of highways and are one-directional with a minimum standard width of five feet.

Class 3 Bikeway - Bike Route: A route for bicyclists designated by signs or other markings and shared with pedestrians and motorists. Bike routes are typically designated to provide linkages to the bikeway system where Class 1 or 2 Bikeways cannot be provided.

The following local bikeway projects are identified as high priority by Mendocino County's *2000 Regional Bikeway Plan*. A full description of recommended improvements is included in that Plan.

- The Pudding Creek Trestle to Otis Johnson Park Bikeway would provide a link between a park in northeast Fort Bragg and the beach at the mouth of Pudding Creek. It would also connect with the Old Haul Road, which travels north through MacKerricher State Park. As indicated on Map C-2, this path would serve Fort Bragg Middle School and neighborhoods in the northwest area of the City through a combination of Class 2 and 3 Bikeways. New Class 3 segments would be required from the Pudding Creek Trestle to Elm Street. Class 3 improvements would be constructed on Elm Street, Franklin Street, and Laurel Street.

- The Otis Johnson Park/Dana Street Bikeway would provide a north-south link within central Fort Bragg. This bicycle route would connect Fort Bragg Middle School and Fort Bragg High School. The proposed bike route would use existing bikeways and a section of the proposed bikeway improvement listed above for Laurel Street. It would consist of Class 3 Bikeway improvements on Oak Street and Class 1 Bikeway improvements on Dana Street.

- The Dana Gray School to Maple Street Bikeway would provide east-west access between Dana Gray School and an existing bikeway on Maple Street. Class 3 Bikeways would be constructed on S. Sanderson Way, Willow Street, and Lincoln Street.

Goal C-10 Make it easier and safer for people to travel by bicycle.

Policy C-10.1 Comprehensive Bikeway System: Establish a comprehensive and safe system of bikeways connecting all parts of Fort Bragg.

Program C-10.1.1: Complete the bikeway system as indicated in Map C-2: Bicycle Paths. Make the completion of the Pudding Creek Trestle/Glass Beach to Otis Johnson Park a high priority.

Program C-10.1.2: Incorporate bicycle and pedestrian facilities into the design and construction of all road improvements as feasible.

Program C-10.1.3: Continue to participate in MCOG's *Regional Bikeway Plan* to qualify for State Bicycle Lane Account funds.

Program C-10.1.4: Utilize parking-in-lieu funds, dedications, grant funding, traffic impact fees, and other means, as appropriate, to acquire rights-of-way needed for a comprehensive bikeway system as indicated in Map C-2.

Program C-10.1.5: Maintain bikeways to ensure that they are free of debris and other obstacles. Consider increasing the number of trash receptacles, solar-powered emergency telephones, and increased lighting along bicycle trails.

Policy C-10.2: Require Bikeways. Require new development to provide on-site connections to existing and proposed bikeways, as appropriate.

Policy C-10.3: Require that streets linking residential areas with school facilities be designed to include bikeways.

Policy C-10.4: Consider bicycle operating characteristics in the design of intersections and traffic control systems.

Policy C-10.5 Bicycle Parking: Provide adequate and secure bicycle parking at public transit facilities, park and ride lots, schools, the library, parks, City offices, and commercial areas.

Program C-10.5.1: Revise the Coastal LUDC parking standards to require larger commercial and multi-family residential projects, public buildings, and transit facilities to provide secure bicycle parking.

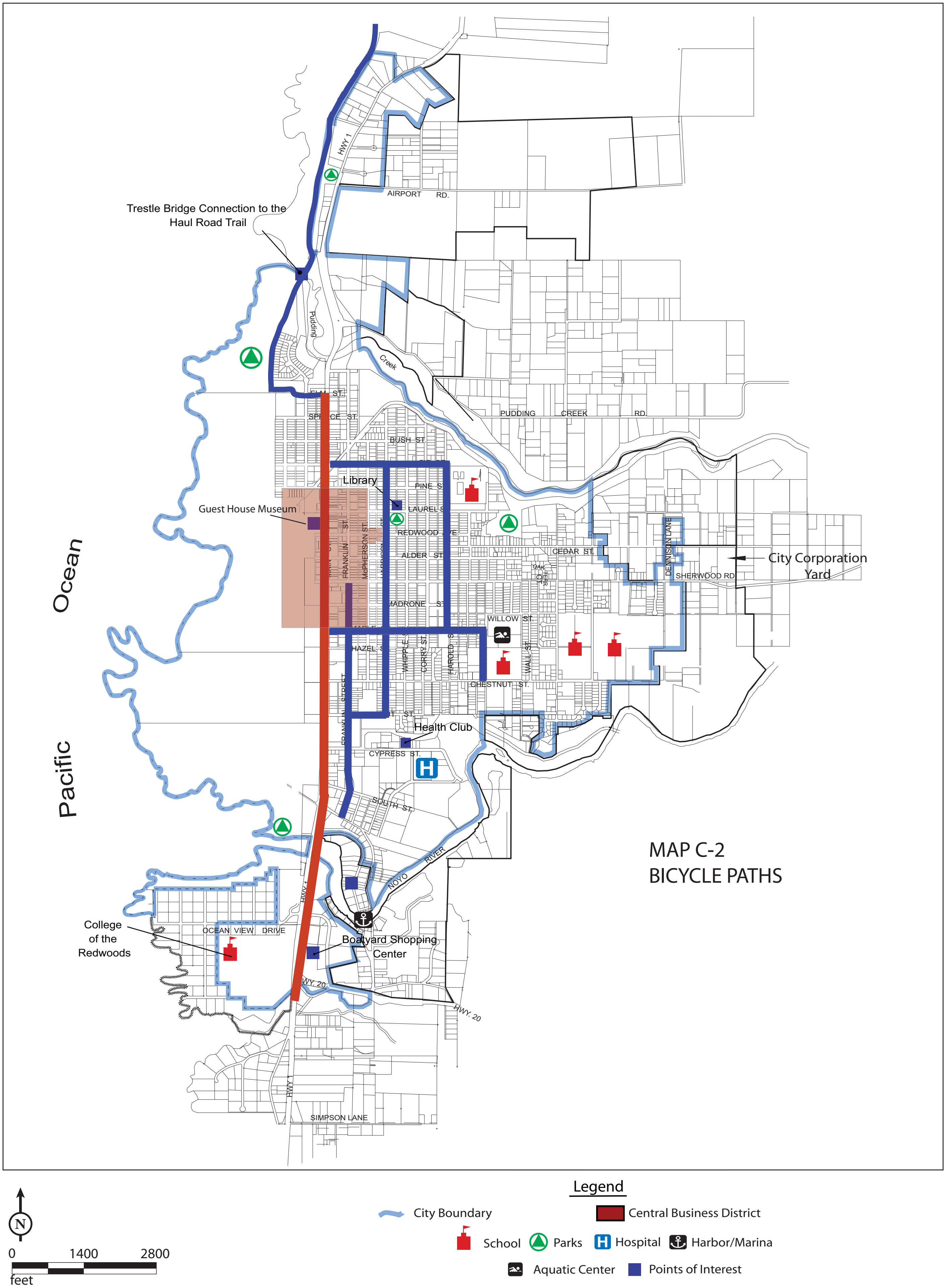
Program C-10.5.2: Continue the bicycle safety program conducted by the Police Department.

11. Access for the Mobility Impaired

Providing transportation facilities accessible to persons who are mobility-impaired is essential. Approximately three percent of the population in Fort Bragg cannot use conventional public transit due to a disability. The Federal Americans with Disabilities Act of 1990 contains many requirements regarding removal of barriers for persons with disabilities.

Goal C-11 Provide mobility-impaired persons with access to transportation.

Policy C-11.1: Regulations for Disabled Persons: Enforce Federal and State regulations regarding access for persons with disabilities.



SOURCE: CITY OF FORT BRAGG, 2007

(revised 11/28/07)

Policy C-11.2: Handicapped Access. In conformance with State and Federal regulations, continue to review all projects for handicapped access and require the installation of curb cuts, ramps, and other improvements facilitating handicapped access.

Program C-11.2.1: Assist organizations, such as the Senior Center, which provide transit service to the elderly and the mobility-impaired, in identifying and obtaining funding.

Policy C-11.3 Support Improved Access: Support improved access to public transportation and pedestrian facilities for people with disabilities.

Program C-11.3.1: Continue to apply for grants for ADA-related projects from MCOG and other sources.

Program C-11.3.2: Consider funding to implement the City's ADA Access and Transportation Plan through the City's Capital Improvement Plan (CIP), grants, and State and Federal transportation funds.

12. Train Service

The Sierra Railroad, known as the Skunk Line, operates a rail system between Willits and Fort Bragg. It is the only railroad in the region that has maintained passenger service on a regular basis since its founding. Train service is offered daily (approximately eleven months per year), and handles approximately 80,000 passengers annually. Freight service is provided on request.

The Skunk Depot, located at Laurel Street in the Central Business District, has been recently renovated, including additional parking facilities. It provides access to MTA's local and regional buses. The railroad not only benefits from the extensive tourist traffic on the Mendocino Coast, it is also a major generator of visitors to the Willits and Fort Bragg areas.

Although the use of the Skunk Line for freight transportation has decreased in recent years, it continues to provide freight service. If the rail lines were upgraded to carry heavier loads, it could serve as an incentive to increase freight loads.

