City of
SACRAMENTO
Community Development

ADDENDUM TO A CERTIFIED MITIGATED NEGATIVE DECLARATION

The City of Sacramento, California, a municipal corporation, does hereby prepare, make, declare, and publish the Addendum to a certified Mitigated Negative Declaration (MND) for the following described project:

Project Name and Number: Wayne Court Warehouses Project (DR18-342)

Original Project: Wayne Court Project (P07-127)

The City of Sacramento, Community Development Department, has reviewed the proposed project and on the basis of the whole record before it, has determined that there is no substantial evidence that the project, as identified in this Addendum, would have a significant effect on the environment beyond that which was evaluated in the Wayne Court Project MND (SCH# 2008052108) certified in 2008. A Subsequent MND is not required pursuant to the California Environmental Quality Act of 1970 (Sections 21000, et. Seq., Public Resources Code of the State of California).

This Addendum to a certified MND has been prepared pursuant to Title 14, Section 15164 of the California Code of Regulations; the Sacramento Local Environmental Regulations (Resolution 91-892) adopted by the City of Sacramento. All technical reports used in support of the analysis in this Addendum are available for review at the City Planning Department.

Environmental Services Manager, City of Sacramento, California, a municipal corporation

By: Scott Johnson

Date: 3-17-2020

Wayne Court Warehouses Project (DR18-342)
Addendum to an Initial Study/Mitigated Negative Declaration

File Number/Project Name: Wayne Court Warehouses Project (DR18-342)

Project Location and Surrounding Land Uses: The project site consists of approximately 12.04 acres of vacant land located at 24 Wayne Court in the City of Sacramento (see Figure 1 and Figure 2). The project site is located east of South Watt Avenue, north of Elder Creek Road, and west of Hedge Avenue. The site is bordered by Morrison Creek to the north and vacant land to the south. The Assessor's Parcel Number for the area is listed as 062-0060-030.

Surrounding land uses include commercial and industrial to the east and west and vacant land to the south. The site is bordered by Morrison Creek to the north.

Existing Setting: The City of Sacramento 2035 General Plan designates the project site as Employment Center (Low Rise). The current zoning designation for the project site is Light Industrial (M-1S-R), which requires Planning Commission Plan Review for buildings greater than 10,000 square feet (sf). The project site consists of disturbed, mostly bare ground. Vegetation, where present, is ruderal. The project site is located in an urban, built-up area.

Project Background: On May 23, 2008, the City approved the Wayne Court Project IS/MND (SCH# 2008052108). The MND was prepared pursuant to Title 14, Section 15070 of the California Code of Regulations and the Sacramento City Code.

Specific entitlements of the original Wayne Court Project (P07-127) included a Plan Review-New Site Plan to construct two light industrial buildings totaling 220,000 sf in the Light Industrial (M-1S-R) zone. The City of Sacramento, Development Services Department, Environmental Planning Services, reviewed the project and, on the basis of the IS/MND, did not find substantial evidence that the project, with mitigation measures, would have a significant effect on the environment.

Project Description: The proposed Wayne Court Warehouses Project (DR18-342) would include construction of two 109,668 sf warehouses, each with four depressed docks located on the western side of the buildings, a total of 229 parking spaces, and associated improvements. The site is currently vacant and undeveloped, with disturbed, bare ground.

The proposed project would be used as a light industrial, warehousing space. According to the Sacramento County Zoning Code, uses under the M-1S-R designation include manufacturing, assembly, processing, or warehousing.

Site Access and Parking

Access to the site is provided by Wayne Court, which connects to South Watt Avenue, a major arterial in the City. South Watt Avenue connects to Fruitridge Road and US Highway 50. The project frontage would be accessible by a driveway, between two existing buildings on Wayne Court, which would connect to the cul-de-sac at the existing terminus of Wayne Court. On-site parking for future tenants and visitors would be provided by 229 new parking spaces on the north and south sides of the buildings (see Figure 3).

Figure 1
Regional Vicinity Map

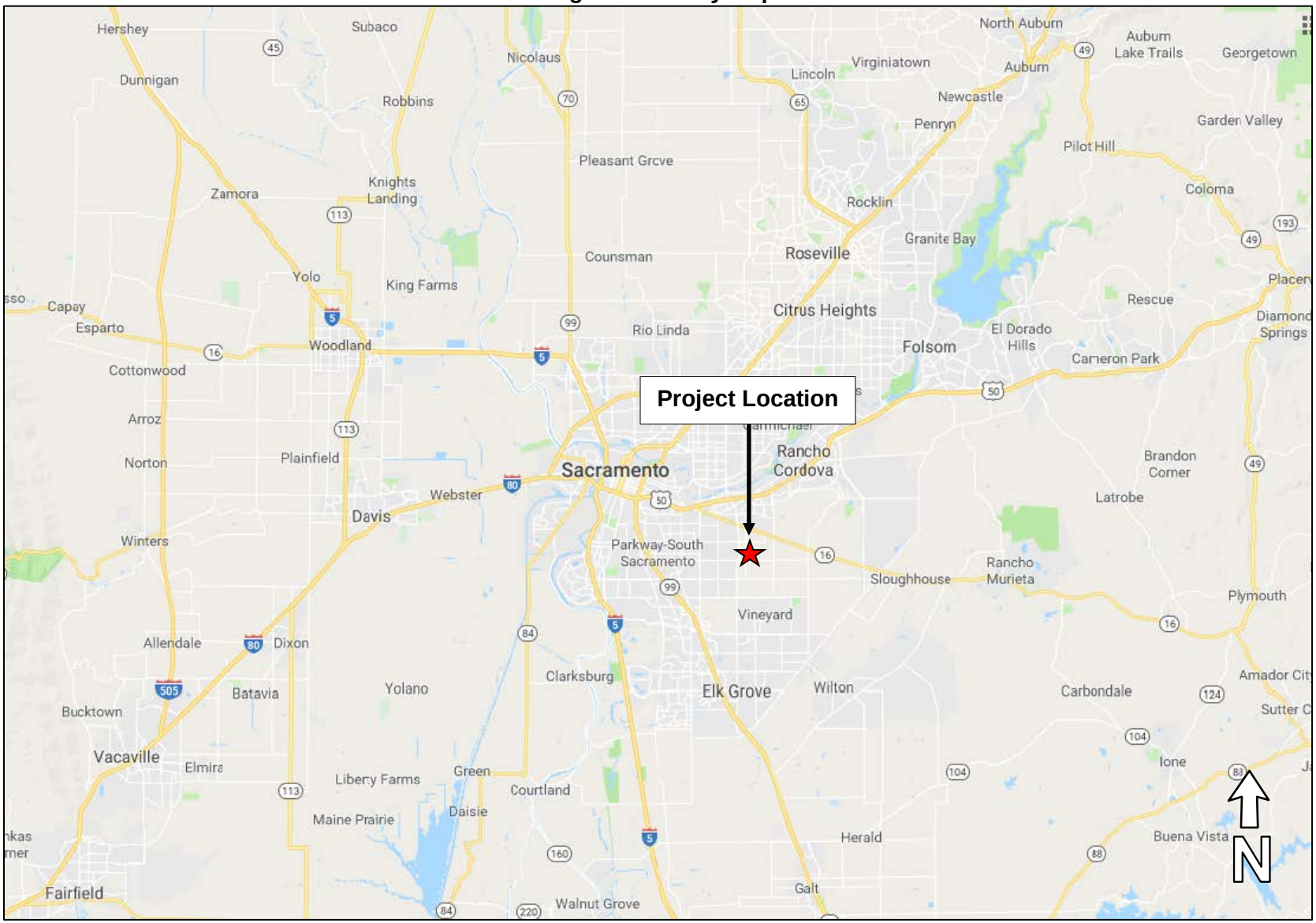
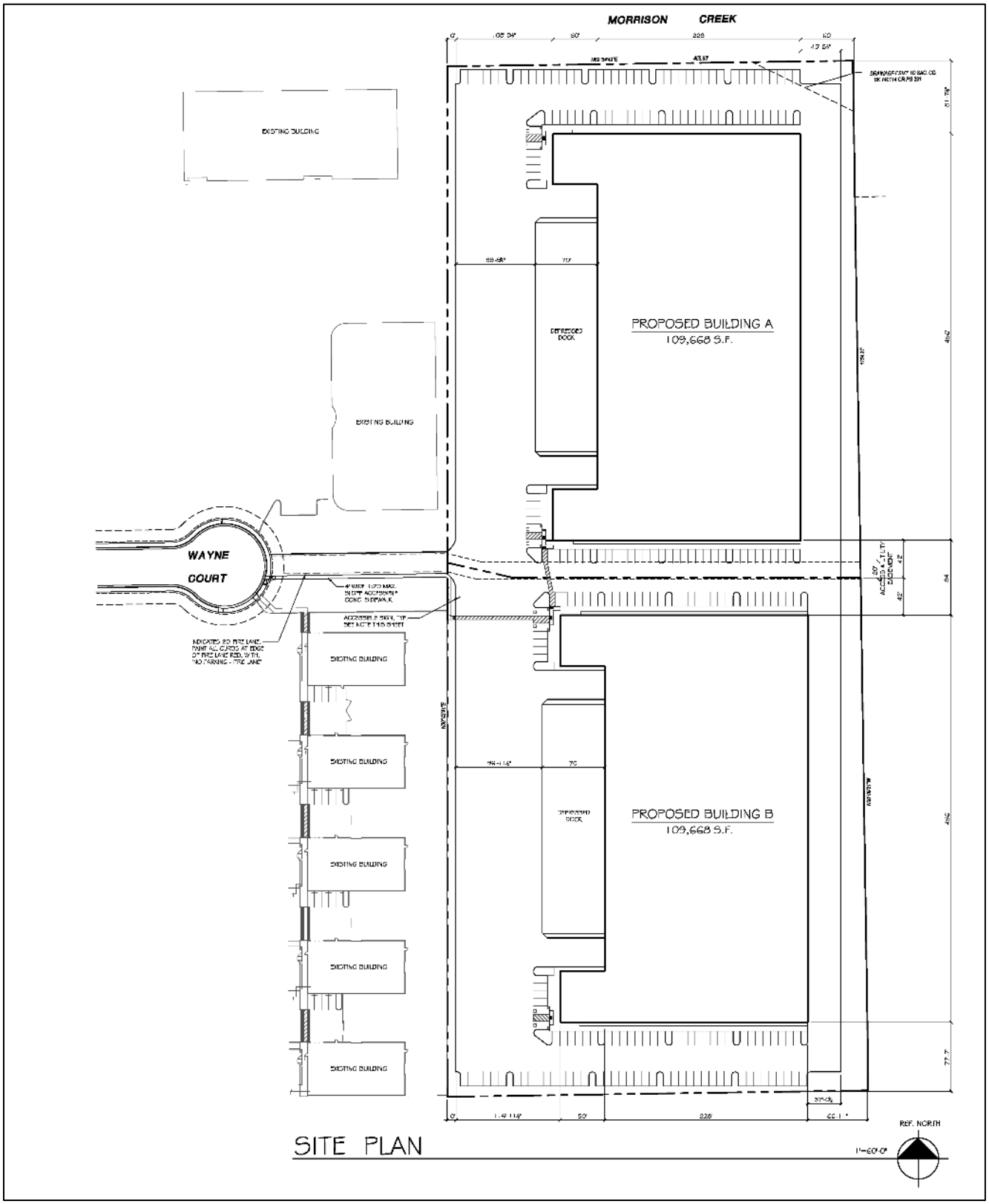