Goal C-12 Increase use of the Skunk Line for transportation of people and freight.

Policy C-12.1 Skunk Train: Encourage increased use of the Skunk Train.

Program C-12.1.1: Continue to work with the Skunk Train Company to improve and expand facilities at the Skunk Depot.

Program C-12.1.2: Work with the Mendocino Council of Governments to facilitate increased use of the Skunk Line as an alternative to automobile transportation between Fort Bragg and Willits.

13. Coordinate Regional Transportation Planning

Traffic congestion along Fort Bragg's Main Street is connected to development in unincorporated areas to the north and south of the City. Main Street is Highway One which is the primary north-south route for all communities on the coast. Land use decisions made by the County of Mendocino have a significant impact on transportation in the Fort Bragg area. The City works closely with the regional agencies described below:

- County of Mendocino: maintains and plans the county road system.
- Mendocino Council of Governments (MCOG): prepares and carries out a Regional Transportation Plan, establishes priorities for Federal and State funding, and funds studies of transportation corridors.
- Mendocino Transit Authority, (MTA): operates several transit routes serving the City and the region. It is a county-wide authority created through a joint powers agreement among cities and the County.

Goal C-13 Coordinate regional traffic planning.

Policy C-13.1 Regional Transportation Efforts: Participate in regional transportation planning efforts.

Program C-13.1.1: Continue to provide City Council and staff representation on regional transportation planning agencies.

Program C-13.1.2: Work with the MCOG and Caltrans to coordinate transportation planning and to identify funding for necessary transportation improvements.

Program C-13.1.3: Continue to ensure that MCOG's Regional Transportation Plan (RTP), the State Transportation Improvement Program (STIP) and the State Highway Systems Operation and Protection Plan (SHOPP) include needed improvements to Highway One and Highway 20 in the Fort Bragg Planning area. Such improvements shall be designed to ensure that Highway One in rural areas outside the Mendocino County urban/rural boundary remains a scenic two-lane road consistent with Section 30254 of the Coastal Act.

14. Funding Transportation Improvements

Funding transportation improvements is predominantly a Federal, State, and regional responsibility. For many years the road system has received the largest proportion of public expenditures for transportation. Although increased funding for alternative modes of transportation has significant environmental and social benefits, roadway funding will continue to receive the highest priority. Fort Bragg remains a relatively isolated coastal community and depends on the road system for the majority of its transportation needs.

A significant amount of the traffic in Fort Bragg is through-traffic (trips that originate or have destinations outside of the City). The logging industry, tourist travel, and people coming to Fort Bragg from around the region for shopping, educational, medical, and other services generate much of the traffic.

It is necessary that funding mechanisms be expanded to ensure effective coordination among different government jurisdictions. The goals, policies, and programs below complement those in the Land Use and Public Facilities Elements requiring new development to pay for its fair share of maintaining the City's infrastructure and service levels.

Goal C-14 Promote balanced funding for transportation.

Policy C-14.1 Development to Pay Its Fair Share: Require new development to pay its fair share of transportation improvements to maintain levels of service and traffic safety in the City.

Program C-14.1.1: Develop a City-wide Traffic Mitigation Fee Program.

Program C-14.1.2: Work with the County of Mendocino and MCOG to develop traffic mitigation fees for the Fort Bragg Sphere of Influence. Consider adopting a memorandum of understanding between the City of Fort Bragg and the County regarding traffic mitigation fees.

Program C-14.1.3: Work with MCOG to ensure that the standards and requirements contained in the joint City and County Traffic Mitigation Program between Fort Bragg and the County are incorporated into the Regional Transportation Plan.

Program C-14.1.4: Include in the Traffic Mitigation Fee Program mitigation fees for new development with primary access to Highway One and Highway 20. Utilize the funds collected as a local match to encourage Caltrans to raise the priority of Highway One and Highway 20 improvements.

Program C-14.1.5: Ensure that the City's Pavement Management System obtains funding from the Traffic Mitigation Fee Program, as deemed appropriate by the traffic impact fee nexus study and applicable State law.

Program C-14.1.6: Carry out an ongoing inventory of transportation system needs to be included in the City's Capital Improvement Plan.

APPENDIX 11

Caltrans Comment Letter

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
www.dot.ca.gov

*Making Conservation
a California Way of Life.*

June 6, 2018

Mr. Scott Perkins
Special Projects Manager
City of Fort Bragg
416 North Franklin Street
Fort Bragg, CA 95437

Dear Mr. Perkins:

Thank you for the opportunity to comment on the draft site plan for the proposed AutoZone in the City of Fort Bragg. The project is located in the southern part of the City on the northwest side of the intersection of Boatyard Drive/Ocean View Drive and State Route 1 (1-MEN-1-60.0). The project proposes 7,380 sq. ft. of development and 26 parking spaces. Primary access to the project site will be from the Frontage Road. Caltrans last commented on this project during the pre-development phase and a letter was sent to the City on August 12, 2017. The letter requested considering access improvements to the site plan.

We have the following comments for the draft site plan:

- The most recent proposal has changed since the predevelopment phase and now only includes one of the two structures. If there is a plan for a second structure and additional parking to be developed in a later phase, we suggest the City request a study that considers the full build out of the project.

- This project will share traffic impacts with another proposed project in the vicinity, the Hare Creek Center project. We will accept the use of the August 2013 traffic data from the Hare Creek Center Traffic Impact Study (TIS) as analysis on this project with future analysis of twenty years out (year 2033, as used in the Hare Creed TIS) using Caltrans District 1 20-year Growth Factors for "Future Plus Both Projects" (Hare Creek Center and AutoZone).

- A Vehicle Miles Traveled (VMT) analysis conforming with California Senate Bill (SB) 743 should be included.

- The City should be aware that the Hare Creek Center TIS did not appear to study the Frontage Road/Ocean View Drive intersection, which is the intersection closest to the proposed development and only about 110 feet from State Route 1. In the TIS, Future Conditions traffic volumes were applied to signalized study intersections and the peak hour demand 50th and 95th percentile queue lengths were reviewed against the existing lane storage capacity at the intersections. The TIS indicates that the 95th percentile left turn queue length for eastbound Ocean View Drive at SR 1 (Intersection No. 2) will extend to, or just beyond, the Frontage Road/Ocean View Drive intersection for "Existing Plus Project Conditions Peak Hour". This could lead to undesirable operations during peak hour for this stop-controlled T-intersection.
  - Moving forward with the current draft site plan, we request four of the five intersections listed in the Hare Creek TIS be analyzed:
    - SR 1/Driveways at the Harbor RV Park
    - SR 1/Ocean View Drive
    - SR 1/SR 20
    - SR 1/Boatyard Drive
  - We do not require analysis of the SR 1/Simpson Lane intersection for this project. However, we do recommend the City consider require a review of the Frontage Road/Ocean View Drive intersection.
- We suggest the City reconsider the current placement of the southern driveway. We believe operations of this driveway would be improved by relocating it away from the curved section of the Frontage Road to the north on the tangent section of the roadway.
- We recommend the City consider requiring a sidewalk along the Frontage Road for the entire length of the parcel to improve pedestrian connectivity, and potentially reduce VMT.
- We suggest the City consider a fair share contribution toward the improvement of Harbor Avenue. This would improve site circulation, and potentially improve operations of the Frontage Road/Ocean View Drive intersection should additional development occur at a future date.

Any work within the state right of way requires an approved encroachment permit. Encroachment permit applications are reviewed for consistency with State standards and are subject to Department approval. Requests for Caltrans encroachment permit application forms can be sent to Caltrans District 1 Permits Office, P.O. Bix 3700, Eureka, CA 95502-3700, or requested by phone at (707) 445-6389. For additional information, the Caltrans Permit Manual is available online at: http://www.dot.ca.gov/hq/traffops/developserv/permits.

We look forward to working with you as development in the part of the City evolves. If you have any questions or need further assistance, please contact me at tatiana.ahlstrand@dot.ca.gov or (707) 441-4540.

Sincerely,

TATIANA AHLSTRAND
Associate Transportation Planner

LACO

September 12, 2018

8978.03

City of Fort Bragg Public Works
416 North Franklin Street
Fort Bragg, California 95437

Attention: Chantell O'Neal

Subject: Preliminary Drainage Report and Stormwater Control Plan
Proposed AutoZone, 1151 South Main Street, Fort Bragg, California

Dear Ms. O'Neal:

Mitch Bramlitt, Regional Project Manager for AutoZone Development (hereinafter "Applicant") proposes a minor subdivision to subdivide one parcel, approximately 2.5 acres in size, into two individual lots, with construction of an AutoZone retail store approximately 7,380 square feet in size (hereinafter "Project" or "Proposed Project"). The subject parcel, identified as Assessor's Parcel Number (APN) 018-440-58, is located at 1151 South Main Street (State Highway 1 [CA-1]) (hereinafter "Project Site") in Fort Bragg, California (hereinafter "City"). This deliverable includes preliminary stormwater calculations, which will later be refined with grading, drainage and erosion control design plans, and final stormwater and drainage calculations.

During a phone call with you on April 9, 2018, you instructed us to follow the *County of Mendocino Low Impact Development Standards Manual* (hereinafter "Manual") which covers city drainage requirements as well. On a separate phone call on August 31, 2018, the requirements were specified that we follow Section 17.64.045 of the municipal code, which expands on the County's requirements but does not differ for the intent of this assessment. Both require capture of the 85th percentile storm, which is rounded to 1 inch of rainfall. Following the direction of the City, the application requirements for a Regulated Project within the Manual were completed.

The application package includes the MS4 Area – New and Post Construction Stormwater Runoff Control Checklist attached as Attachment 1. Within section IIA, it is noted that the CGPWDID number has not been acquired as SWPPP preparation is scheduled to proceed with approximate 70 percent plan completion. The Preliminary Stormwater Control Plan describes the proposed stormwater and LID design for the project and is attached as Attachment 2.

The project will generally continue to drain to the west and with the addition of trees as a LID feature; Drainage Management Area (DMA) 1 and DMA 5 will be able to meet the 2:1 requirement for a self-retaining area. The required tree credit is 700 square feet, which will be incorporated in the landscape plan at a later date. The Landscape Architect will be required to complete the Tree Planting and Preservation form for the Final Stormwater Control Plan submission. DMA 2 through 4 will be self-treating areas that will overflow into DMA 1 when overloaded. DMA 4 will be minimally landscaped until such time that Lot 2 is developed, at which time Lot 2 will take access over a portion of DMA 4. Overflow from the Site should be considered for the northern portion of lot 2 upon its development.

Sincerely,
LACO Associates

Rod Wilburn
P.E. No. C 69388, EXP. 06/30/20

ATW:jlm

P:\8900\8978 Mitch Bramlitt\8978.03 Stormwater Mgmt Design Review\10 Civil\Hydrology\8978.03 Preliminary Drainage Cover Letter.docx

Attachments:

Attachment 1: New and Post Construction Stormwater Runoff Control Checklist
Attachment 2: Preliminary Stormwater Control Plan and Attachments

Instructions

Mendocino County Ordinance No. 4313 STORM WATER RUNOFF POLLUTION PREVENTION PROCEDURE (Mendocino County Code Chapter 16.30 et. seq.) requires any person performing construction and grading work anywhere in the County shall implement appropriate Best Management Practices (BMP) to prevent the discharge of construction waste, debris or contaminants from construction materials, tools and equipment from entering the storm drainage system (off-site). It also allows the County to adopt requirements identifying appropriate BMPs to control the volume, rate, and potential pollutant load of storm water runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants and as required by the County's NPDES MS4 General Permit. The County may incorporate these requirements into land use entitlements and construction or building-related permits to be issued for new development or redevelopment.

The following checklist is to be completed by you (the applicant) to determine which plans and specifications for storm water runoff control are required as part of a Building Permit Application to the County of Mendocino Building Division of the Department of Planning and Building Services.

I. Construction Project Information *(Completed by Applicant)*

Physical Address Site Location	City	Assessor Parcel Number
1151 S Main Street, Fort Bragg, CA 95437	Fort Bragg	(APN) 018-440-58-00
Anticipated Construction Start date: 03 / 04 / 2019	Site-work construction completion: 08 / 07 / 2019	

Circle and/or list all applicable permits directly associated with grading activity, not limited to the following: -State Construction General Permit- -State 401 Water Quality Certification, -U.S. Army Corps 404 permit, -California Fish and Wildlife 1600-

A.) Is the construction site part of a larger common plan of development or sale? YES NO UNKNOWN (circle one) B.) Name of larger common plan/project (if applicable):

II. Checklist *(Completed by Applicant)*

A.) Total area of soil disturbing activity (definition below) 46,628 sq. ft. If project disturbs 1 acre or more of soil then provide the State Construction General Permit Waste Discharge Identification Number: To be aquired with 70% plans

B.) Total area of new or replaced impervious surface 28,034 sq. ft. If project creates or replaces 2,500 sq. ft. or more of impervious surface, submit a Storm Water Control Plan or equivalent in compliance with the LID Manual.

Definition of Impervious Surface - A surface covering or pavement of a developed parcel of land that prevents the land's natural ability to absorb and infiltrate rainfall/storm water. Impervious surfaces include, but are not limited to: roof tops, walkways, patios, driveways, parking lots, storage areas, impervious concrete and asphalt, and any other continuous watertight pavement or covering. Landscaped soil and pervious pavement, including pavers with pervious openings and seams, underlain with pervious soil or pervious storage material, such as a gravel layer sufficient to hold the specified volume of rainfall runoff, are not impervious surfaces.

Definition of Soil Disturbing Activities - Any construction or demolition activity, including, but not limited to: clearing of vegetation, grading, grubbing, disturbance to the ground such as stripping of top soils, soil compaction, excavation, and stockpiling or any other activity that results in a land disturbance that changes the physical condition of land forms, soils, vegetation, and hydrology.

Does the stormwater runoff from the construction site discharge to (check all that apply):

☑ Remain on site/indirectly to waters of U.S. ☑ County Storm Drain System ☐ Directly to waters of the U.S (e.g. river, lake, creek, stream, bay, ocean); body of water: ____________

Please indicate the distance from construction activity to nearest watercourse: 530 ft.

III. Construction Site Storm Water Pollution Prevention Plan Submittal Requirement *(Completed by Applicant)*

A. **If your project is covered under the State Water Resources Control Board General Permit (CGP)**, attach a copy of the submitted Storm Water Pollution Prevention Plan (SWPPP) including the Notice of Intent (NOI) and WDID Number. Please note CGP projects within the MS4 areas are exempt from CGP post construction requirements provided a certification is submitted. See the State Water Board's Stormwater Multi-Application, Reporting and Tracking System (SMARTS) to submit exemption certification information. (https://smarts.waterboards.ca.gov.)

B. **If a CGP is not required**, your project shall submit, as part of your Building Permit Application, construction site BMPs plans and specifications prepared by a Qualified Storm Water Developer (QSD) OR applicant/owner/contractor prepared BMP plans and specifications referencing BMP information obtained from the County Department of Planning and Building Services and/or the California Storm Water Quality Association BMP Handbook. If an Encroachment permit is required from DOT, submission of the Water Pollution Control Plan from the encroachment permit may be used as a substitute provided it covers all proposed construction activities and locations.

IV. Certification *(Completed by Applicant)*

Printed Name	Mitch Bramlitt
Signature	Mitch Bramlitt

V. For Official Use Only

Submittal Date Received by Permit Number

Preliminary Stormwater Control Plan (CDP, CUP, and SP ≥ 5000 sf)

For Office Use Only
Application No.______________
Received By: ______________

Instructions

The following worksheet is used to demonstrate that for each and every lot, the intended use can be achieved with a design which disperses runoff from the roofs, driveways, sidewalks, streets and other impervious areas to self-retaining pervious areas. It is also used to demonstrate that drainage to treatment and/or flow control facilities is feasible and that the project is in overall compliance with the MS4 permit. Use this form to assist you in designing your project to comply with the design standards for Multi-Parcel Regulated projects. The completed, signed Preliminary SCP for Subdivision Projects, a site map, plus any additional applicable information, must be submitted with your application to the Planning Department.

Project Name: AutoZone Fort Bragg

Physical Site Address: 1151 S Main Street, Fort Bragg, CA 95437

Project Applicant: Mitch Bramlitt

Mailing Address: 123 South Front Street, Memphis, TN 38103-3607

Phone: (901) 495-8714

Consultant's Information

Name: Rod Wilburn

Firm: LACO Associates

Address: PO Box 1023, Eureka, CA 95502

Email: wilburnr@lacoassociates.com

Phone: (707) 443-5054

A. Project Information

1a. Does Project create or replace 1-acre or more of impervious surface?	☐ **Yes** (see question below)	☑ **No** (skip question 1b.)
b. If 'Yes' to the above question: Does project increase impervious surface from pre-project conditions?	☐ **Yes** (hydromodification requirements must be met)	☐ **No** (regulated project requirements must be met)
Total pre-project Impervious Surface (sf):	0	
Total new or replaced Impervious Surface Area (square feet) [Sum of impervious area that will be constructed as part of the project]	28,034	

Preliminary Stormwater Control Plan (CDP, CUP, and SP ≥ 5000 sf)

B. Summary Table of Pervious to Impervious Surface

The following table will be used by staff to ensure that adequate measures have been utilized within the project design to capture retain and/or infiltrate the design storm.

Each DMA shown in the table shall be designated with the same name on the site plan. All site design measures used to meet the runoff reduction goals and all treatment facilities utilized to capture remaining runoff volumes must be shown on the site plan at an appropriate scale. Please use the Flow Chart as a reference of the process.

1. **Utilize Worksheet 1 to Summarize Impervious to Pervious Ratio for each DMA (Parcel) to determine if further runoff reduction is needed using site design measures and/or bioretention**
2. **Utilize Site Design Measures to effectively Reduce Pervious Area**
3. **Utilize Bioretention or equivalent if reduction cannot be achieved using Site Design Measures**

Worksheet 1.