Figure 2
Project Boundaries Map

Figure 3
Overall Site Plan



The pedestrian system in the project vicinity consists of sidewalks along Wayne Court and portions of South Watt Avenue. Sidewalks exist along both sides of South Watt Avenue from approximately 500 feet north of Wayne Court to approximately 500 feet south of Wayne Court, and would be connected to the proposed project. Bike access is provided to the site by way of South Watt Avenue, which provides bike lanes on either side of the street.

Regional transit opportunities are provided in the project vicinity, but are not currently extended to the project site. The nearest public transit access is provided by Bus Route 61, which operates along Fruitridge Road. A transit stop is located approximately 1.4 miles northwest of the project site.

Utilities

Domestic and fire water supplies are currently provided to the project site by the City of Sacramento. The City of Sacramento uses surface water from the Sacramento and American Rivers, and groundwater pumped from the North American and South American sub-basins to meet the City's water demands. Water supply infrastructure in the project area includes a 12-inch water main located beneath Wayne Court. The proposed project would include construction of an off-site public water main extension to the 12-inch water main east of the site within Wayne Court. A proposed water main would extend from the existing utility easement within Wayne Court to the project site.

Currently, all drainage water flows into three bioretention basins: two along the western property line and one along the eastern property line. Stormwater then filters through the 30-foot bioretention basin media and into perforated pipes, which collect and discharge water into the City storm drain system.

Stormwater from the project site would flow into Morrison Creek, north of the project site. The proposed project would require extension to site from an existing 15-inch drain line in Wayne Court. A drainage study would be required by the City to prove that the proposed project would adhere to City stormwater design guidelines.

Wastewater service at the project site would also be provided by the County of Sacramento. The Sacramento Regional County Sanitation District (SRCSD) provides sewage treatment for the County Sanitation District, in which the proposed project is located. The SRCSD maintains an eight-inch sewer line in Wayne Court, which would be extended to the project site as part of the proposed project.

Project Approvals

The proposed project would require the following approvals by the City of Sacramento:

- Approval of an Addendum to a previously certified IS/MND; and
- Site Plan and Design Review for the proposed structures.

Rationale for Preparation of the Addendum

In determining whether an addendum is the appropriate document to analyze the modifications to the project and its approval, State CEQA Guidelines Section 15164 (Addendum to an EIR or Mitigated Negative Declaration) states:

> (a) The lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

(b) An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.

(c) An addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted negative declaration.

(d) The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.

(e) A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR, the lead agency's required findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

New significant effects or other grounds require preparation of a subsequent Negative Declaration or supplemental Mitigated Negative Declaration in support of further agency action on a project pursuant to Public Resources Code Section 21166 and State CEQA Guidelines Sections 15162 and 15163. Under the guidelines, a subsequent or supplemental EIR or Mitigated Negative Declaration shall be prepared if any of the following criteria are met:

(a) When an EIR has been certified or negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Addendum Where New Impacts Have Been Identified

Under CEQA Guidelines section 15164, an addendum to a previously certified EIR or Mitigated Negative Declaration may be prepared if changes or additions are necessary, but none of the conditions under Section 15162 requiring preparation of a subsequent Negative Declaration have occurred. As noted above, under Section 15162, subdivision (a)(3), a subsequent Negative Declaration must be prepared if new information of substantial importance shows the project would have one or more significant effects not discussed in the previous IS/MND.

Under case law interpreting Section 15162, where the only basis for preparing a subsequent Negative Declaration or a supplement to a Negative Declaration is a new significant impact or a substantial increase in the severity of a previously identified impact, the need for the new Negative Declaration can be avoided if the project applicant agrees to one or more mitigation measures that can reduce the significant effect(s) at issue to less-than-significant levels. See *River Valley Preservation Project v. Metropolitan Transit Development Board* (1995) 37 Cal.App.4th 154, 168 ["[E]ven a substantial increase in the severity of an environmental impact does not require...the preparation of [a subsequent EIR] if mitigation measures are adopted which reduce the impact to a level of insignificance"], citing *Laurel Heights Improvement Association v. Regents of the University of California* (1993) 6 Cal. 4th 1112, 1130); see also *Snarled Traffic Obstructs Progress v. City and County of San Francisco* (1999) 74 Cal. App. 4th 793, 802 [upholding trial court finding that new and negative aesthetic impacts of increased footprint of project were "potential impacts [that] do not rise to the level of significance because they were mitigated by the project sponsor's modification of the project"].)

Use of a Prior Environmental Document

The California Supreme Court has held that a lead agency has the responsibility of initially deciding whether an original environmental document retains "some relevance" to the ongoing decision-making process. If it does, the lead agency moves on to determine whether the original document is adequate for CEQA purposes. The City of Sacramento has determined that the IS/MND certified for the Wayne Court Project (hereafter referred to as the 2008 IS/MND) is relevant and has prepared an addendum to that document to evaluate the proposed project. The proposed warehouses are contained within the original 12.04-acre site considered for the Wayne Court Project and includes land uses that were included in the Wayne Court Project. The project discussed in this Addendum would result in similar impacts as identified in the 2008 IS/MND.

Based on the above, in accordance with Sections 15162 through 15164 of the CEQA Guidelines, the proposed improvements would not require major revisions to the previous 2008 IS/MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. As discussed in this Addendum, none of the conditions identified in CEQA Guidelines Sections 15162 and 15163 apply to the proposed project. Thus, preparation of an addendum would provide the appropriate level of environmental review.

Discussion

The following sections provide discussions of potential impacts associated with the proposed project beyond those previously identified in the 2008 IS/MND.

Air Quality

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is responsible for control of stationary and indirect-source emissions, air monitoring, and preparation of air quality attainment plans in the Sacramento County portion of the Sacramento Valley Air Basin (SVAB). Federal and State air quality standards have been established for six common air pollutants, known as criteria pollutants, because the criteria air pollutants could be detrimental to human health and the environment. The criteria pollutants include particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. At the federal level, Sacramento County is designated as severe nonattainment for the 8-hour ozone standard, nonattainment for the 24-hour $PM_{2.5}$ standard, and attainment or unclassified for all other criteria pollutants.

Nearly all development projects in the Sacramento region have the potential to generate air pollutants that may increase the difficultly of attaining federal and State AAQS. Therefore, for most projects, evaluation of air quality impacts is required to comply with CEQA. In order to help public agencies evaluate air quality impacts, the SMAQMD has developed the *Guide to Air Quality Assessment in Sacramento County*.[1] The SMAQMD's guide includes recommended thresholds of significance, including mass emission thresholds for construction-related and operational ozone precursors, as the area is under nonattainment for the federal and State ozone AAQS. The SMAQMD's guide also includes screening criteria for localized carbon monoxide (CO) emissions and thresholds for new stationary sources of toxic air contaminants (TACs).