DMA Name	**Does impervious to pervious ratio achieve 2:1 or better?** (Yes or No)	**Can ratio be achieved using site design measures?** Utilize Table (2-7) found in the Regulated Projects SCP to aid in calculations	**If "No" in column C: Bioretention facility is required for DMA (parcel). List name and the estimated size (sf) of the facility** Utilize Table 8 found in the Regulated Projects SCP worksheet to aid in calculations
(A)	**(B)**	**(C)**	
Example A	*Yes*	*Yes*	-------------
Example B	*No*	*Yes*	--------------
Example C	*No*	*No*	*C : (1250 X .04)=50 sf*
DMA 1	No	Yes	
DMA 2	Yes	Yes	
DMA 3	Yes	Yes	
DMA 4	Yes	Yes	
DMA 5	Yes	Yes	

C. Preliminary Site Plan Checklist –items that must be include on the site plan

- ☑ Topographic lines (2 ft. contours)
- ☑ On-site waterways/drainages, vegetation, and areas to be left undisturbed all shown with appropriate buffers
- ☑ DMAs clearly delineated and labeled with name and area (square feet)

Preliminary Stormwater Control Plan (CDP, CUP, and SP ≥ 5000 sf)

- ☐ Location of site design measures
- ☐ Location, size, and name of Bioretention/Treatment Facility
- ☑ Flow direction that clearly demonstrates the ability of self-retaining areas, infiltration site design measure, and treatment facilities to capture runoff from impervious surfaces
- ☑ Hydrologic soil class

D. Operation and Maintenance Plan Requirements

Each Bioretention facility or equivalent will be required to have an operation and maintenance plan attached to the final SCP and shall include all details found in Appendix 5, 6, 7, and 8 of the LID Manual.

E. Additional Requirements

A detailed final Stormwater Control Plan with narrative sections will need to be submitted prior to issuance of a grading/building permit (see Appendix 3). However, completing the Preliminary SCP enables a more efficient and timely review of the final SCP.

F. Signature and Certification

I, the below signed, confirm that I have accurately described my project to the best of my ability, and that I have not purposely omitted any detail affecting my project's classification for stormwater regulation. I hereby certify that the site design measures and stormwater flow treatment measures identified herein as being incorporated into my project have been designed in accordance with the approved BMP Fact Sheet or equivalent, and are included in the final site plans submitted to Mendocino County Planning and Building Services. I also hereby certify that my project meets the stormwater runoff reduction criteria identified in Worksheet 2, or as determined through other approved means.

Rodney L. Wilburn Jr. 9/11/2018

Signature Date

Rod Wilburn

Print Name

I am the:

☐ Property Owner ☐ Applicant ☑ Contractor/Engineer

Table 2. Area Calculations of *Self-retaining Areas* Used to Treat Impervious Areas

1 DMA Name	2 Area (sq. ft.)
DMA 1	28,034
DMA 2	2,418
DMA 3	473
DMA 4	1,793
DMA 5	13,773

Table 3. Runoff Factor (surface type)

Roofs and Paving	1.0
Landscaped Area	0.1
Bricks or solid pavers- grouted	1.0
Bricks or solid Pavers-on sand base	0.5
Pervious Concrete Asphalt	0.1
Turfblock or gravel	0.1
Open or Porous pavers	0.1

Tables 4-6 below should be used to quantify the amount of runoff that is reduced by using site design measures. Using the tables in chronological order will calculate the minimum size for your bioretention facility in order to meet the MS4 permit requirements. Several iterations may be need to size facilities according to the site design.

Table 4. Area draining to self-retaining areas

1 DMA Name (must correspond to area on the site map and on Table **1**)	2 DMA Area (sq. ft.) (Table **1**)	3 Type of Surface (Runoff Factor Table 3)	4 Surface with Runoff Factor Column **2** X Column **3**	5 Area of Self-retaining Area Receiving the Runoff (sq. ft.) (Table 2, Col. 2)	6 Ratio Col. **4** : Col. **5** Not to exceed 2:1 ratio (if number exceeds 2:1 use table 5 - 6 to reduce tributary area and recalculate or go directly to Table 7)
Example	700	Roof (1.0)	700	100	7:1 (must use site design measures, bioretention or both)
DMA 1	28,171	Roofs and Paving	28,171	13,773	2.05 : 1

Table 5. Tree Planting and Preservation (if not planting trees, go to Table 6)

1 DMA Name (must correspond to area on the site map)	**2** DMA sq. ft. (from Table 4. Col. 6)	**3** Deciduous (Input 100 for each deciduous tree)	**4** Evergreen (Input 200 for each evergreen tree)	**5** Total Tree Credit (Col. **3** + Col. **4**) (DMA runoff reduction)	**6** New DMA Area Col. **2** – Col. **5** (for use in Table 6 - 8)
Example	700	--------	200	200	500 (new DMA size that must be treated with methods below Table 6-7)
DMA 1	28,171	To be determined by landscape architect	To be determined by landscape architect	700 min	27,471

Table 6. Rain Barrels and Cisterns (if not using site design measures, go to Table 8)

1 DMA Name (must correspond to area on the site map)	**2** New DMA sq. ft. (Table 5, Col. 7 or, if no trees used, value from Table 4, Col. 2)	**3** Number of Rain Barrels	**4** Runoff Reduction from using a standard 55 gallon Rain Barrel = 200 sq. ft. Use the following if size is other than the standard (for every gallon of storage, approx.. 3.65 sq. ft. of reduction is achieved)	**5** Col. **3 X** Col. **4** (DMA runoff reduction)	**6** New DMA Area Col. **2** - Col. **5**
Example	500	1	200	200	300 (go to Table 7 to recalculate Ratio)

Table 6b. Infiltration Measures (Trenches and Dry Wells)

1 DMA Name (must correspond to area on the site map)	2 New DMA sq. ft. (Table 5, Col. 7 or, if no trees used, value from Table 4, Col. 2)	3 Runoff Reduction Volume using guidance on Infiltration Site Design Sheet	4 New DMA Area Col. 2 – Col. 3
Example	500	200	300

Table 7. <u>New</u> Tabulation of areas draining to self-retaining area after use of site design measures (must achieve a 2:1 ratio; if not achievable, use table 8 to calculate the size of bioretention required)

1 DMA Name (must correspond to area on the site map)	2 New Square footage of DMA (Col 6, Table 4,5,6)	3 Area of Self-retaining Area Receiving the Runoff (Table 2, Col. 2)	4 Ratio Column **2 :** Column **3** Not to exceed 2:1
Example	300 (Table 6)	100	3:1(still exceeds 2:1 go back, add more trees, rain barrels, or use bioretention – example uses bioretention, Table 8)
DMA 1	27,471	13,773	2 : 1

Table 8. Tabulation of areas draining to Bioretention Facility

1 DMA Name (must correspond to area on the site map)	2 DMA sq. ft. (Table 1, Col 2 or new DMA sq. ft. Table 7, Col. 2)	3 Runoff Factor Table 6a (skip if coming from Table 1)	5 DMA Area Col. **2** x Col. **3**	6 Standard Sizing Factor	**Minimum facility size** Col. **5** X Col. **6**	If site does not allow for the minimum size, recalculate DMA using additional Site Design Measures to further reduce the tributary size
Example	300	***1*** (already calculated in steps above, for this example)	300	0.04	12 sq. ft.	(proposed facility size on site plans)
				0.04		
				0.04		
				0.04		
				0.04		

Table 9. Runoff Factors

Roofs and Paving	1.0
Landscaped Area	0.1
Bricks or solid pavers- grouted	1.0
Bricks or solid Pavers-on sand base	0.5
Pervious Concrete Asphalt	0.1
Turfblock or gravel	0.1
Open or Porous pavers	0.1

G. Operation and Maintenance in Perpetuity

Indicate whether an *Operation and Maintenance Plan* is accompanying this document (Appendix 9).

☐ Yes ☑ No To be completed with SWPPP Document

H. Stormwater Control Plan

A Stormwater Control Plan is required for all Regulated Projects. This worksheet is designed to be the SCP if all requested descriptions and site plans have been attached. This document will be used by the plan checker to confirm that adequate stormwater control measures are being implemented on the project.

Indicate whether all supporting descriptions and worksheets are accompanying this document, Stormwater Control Plan

☑ Yes ☐ No

I. Signature and Certification:

I, the below signed, confirm that I have accurately described my project to the best of my ability, and that I have not purposely omitted any detail affecting my project's classification for stormwater regulation. I hereby certify that the site design measures and stormwater flow treatment measures identified herein as being incorporated into my project have been designed in accordance with the approved BMP Fact Sheet or equivalent, which is attached to this checklist, and are included in the final site plans submitted to Mendocino County Planning and Building Services. I also hereby certify that my project meets the stormwater runoff reduction criteria identified in the County of Mendocino MS4 Post-Construction Stormwater Calculator, or as determined through other approved means.

Rodney R. Wilburn Jr. 9/11/2018

Signature Date

Rod Wilburn

Print Name

I am the:

☐ Property Owner ☑ Contractor /Engineer ☐ Applicant

TREE PLANTING AND PRESERVATION

DESCRIPTION

Trees intercept rain water on their leaves and branches, allowing rain water to evaporate or run down the branches and trunk of the tree where it readily infiltrates into the soil. Trees also provide shade over impervious surfaces which reduces peak flow in streams and reduces the “heat island” effects of urban areas.