The original project assessed air quality impacts under applicable 2008 standards and conditions. On May 28, 2015, the SMAQMD Board of Directors rescinded the 2002 concentration-based thresholds for PM_{10} and $PM_{2.5}$ and adopted the new mass emission PM_{10} and $PM_{2.5}$ thresholds. The original project was analyzed using the URBEMIS 2007 9.2.4 model. Consistent with SMAQMD guidelines, in order to determine whether the proposed project would result in new or more severe impacts with consideration of new standards, the proposed project's construction-related and operational emissions have been estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software.

The estimated NO_x, ROG, PM_{10}, and $PM_{2.5}$ emissions during both construction and operation of the proposed project, as compared to the SMAQMD air quality standards, are listed in Table 1 below.

Table 1
Maximum Unmitigated Project Emissions

Pollutant	Project Construction Emissions (lbs/day)	Construction Thresholds (lbs/day)	Project Operational Emissions (lbs/day)	Operational Thresholds (lbs/day)
NO_X	45.4	85	12.9	65
ROG	20.8	-	8.00	65
PM_{10}	8.93	80	5.60	80
$PM_{2.5}$	5.00	82	1.80	82

Source: CalEEMod, February 2019 (see Appendix A).

When analyzed in 2008, construction related emissions were estimated at 61.02 lbs/day of NO_x. The operational emissions were estimated to be 18.76 and 26.33 lbs/day of ROG and NO_x, respectively. Since the analysis of the previous project, SMAQMD has incorporated Basic Construction Emission Control Practices, including control of fugitive dust, incorporation of Best Management Practices, minimization of

[1] Sacramento Metropolitan Air Quality Management District. *Guide to Air Quality Assessment in Sacramento County*. May 2018. Available at: http://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools. Accessed January 2019.

idling time, and limits on vehicle speeds, which all reduce the construction emissions from what was previously estimated.

Because the proposed project would include incorporation of the newest building and construction standards, the proposed project would not violate any applicable air quality standards established by SMAQMD. Based on the table above, air quality emissions would decrease from what was predicted in the 2008 IS/MND. Even with the addition of thresholds for PM_{10} and $PM_{2.5}$, the proposed project would comply with State and local regulations.

Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions were not addressed in the 2008 IS/MND. However, potential impacts related to GHG emissions do not constitute "new information" as defined by CEQA, as GHG emissions were known as potential environmental issues before1994.[2] Since the time the 2008 IS/MND was approved, the City has taken numerous actions towards promoting sustainability within the City, including efforts aimed at reducing GHG emissions. On February 14, 2012, the City adopted the City of Sacramento Climate Action Plan (CAP), which identified how the City and the broader community could reduce Sacramento's GHG emissions and included reduction targets, strategies, and specific actions.

In 2015, the City adopted the 2035 General Plan Update. The update incorporated measures and actions from the CAP into Appendix B, General Plan CAP Policies and Programs, of the General Plan Update. Appendix B includes all City-Wide policies and programs that are supportive of reducing GHG emissions. The General Plan CAP Policies and Programs per the General Plan Update supersede the City's CAP. Rather than compliance and consistency with the CAP, all proposed projects must now be compliant and consistent with the General Plan CAP Policies and Programs outlined in Appendix B of the General Plan Update. As such, the proposed project would be required to comply with the General Plan CAP Policies and Programs set forth in Appendix B of the General Plan Update.

In addition to the City's General Plan CAP Policies and Programs outlined in Appendix B of the General Plan Update, a number of regulations have been enacted since the 2008 IS/MND was approved for the purpose of, or with an underlying goal for, reducing GHG emissions, such as the California Green Building Standards Code (CALGreen Code) and the California Building Energy Efficiency Standards Code. According to the California Energy Commission, the 2019 Building Energy Efficiency Standards are anticipated to result in less energy consumption. Specifically, new non-residential building standards enable the use of highly efficient air filters and improve ventilation systems, as well as lighting improvements, requiring approximately 30 percent less energy than those built under the previous 2016 standards. Such regulations have become increasingly stringent since the 2008 IS/MND was adopted. The proposed project would be required to comply with all applicable regulations associated with GHG emissions, including the CALGreen Code and California Building Energy Efficiency Standards Code.