Technique

To use Tree Planting and Preservation as a Stormwater Runoff Reduction Measure, the following conditions must be met (Please check beside each requirement):

New Planting

☐ New plantings must have a trunk measuring at least 1-inch, 6 inches above the soil line

☐ New plantings must be at least **6 feet** tall for deciduous trees and **4 feet** tall for evergreen trees

☐ A minimum of **one** evergreen or **two** deciduous trees must be planted to use this credit

Tree Preservation

☐ Existing tree canopy must be equal to or greater than 300 sq. feet (collectively); existing tree preservation credit is 50% of canopy – the minimum credit is 150 square feet.

☐ Trees used as credit must be adequately protected during construction activity. See EC-2 in the Erosion and Sediment Control Handout, available on the Stormwater Website

Credit

New deciduous trees will provide a reduction credit of **100** square feet per tree, new evergreen trees provide a reduction credit of **200** square feet per tree. All existing trees provide a credit equivalent to half of the canopy area.

Please show on the site Map the location, with label, of each new or existing tree used as credit. Use the table below to calculate runoff reduction credit (One site map showing all site design measures is adequate. Please, do not include individual site plans for each site design measure used).

Tree Label	**New Trees (enter 100 for deciduous, 200 for evergreen)** (Col. 2)	**Existing Trees (enter 50% of canopy)** (Col. 3)	
Example Tree 1	*(200)*		
Example Tree 2	*(200)*		
Overall Total	*(400)* 700 min		**Overall Total =** (Col. 2 + Col. 3)
		Square Foot Reduction Credit	*(400 sq. ft.)* 700 min
		Volume Credit = Overall Total / (1.6 sq. ft./gallons)	*(250 gallons)*

Signature and Certification:

I, the below signed, confirm that I have accurately described my project to the best of my ability, and that I have not purposely omitted any detail affecting my project's classification for stormwater regulation. I hereby certify that the site design measures identified herein as being incorporated into my project have been designed in accordance with this approved BMP Fact Sheet or equivalent, and are included in the final site plans submitted to Mendocino County Planning and Building Services.

Rodney L. Wilburn Jr. ______________________ 9/11/2018

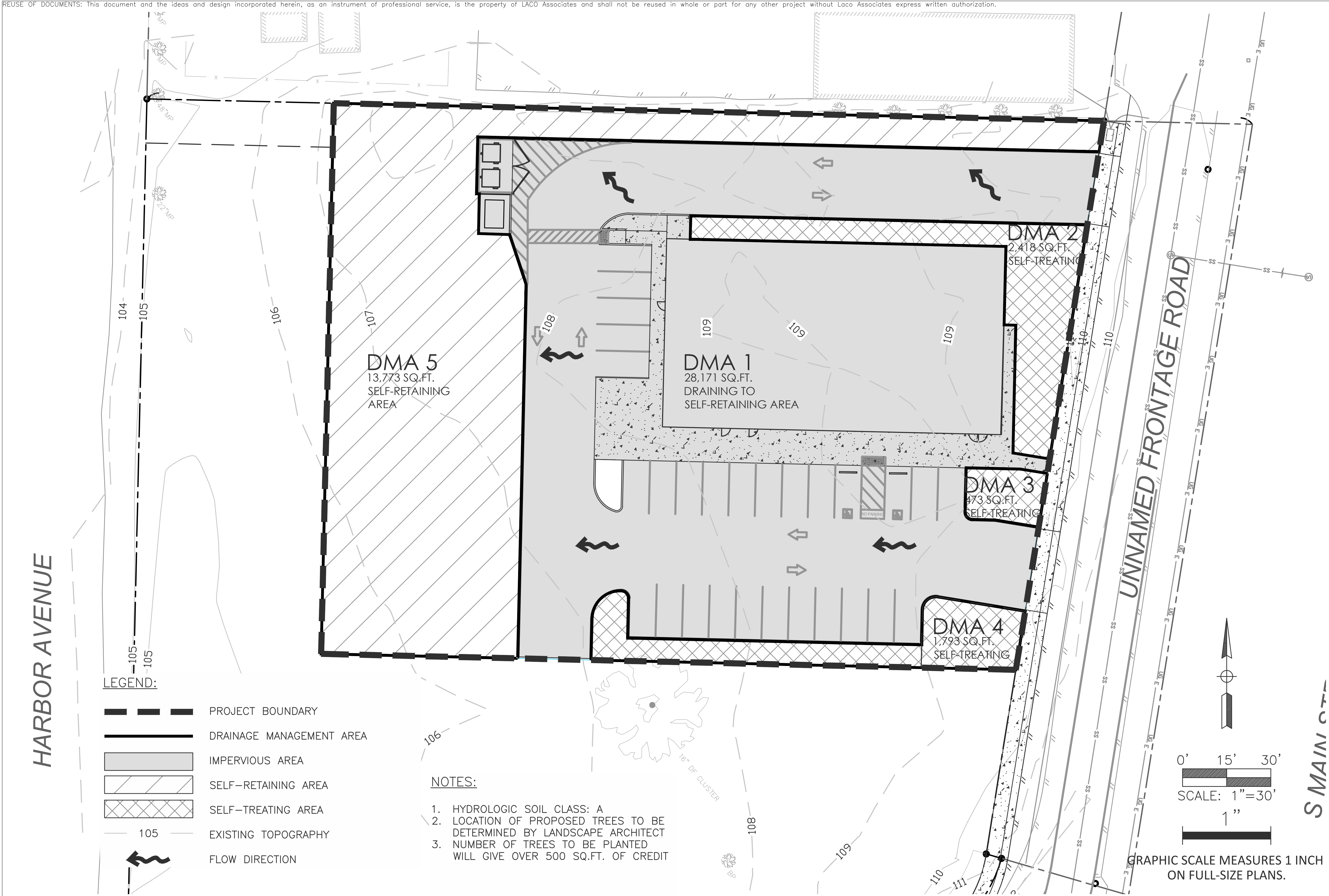
Signature Date

Rod Wilburn

Print Name

I am the:

☐ Property Owner ☐ Applicant ☑ Contractor /Engineer



LEGEND:

- PROJECT BOUNDARY
- DRAINAGE MANAGEMENT AREA
- IMPERVIOUS AREA
- SELF–RETAINING AREA
- SELF–TREATING AREA
- 105 EXISTING TOPOGRAPHY
- FLOW DIRECTION

NOTES:

1. HYDROLOGIC SOIL CLASS: A
2. LOCATION OF PROPOSED TREES TO BE DETERMINED BY LANDSCAPE ARCHITECT
3. NUMBER OF TREES TO BE PLANTED WILL GIVE OVER 500 SQ.FT. OF CREDIT

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1-800-515-5054 www.lacoassociates.com

NO.	HISTORY / REVISION	BY	CHK.	DATE

AUTOZONE, INC. - FORT BRAGG
STORMWATER MANAGEMENT DESIGN
PRELIMINARY STORMWATER CONTROL PLAN

AUTOZONE, INC.
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ATW
CHECK	TSK
APPROVED	RLW
DATE	9/7/18
JOB NUMBER	8978.03
SHEET	1

Sep 11,2018–11:08am T:\Cadfiles\8900\8978.02 MITCH BRAMLITT\DWG\ 8978.03 SCP PRELIMINARY 11X17.dwg

Preliminary Stormwater Control Plan (CDP, CUP, and SP ≥ 5000 sf)

For Office Use Only
Application No.________________
Received By: ________________

Instructions

The following worksheet is used to demonstrate that for each and every lot, the intended use can be achieved with a design which disperses runoff from the roofs, driveways, sidewalks, streets and other impervious areas to self-retaining pervious areas. It is also used to demonstrate that drainage to treatment and/or flow control facilities is feasible and that the project is in overall compliance with the MS4 permit. Use this form to assist you in designing your project to comply with the design standards for Multi-Parcel Regulated projects. The completed, signed Preliminary SCP for Subdivision Projects, a site map, plus any additional applicable information, must be submitted with your application to the Planning Department.

Project Name: AutoZone Fort Bragg

Physical Site Address: 1151 S Main Street, Fort Bragg, CA 95437

Project Applicant: Mitch Bramlitt

Mailing Address: 123 South Front Street, Memphis, TN 38103-3607

Phone: (901) 495-8714

Consultant's Information

Name: Rod Wilburn

Firm: LACO Associates

Address: PO Box 1023, Eureka, CA 95502

Email: wilburnr@lacoassociates.com

Phone: (707) 443-5054

A. Project Information

1a. Does Project create or replace 1-acre or more of impervious surface?	☐ **Yes** (see question below)	☑ **No** (skip question 1b.)
b. If 'Yes' to the above question: Does project increase impervious surface from pre-project conditions?	☐ **Yes** (hydromodification requirements must be met)	☐ **No** (regulated project requirements must be met)
Total pre-project Impervious Surface (sf):	0	
Total new or replaced Impervious Surface Area (square feet) [Sum of impervious area that will be constructed as part of the project]	28,034	

Preliminary Stormwater Control Plan (CDP, CUP, and SP ≥ 5000 sf)

B. Summary Table of Pervious to Impervious Surface

The following table will be used by staff to ensure that adequate measures have been utilized within the project design to capture retain and/or infiltrate the design storm.

Each DMA shown in the table shall be designated with the same name on the site plan. All site design measures used to meet the runoff reduction goals and all treatment facilities utilized to capture remaining runoff volumes must be shown on the site plan at an appropriate scale. Please use the Flow Chart as a reference of the process.

1. **Utilize Worksheet 1 to Summarize Impervious to Pervious Ratio for each DMA (Parcel) to determine if further runoff reduction is needed using site design measures and/or bioretention**
2. **Utilize Site Design Measures to effectively Reduce Pervious Area**
3. **Utilize Bioretention or equivalent if reduction cannot be achieved using Site Design Measures**

Worksheet 1.

DMA Name	**Does impervious to pervious ratio achieve 2:1 or better?** (Yes or No)	**Can ratio be achieved using site design measures?** Utilize Table (2-7) found in the Regulated Projects SCP to aid in calculations	**If "No" in column C: Bioretention facility is required for DMA (parcel). List name and the estimated size (sf) of the facility** Utilize Table 8 found in the Regulated Projects SCP worksheet to aid in calculations
(A)	**(B)**	**(C)**	
Example A	Yes	Yes	-------------
Example B	No	Yes	--------------
Example C	No	No	C : (1250 X .04)=50 sf
DMA 1	No	Yes	
DMA 2	Yes	Yes	
DMA 3	Yes	Yes	
DMA 4	Yes	Yes	
DMA 5	Yes	Yes	

C. Preliminary Site Plan Checklist –items that must be include on the site plan

- ☑ Topographic lines (2 ft. contours)
- ☑ On-site waterways/drainages, vegetation, and areas to be left undisturbed all shown with appropriate buffers
- ☑ DMAs clearly delineated and labeled with name and area (square feet)

Preliminary Stormwater Control Plan (CDP, CUP, and SP ≥ 5000 sf)

☐ Location of site design measures

☐ Location, size, and name of Bioretention/Treatment Facility

☑ Flow direction that clearly demonstrates the ability of self-retaining areas, infiltration site design measure, and treatment facilities to capture runoff from impervious surfaces

☑ Hydrologic soil class

D. Operation and Maintenance Plan Requirements

Each Bioretention facility or equivalent will be required to have an operation and maintenance plan attached to the final SCP and shall include all details found in Appendix 5, 6, 7, and 8 of the LID Manual.

E. Additional Requirements

A detailed final Stormwater Control Plan with narrative sections will need to be submitted prior to issuance of a grading/building permit (see Appendix 3). However, completing the Preliminary SCP enables a more efficient and timely review of the final SCP.

F. Signature and Certification

I, the below signed, confirm that I have accurately described my project to the best of my ability, and that I have not purposely omitted any detail affecting my project's classification for stormwater regulation. I hereby certify that the site design measures and stormwater flow treatment measures identified herein as being incorporated into my project have been designed in accordance with the approved BMP Fact Sheet or equivalent, and are included in the final site plans submitted to Mendocino County Planning and Building Services. I also hereby certify that my project meets the stormwater runoff reduction criteria identified in Worksheet 2, or as determined through other approved means.

Rodney L. Wilburn Jr. 9/11/2018

Signature Date

Rod Wilburn

Print Name

I am the:

☐ Property Owner ☐ Applicant ☑ Contractor/Engineer

Table 2. Area Calculations of *Self-retaining Areas* Used to Treat Impervious Areas

1 DMA Name	2 Area (sq. ft.)
DMA 1	28,034
DMA 2	2,418
DMA 3	473
DMA 4	1,793
DMA 5	13,773

Table 3. Runoff Factor (surface type)

Roofs and Paving	1.0
Landscaped Area	0.1
Bricks or solid pavers- grouted	1.0
Bricks or solid Pavers-on sand base	0.5
Pervious Concrete Asphalt	0.1
Turfblock or gravel	0.1
Open or Porous pavers	0.1

Tables 4-6 below should be used to quantify the amount of runoff that is reduced by using site design measures. Using the tables in chronological order will calculate the minimum size for your bioretention facility in order to meet the MS4 permit requirements. Several iterations may be need to size facilities according to the site design.

Table 4. Area draining to self-retaining areas

1 DMA Name (must correspond to area on the site map and on Table **1**)	2 DMA Area (sq. ft.) (Table **1**)	3 Type of Surface (Runoff Factor Table 3)	4 Surface with Runoff Factor Column **2** X Column **3**	5 Area of Self-retaining Area Receiving the Runoff (sq. ft.) (Table 2, Col. 2)	6 Ratio Col. **4** : Col. **5** Not to exceed 2:1 ratio (if number exceeds 2:1 use table 5 - 6 to reduce tributary area and recalculate or go directly to Table 7)
Example	700	Roof (1.0)	700	100	7:1 (must use site design measures, bioretention or both)
DMA 1	28,171	Roofs and Paving	28,171	13,773	2.05 : 1

Table 5. Tree Planting and Preservation (if not planting trees, go to Table 6)

1 DMA Name (must correspond to area on the site map)	2 DMA sq. ft. (from Table 4. Col. 6)	3 Deciduous (Input 100 for each deciduous tree)	4 Evergreen (Input 200 for each evergreen tree)	5 Total Tree Credit (Col. **3** + Col. **4**) (DMA runoff reduction)	6 New DMA Area Col. **2** – Col. **5** (for use in Table 6 - 8)
Example	700	--------	200	200	500 (new DMA size that must be treated with methods below Table 6-7)
DMA 1	28,171	To be determined by landscape architect	To be determined by landscape architect	700 min	27,471

Table 6. Rain Barrels and Cisterns (if not using site design measures, go to Table 8)

1 DMA Name (must correspond to area on the site map)	2 New DMA sq. ft. (Table 5, Col. 7 or, if no trees used, value from Table 4, Col. 2)	3 Number of Rain Barrels	4 Runoff Reduction from using a standard 55 gallon Rain Barrel = 200 sq. ft. Use the following if size is other than the standard (for every gallon of storage, approx.. 3.65 sq. ft. of reduction is achieved)	5 Col. **3 X** Col. **4** (DMA runoff reduction)	6 New DMA Area Col. **2** - Col. **5**
Example	500	1	200	200	300 (go to Table 7 to recalculate Ratio)

Table 6b. Infiltration Measures (Trenches and Dry Wells)

1 DMA Name (must correspond to area on the site map)	2 New DMA sq. ft. (Table 5, Col. 7 or, if no trees used, value from Table 4, Col. 2)	3 Runoff Reduction Volume using guidance on Infiltration Site Design Sheet	4 New DMA Area Col. 2 – Col. 3
Example	500	200	300

Table 7. <u>New</u> Tabulation of areas draining to self-retaining area after use of site design measures (must achieve a 2:1 ratio; if not achievable, use table 8 to calculate the size of bioretention required)

1 DMA Name (must correspond to area on the site map)	2 New Square footage of DMA (Col 6, Table 4,5,6)	3 Area of Self-retaining Area Receiving the Runoff (Table 2, Col. 2)	4 Ratio Column **2 :** Column **3** Not to exceed 2:1
Example	300 (Table 6)	100	3:1(still exceeds 2:1 go back, add more trees, rain barrels, or use bioretention – example uses bioretention, Table 8)
DMA 1	27,471	13,773	2 : 1

Table 8. Tabulation of areas draining to Bioretention Facility

1 DMA Name (must correspond to area on the site map)	**2** DMA sq. ft. (Table 1, Col 2 or new DMA sq. ft. Table 7, Col. 2)	**3** Runoff Factor Table 6a (skip if coming from Table 1)	**5** DMA Area Col. **2** x Col. **3**	**6** Standard Sizing Factor	**Minimum facility size** Col. **5** X Col. **6**	If site does not allow for the minimum size, recalculate DMA using additional Site Design Measures to further reduce the tributary size
Example	300	***1*** (already calculated in steps above, for this example)	300	0.04	12 sq. ft.	(proposed facility size on site plans)
				0.04		
				0.04		
				0.04		
				0.04		

Table 9. Runoff Factors

Roofs and Paving	1.0
Landscaped Area	0.1
Bricks or solid pavers- grouted	1.0
Bricks or solid Pavers-on sand base	0.5
Pervious Concrete Asphalt	0.1
Turfblock or gravel	0.1
Open or Porous pavers	0.1

G. Operation and Maintenance in Perpetuity

Indicate whether an *Operation and Maintenance Plan* is accompanying this document (Appendix 9).

☐ Yes ☑ No To be completed with SWPPP Document

H. Stormwater Control Plan

A Stormwater Control Plan is required for all Regulated Projects. This worksheet is designed to be the SCP if all requested descriptions and site plans have been attached. This document will be used by the plan checker to confirm that adequate stormwater control measures are being implemented on the project.

Indicate whether all supporting descriptions and worksheets are accompanying this document, Stormwater Control Plan

☑ Yes ☐ No

I. Signature and Certification:

I, the below signed, confirm that I have accurately described my project to the best of my ability, and that I have not purposely omitted any detail affecting my project's classification for stormwater regulation. I hereby certify that the site design measures and stormwater flow treatment measures identified herein as being incorporated into my project have been designed in accordance with the approved BMP Fact Sheet or equivalent, which is attached to this checklist, and are included in the final site plans submitted to Mendocino County Planning and Building Services. I also hereby certify that my project meets the stormwater runoff reduction criteria identified in the County of Mendocino MS4 Post-Construction Stormwater Calculator, or as determined through other approved means.