New land use or zoning designations are not proposed as part of the project, and the overall area of disturbance anticipated for buildout of the project site would not be modified. The primary GHG emission sources that would be expected to result from the proposed project would be mobile sources from vehicle emissions, followed by energy consumption, solid waste disposal, water conveyance and treatment, and area sources, such as landscape maintenance equipment exhaust and consumer products (e.g., deodorants, cleaning products, spray paint, etc.). As described in further detail in the Traffic section below, the overall vehicle trips associated with the proposed project would result in 688 fewer daily trips than

[2] As explained in a series of cases, most recently in *Concerned Dublin Citizens v. City of Dublin (2013) 214 Cal. App. 4th 1301*. Also see, *Citizens of Responsible Equitable Development v. City of San Diego (2011) 196 Cal.App.4th 515*.

previously anticipated for buildout of the project site. Consequently, the mobile source GHG emissions would be less than what is currently approved for the project site.

The proposed project would emit a total of 466 million tons of carbon dioxide equivalent (CO_2e) per year during construction, and 1,419 MT CO_2e per year during operation. However, the City of Sacramento does not assess potential impacts related to GHG emissions based on the total emissions of GHGs. Rather, the City of Sacramento has integrated a CAP into the City's General Plan, and thus, potential impact related to climate change from development within the City are assessed based on the project's compliance with the City's adopted General Plan CAP Policies and Programs set forth in Appendix B of the General Plan Update.

SMAQMD has identified thresholds of significance for agencies without adopted GHG reduction plans[3]; however, projects within Sacramento City limits would be required to adhere to reduction targets, strategies, and specific actions for reducing GHG Emissions set forth by the adopted CAP.

Several goals and policies set forth in Appendix B of the General Plan require that new urban developments should be well-connected, minimize barriers between uses, and create pedestrian-scaled, walkable areas. The proposed project would include a network of accessible pedestrian paths throughout the project site and connecting to existing sidewalks along South Watt Avenue. Additionally, South Watt Avenue provides a bike lane extending from north to south and connecting to Wayne Court. Finally, the proposed project would be constructed in compliance with the California Building Standards code and the California Green Building Code. Adherence to the codes would support the City's Policy U 6.1.5, which states that energy consumption per capita should be reduced as compared to the year 2005.

Appendix B of the City's General Plan lists the CAP policies and programs that have been incorporated into the City's General Plan. Consistency with the General Plan CAP policies included in Appendix B demonstrates compliance with the City's CAP and GHG reduction goals. Because the proposed project would be consistent with the City's General Plan and would comply with all applicable standards and regulations related to GHG, including the City's General Plan CAP Policies and Programs, CALGreen Code, and California Building Energy Efficiency Standards Code, the proposed project would not result in any new or increased impacts related to GHG emissions and global climate change than what was previously anticipated for the project site.

Transportation and Circulation

The purpose of this Addendum is to determine whether implementation of the proposed project would result in a new or substantial increase in severity of significant impacts identified in the 2008 IS/MND. In order to compare the potential impacts of the approved and proposed projects, the City's Transportation Division conducted an analysis of the proposed project within the context of the conclusions and mitigation measures provided in the 2008 IS/MND related to traffic.

The Transportation Analysis studied the following intersections:

- South Watt Avenue and Fruitridge Road (signalized);
- South Watt Avenue and Wayne Court (unsignalized); and
- South Watt Avenue and Elder Creek Road (signalized).

As summarized in Table 2, the proposed project would increase traffic volumes and average delay at the study area intersections. The study area intersections would continue to operate at acceptable levels of

[3] Sacramento Metropolitan Air Quality Management District. *CEQA Guide.* May 2018

service (LOS), and not result in LOS impacts. However, at the South Watt Avenue and Wayne Court intersection, the increase in traffic volumes would result in LOS F conditions during the A.M. and P.M. peak hours for traffic traveling westbound towards the stop-sign controlled Wayne Court approach to South Watt Avenue. Long delays can result in motorist accepting inadequate gaps in traffic and unsafe movements, which is a safety concern.

Table 2
Existing and Existing Plus Project Intersection Operating Conditions

	Existing		Existing Plus Project	
	A.M. Peak Hour	P.M. Peak Hour	A.M. Peak Hour	P.M. Peak Hour
Intersection	LOS	LOS	LOS	LOS
1. S. Watt Avenue & Fruitridge Road	D	D	D	D
2. S. Watt Avenue & Wayne Court	A	A	A	A
-Southbound Left	B	A	B	A
-Westbound	C	D	F	F
3. S. Watt Avenue & Elder Creek Road	E	E	E	E

Source: DKS Associates, 2018

The traffic impact analysis for the original project estimated 170 A.M. peak hour trips and 151 P.M. peak hour trips. As discussed above, the proposed project is estimated to generate 136 A.M. peak hour trips and 147 P.M. peak hour trips. Thus, the proposed project would generate fewer trips than previously estimated. The Transportation Analysis also found that under the existing plus project conditions, daily vehicle miles travelled would decrease by a total of 22,851 from existing conditions on regional roads.

The previous traffic impact analysis for the Wayne Court Project concluded that with the addition of the project, traffic could degrade intersection operation conditions at the South Watt Avenue and Fruitridge Road intersection. The 2008 IS/MND includes mitigation measure Transportation-1, which will require the applicant pay a fair share towards signalization of the intersection of Fruitridge Road and South Watt Avenue.

Based on the Transportation Analysis for the proposed project, the number of daily trips and vehicle miles travelled are fewer than previously analyzed the increase in southbound left turn traffic from the proposed project would not result in degradation of LOS below the City's threshold. However, the increase in southbound left turn traffic at the Wayne Court and South Watt Avenue intersection could exacerbate delays for southbound through traffic and could result in motorists utilizing the shoulder and bike lane to bypass stopped left turn traffic. Because the intersection meets warrants for a traffic signal and a southbound lane, the City will implement Mitigation Measure 1, which will ensure the intersection operates at LOS B during the A.M and P.M. peak hours. Mitigation Measure 1 is written as follows.

Mitigation Measure 1: The applicant shall submit a signal design concept report to the Department of Public Works for review and approval prior to the submittal of any improvement plans involving traffic signal work. Additionally, prior to first building occupancy, the applicant shall install a traffic signal at Intersection 2, South Watt Avenue and Wayne Court. With construction of the traffic signal, a southbound left turn lane shall be provided, with a storage length of 275 feet. The intersection shall have the following lane configuration:

- Northbound approach-one through/right turn lane (same as existing);
- Southbound approach-one through lane, one left turn lane; and
- Westbound approach-one left turn/right turn lane (same as existing).

Based on the above, the increase in traffic volumes would result in LOS F conditions during the a.m. and p.m. peak hours for the stop-sign controlled Wayne Court approach. Long delays can result in motorists accepting inadequate gaps in traffic and unsafe movements, which is a safety concern. The increase in southbound left turn traffic exacerbates delays for southbound through traffic and can result in motorists utilizing the shoulder and bike lane to bypass stopped left turn traffic. However, implementation of Mitigation Measure 1 would result in installation of a warranted traffic signal at the intersection and address safety concerns. The proposed project would be required to implement Mitigation Measure 1 prior to building occupancy. In addition, because the total daily trips of the proposed is less than that anticipated by the original project, the proposed project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to transportation and circulation from what has been anticipated for the project site in the 2008 IS/MND.

Geology and Soils

The project site is situated on an undeveloped, 12-acre parcel. The terrain across the site has an overall slope of about 0.3 percent to the north with Morrison Creek located at the north boundary of the property. The California Geological Survey has mapped the underlying formation in the area of the project as Riverbank Formation, consisting of alluviums. Alluvium, soil deposited by a stream, consists of both fine particles and larger particles.

A Geotechnical Engineering Study was conducted in 2008 and updated in 2015. At the time of the 2008 geotechnical study, the suitability of the project site and capacity for proposed improvements were analyzed. The original Wayne Court Project concluded that the site conditions were adequate for construction of the project and would not result in adverse impacts related to geology or soils because the project would comply with the California Uniform Building Code and implement the applicable regulations and standard engineering practices.

Based on the data obtained from the 2015 field and laboratory studies, and on the results of the engineering analyses, the geotechnical report for the proposed project concluded that the site is still feasible from a geotechnical perspective. However, the new report found that after a review of historical aerial photographs and borings at six feet, marginally soft clays were encountered in the upper six feet within a historical drainage or irrigation channel. The report made the new recommendation to remove and over-excavate the unsuitable material, while scarifying the exposed subgrade and rebuild the area with engineered fill.

The remainder of the report resulted in similar conclusions as the previous 2008 IS/MND, which found seismic related risk is low, expansive soils are not present on the project site, and that the planned structures would be supported by the soils present.

Thus, the soil survey conducted for the proposed project would not alter the conclusions of the Wayne Court project in the 2008 IS/MND, and as per the City's requirements, site-specific recommendations from the most recent geotechnical report would be incorporated into the site plans prior to approval of the grading and building plans. Thus, the project would not result in any changes, new circumstances, or new information that would involve new significant impacts or substantially more severe impacts related to geology and soils from what has been anticipated for the project site in the 2008 IS/MND.