Rodney R. Wilburn Jr. 9/11/2018

Signature Date

Rod Wilburn

Print Name

I am the:

☐ Property Owner ☑ Contractor /Engineer ☐ Applicant

TREE PLANTING AND PRESERVATION

DESCRIPTION

Trees intercept rain water on their leaves and branches, allowing rain water to evaporate or run down the branches and trunk of the tree where it readily infiltrates into the soil. Trees also provide shade over impervious surfaces which reduces peak flow in streams and reduces the "heat island" effects of urban areas.

Technique

To use Tree Planting and Preservation as a Stormwater Runoff Reduction Measure, the following conditions must be met (Please check beside each requirement):

New Planting

☐ New plantings must have a trunk measuring at least 1-inch, 6 inches above the soil line

☐ New plantings must be at least **6 feet** tall for deciduous trees and **4 feet** tall for evergreen trees

☐ A minimum of **one** evergreen or **two** deciduous trees must be planted to use this credit

Tree Preservation

☐ Existing tree canopy must be equal to or greater than 300 sq. feet (collectively); existing tree preservation credit is 50% of canopy – the minimum credit is 150 square feet.

☐ Trees used as credit must be adequately protected during construction activity. See EC-2 in the Erosion and Sediment Control Handout, available on the Stormwater Website

Credit

New deciduous trees will provide a reduction credit of **100** square feet per tree, new evergreen trees provide a reduction credit of **200** square feet per tree. All existing trees provide a credit equivalent to half of the canopy area.

Please show on the site Map the location, with label, of each new or existing tree used as credit. Use the table below to calculate runoff reduction credit (One site map showing all site design measures is adequate. Please, do not include individual site plans for each site design measure used).

Tree Label	**New Trees (enter 100 for deciduous, 200 for evergreen)** (Col. 2)	**Existing Trees (enter 50% of canopy)** (Col. 3)	
Example Tree 1	*(200)*		
Example Tree 2	*(200)*		
Overall Total	*(400)* 700 min		**Overall Total =** (Col. 2 + Col. 3)
		Square Foot Reduction Credit	*(400 sq. ft.)* 700 min
		Volume Credit = Overall Total / (1.6 sq. ft./gallons)	*(250 gallons)*

Signature and Certification:

I, the below signed, confirm that I have accurately described my project to the best of my ability, and that I have not purposely omitted any detail affecting my project's classification for stormwater regulation. I hereby certify that the site design measures identified herein as being incorporated into my project have been designed in accordance with this approved BMP Fact Sheet or equivalent, and are included in the final site plans submitted to Mendocino County Planning and Building Services.

Rodney R. Wilburn Jr. 9/11/2018

Signature Date

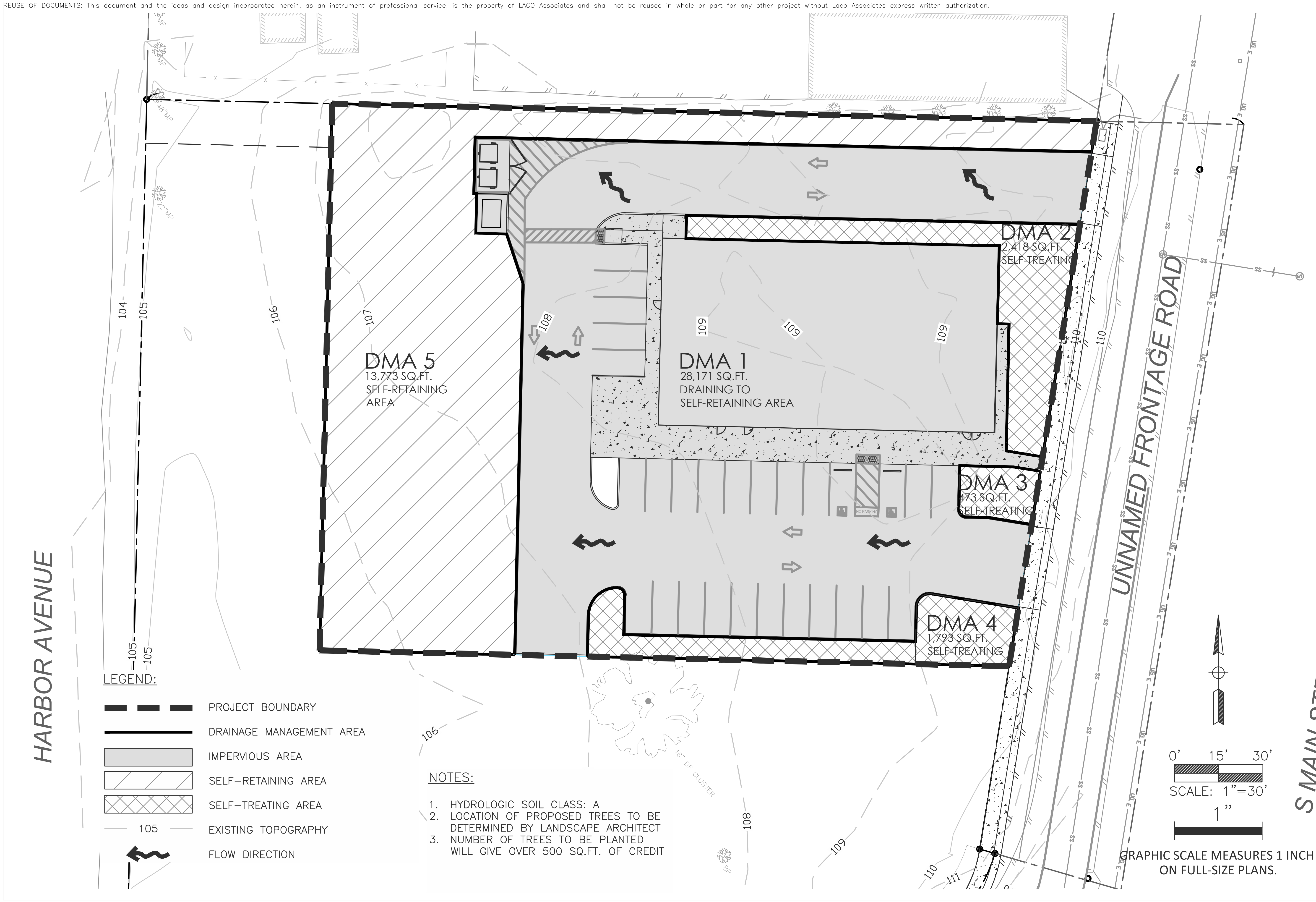
Rod Wilburn

Print Name

I am the:

☐ Property Owner ☐ Applicant ☑ Contractor /Engineer

REUSE OF DOCUMENTS: This document and the ideas and design incorporated herein, as an instrument of professional service, is the property of LACO Associates and shall not be reused in whole or part for any other project without Laco Associates express written authorization.



LEGEND:

- PROJECT BOUNDARY
- DRAINAGE MANAGEMENT AREA
- IMPERVIOUS AREA
- SELF–RETAINING AREA
- SELF–TREATING AREA
- 105 EXISTING TOPOGRAPHY
- FLOW DIRECTION

NOTES:

1. HYDROLOGIC SOIL CLASS: A
2. LOCATION OF PROPOSED TREES TO BE DETERMINED BY LANDSCAPE ARCHITECT
3. NUMBER OF TREES TO BE PLANTED WILL GIVE OVER 500 SQ.FT. OF CREDIT

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NO.	HISTORY / REVISION	BY	CHK.	DATE

AUTOZONE, INC. - FORT BRAGG
STORMWATER MANAGEMENT DESIGN
PRELIMINARY STORMWATER CONTROL PLAN

AUTOZONE, INC.
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ATW
CHECK	TSK
APPROVED	RLW
DATE	9/7/18
JOB NUMBER	8978.03
SHEET	1

Sep 11,2018–11:08am MITCH BRAMLITT
T:\Cadfiles\8900\8978.02\DWG\ 8978.03 SCP PRELIMINARY 11X17.dwg

Instructions

Mendocino County Ordinance No. 4313 STORM WATER RUNOFF POLLUTION PREVENTION PROCEDURE (Mendocino County Code Chapter 16.30 et. seq.) requires any person performing construction and grading work anywhere in the County shall implement appropriate Best Management Practices (BMP) to prevent the discharge of construction waste, debris or contaminants from construction materials, tools and equipment from entering the storm drainage system (off-site). It also allows the County to adopt requirements identifying appropriate BMPs to control the volume, rate, and potential pollutant load of storm water runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants and as required by the County's NPDES MS4 General Permit. The County may incorporate these requirements into land use entitlements and construction or building-related permits to be issued for new development or redevelopment.

The following checklist is to be completed by you (the applicant) to determine which plans and specifications for storm water runoff control are required as part of a Building Permit Application to the County of Mendocino Building Division of the Department of Planning and Building Services.

I. Construction Project Information *(Completed by Applicant)*

Physical Address Site Location	City	Assessor Parcel Number (APN)
1151 S Main Street, Fort Bragg, CA 95437	Fort Bragg	018-440-58-00

Anticipated Construction Start date: 03 / 04 / 2019

Site-work construction completion: 08 / 07 / 2019

Circle and/or list all applicable permits directly associated with grading activity, not limited to the following: -State Construction General Permit- -State 401 Water Quality Certification, -U.S. Army Corps 404 permit, -California Fish and Wildlife 1600-

A.) Is the construction site part of a larger common plan of development or sale? YES NO UNKNOWN (circle one) B.) Name of larger common plan/project (if applicable):

II. Checklist *(Completed by Applicant)*

A.) Total area of soil disturbing activity (definition below) 46,628 sq. ft. If project disturbs 1 acre or more of soil then provide the State Construction General Permit Waste Discharge Identification Number: To be aquired with 70% plans

B.) Total area of new or replaced impervious surface 28,034 sq. ft. If project creates or replaces 2,500 sq. ft. or more of impervious surface, submit a Storm Water Control Plan or equivalent in compliance with the LID Manual.

Definition of Impervious Surface - A surface covering or pavement of a developed parcel of land that prevents the land's natural ability to absorb and infiltrate rainfall/storm water. Impervious surfaces include, but are not limited to: roof tops, walkways, patios, driveways, parking lots, storage areas, impervious concrete and asphalt, and any other continuous watertight pavement or covering. Landscaped soil and pervious pavement, including pavers with pervious openings and seams, underlain with pervious soil or pervious storage material, such as a gravel layer sufficient to hold the specified volume of rainfall runoff, are not impervious surfaces.

Definition of Soil Disturbing Activities - Any construction or demolition activity, including, but not limited to: clearing of vegetation, grading, grubbing, disturbance to the ground such as stripping of top soils, soil compaction, excavation, and stockpiling or any other activity that results in a land disturbance that changes the physical condition of land forms, soils, vegetation, and hydrology.

Does the stormwater runoff from the construction site discharge to (check all that apply):

- ☑ Remain on site/indirectly to waters of U.S.
- ☑ County Storm Drain System
- ☐ Directly to waters of the U.S (e.g. river, lake, creek, stream, bay, ocean); body of water: ______________________

Please indicate the distance from construction activity to nearest watercourse: 530 ft.

III. Construction Site Storm Water Pollution Prevention Plan Submittal Requirement *(Completed by Applicant)*

A**. <u>If your project is covered under the State Water Resources Control Board General Permit (CGP)</u>**, attach a copy of the submitted Storm Water Pollution Prevention Plan (SWPPP) including the Notice of Intent (NOI) and WDID Number. Please note CGP projects within the MS4 areas are exempt from CGP post construction requirements provided a certification is submitted. See the State Water Board's Stormwater Multi-Application, Reporting and Tracking System (SMARTS) to submit exemption certification information. (https://smarts.waterboards.ca.gov.)

B. **<u>If a CGP is not required</u>**, your project shall submit, as part of your Building Permit Application, construction site BMPs plans and specifications prepared by a Qualified Storm Water Developer (QSD) OR applicant/owner/contractor prepared BMP plans and specifications referencing BMP information obtained from the County Department of Planning and Building Services and/or the California Storm Water Quality Association BMP Handbook. If an Encroachment permit is required from DOT, submission of the Water Pollution Control Plan from the encroachment permit may be used as a substitute provided it covers all proposed construction activities and locations.

IV. Certification *(Completed by Applicant)*

Printed Name Mitch Bramlitt

Signature

V. For Official Use Only

Submittal Date Received by Permit Number

NOTES:

1. PROJECT SITE IS CURRENTLY UNDEVELOPED.
2. EXISTING TOPOGRAPHY FROM REPUBLIC NATIONAL, DATED FEBRUARY 26, 2018.
3. THE EXISTING PARCELS IN THIS AREA HAVE A LAND USE AND ZONING DESIGNATION OF HIGHWAY VISITOR COMMERCIAL (CH). THE EXISTING COUNTY PARCELS TO THE WEST HAVE THE DESIGNATION OF RURAL RESIDENTIAL AND VARIABLE DENSITY ZONE PER MENDOCINO COUNTY GENERAL PLAN.
4. TREE SPECIES AS SURVEYED:
   - 4.1. BP – BISHOP PINE
   - 4.2. MP – MONTEREY PINE
   - 4.3. DF – DOUGLAS FIR
   - 4.4. SP – SHORE PINE
5. EIGHT TREES TO BE REMOVED WHERE INDICATED:

May 18,2019–1:55pm T:\Cadfiles\8900\8978.02 MITCH BRAMLITT\DWG\ 8978.02 TENTATIVE MAP.dwg

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1-800-515-5054 www.lacoassociates.com

NO.	HISTORY / REVISION	BY	CHK.	DATE

MINOR SUBDIVISION
AUTOZONE RETAIL STORE 1151 S MAIN ST, FORT BRAGG, CA ; APN:018-440-58

EXISTING CONDITIONS

AUTOZONE DEVELOPMENT CORPORATION
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ATW/ASV
CHECK	CMB
APPROVED	DNC
DATE	05/18/2019
JOB NUMBER	8978.01
SHEET	2/3

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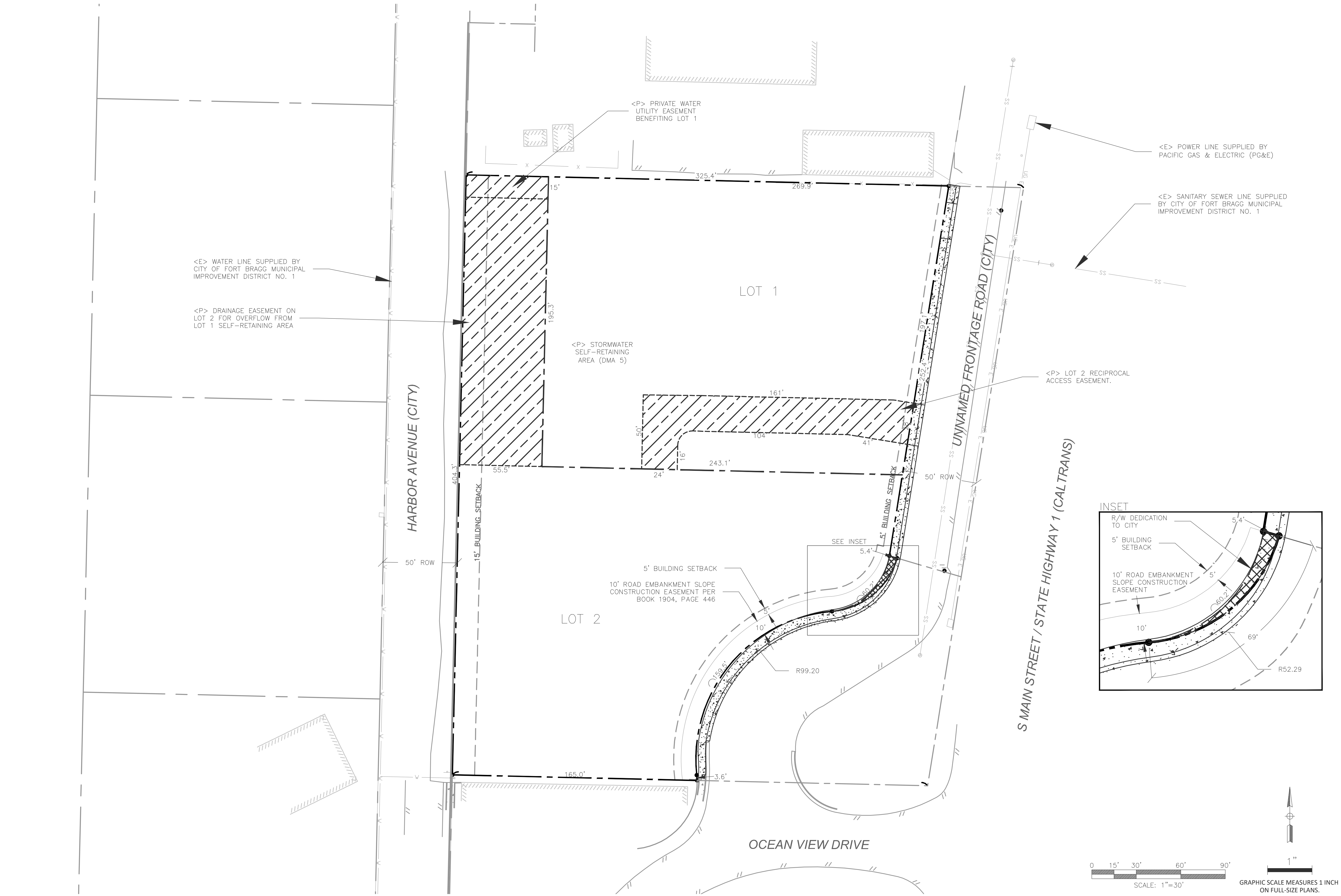

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NO.	HISTORY / REVISION	BY	CHK.	DATE

MINOR SUBDIVISION
AUTOZONE RETAIL STORE 1151 S MAIN ST. FORT BRAGG, CA : APN:018-440-58
TENTATIVE MAP SITE PLAN

AUTOZONE DEVELOPMENT CORPORATION
123 SOUTH FRONT STREET, MEMPHIS, TN 38103

DRAWN	ATW/ASV
CHECK	CMB
APPROVED	DNC
DATE	05/18/2019
JOB NUMBER	8978.01
SHEET	3/3