Remaining Environmental Resource Areas

The proposed project would include a total of two warehouses, each 109,668 sf, which is the same site plan as previously considered in the 2008 IS/MND. The 2008 IS/MND was analyzed under thresholds established

in 2002 by the City of Sacramento. Given the amount of time that has passed, the newest thresholds and assumptions were applied to the proposed project in order to more accurately assess the impacts of the proposed project.

The proposed project site plans are consistent with the site plans previously considered in the adopted 2008 IS/MND; therefore, the total required disturbance area would not change. In addition, the project would not include new drainage improvements beyond what was considered for the site in the 2008 IS/MND. Therefore, impacts related to agricultural resources, cultural resources, and hydrology would be the same as analyzed in the original Wayne Court Project. In addition, because the proposed project would include the same development intensity, impacts related to the following issue areas would be the same: aesthetics, light, and glare; public services and utilities; recreation; and growth-inducing impacts. Given that the project would include the same site plans, the project would result in the creation of a similar amount of net new impervious surfaces as was considered in the 2008 IS/MND. Because the size of the buildings and proposed use would not change, the proposed project is not expected to result in new or different impacts related to stormwater runoff or water quality. Approval of the previous IS/MND for the project required a stormwater pollution prevention plan (SWPPP) be prepared to control runoff and erosion during construction. Development of the proposed project would be required to comply with regulations involving the control of pollution in stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program and the City's NPDES permit.

A biological resources evaluation was performed for the original Wayne Court Project, which determined special-status species could be found on the project site. Because the proposed project would not change in size or development footprint, the impact to special-status species would remain the same. The proposed project would be subject to all of the same mitigation measures that were set forth in the 2008 IS/MND related to biological resources. Thus, as part of the proposed project, the project applicant would be required to perform preconstruction surveys for burrowing owls, migratory birds, and Swainson's hawk. Performance of the preconstruction surveys would ensure the proposed project does not impact special-status species.

It should be noted that per the Phase I and Phase II Environmental Site Assessments (ESA) prepared for the project site by Krazan and Associates in 2005, stockpiled debris were observed throughout the northern portion of the site. As part of the proposed project, the project applicant would be required to adhere to mitigation established by the 2008 IS/MND, including requirements to remove all stockpiled debris for proper disposal by a contractor, followed by a subsequent visual observation and assessment of the newly exposed ground surface by a person or firm qualified to perform Phase I ESAs. Given that the project site has been previously anticipated for development with warehouses, the proposed development, including removal of contaminated debris, would not result in new or more severe impacts related to hazards and hazardous materials than would have occurred under the current allowed development.

Environmental Findings

As presented in the discussions above, the proposed project would not result in any new significant information of substantial importance, new impacts, or an increase the severity of previously identified impacts associated with traffic, air quality, drainage, population and housing, light/glare, public services and utilities, biological resources, cultural resources, or hazardous materials that would require major revisions to the previous IS/MND. The feasibility of mitigation measures or alternatives previously identified would not be modified with implementation of the proposed project, and additional mitigation measures have been imposed on the proposed project sufficient to reduce any new impacts to a less-than-significant level. The proposed project would be required to implement all applicable mitigation measures set forth in the previous IS/MND. As a result, new information of substantial importance, which was not known and could not have

been known at the time the previous CEQA documents were prepared, has not come to light from what has been previously analyzed.

Conclusion

As established in the discussions above regarding the potential effects of the proposed Wayne Court Warehouses Project (DR18-342) , the proposed project would not result in any new significant information of substantial importance, new impacts, new or revised alternatives, or an increase in the severity of previously identified impacts that would require major revisions to the original 2008 IS/MND. As such, the proposed project would not result in any conditions identified in CEQA Guidelines Section 15162, and a subsequent IS/MND is not required.

Based on the above analysis, this Addendum to the previously-approved IS/MND for the project has been prepared.

Attachments:

A) 2008 Wayne Court Project MND
B) Air Quality and GHG Modeling
C) Geotechnical Investigation Update
D) Draft Transportation Analysis

APPENDIX A
2008 WAYNE COURT PROJECT MND

DEVELOPMENT SERVICES DEPARTMENT

CITY OF SACRAMENTO
CALIFORNIA

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MITIGATED NEGATIVE DECLARATION

The City of Sacramento, California, a municipal corporation, does hereby prepare, declare, and publish this Mitigated Negative Declaration for the following described project:

P07-127 – Wayne Court

The proposed project would construct two light industrial buildings totaling 220,000 square feet on approximately 12.04 acres on Wayne Court, east of South Watt Avenue, north of Alder Avenue, west of Hedge Avenue and south of Elder Creek. Specific entitlements include a Plan Review-New Site Plan to construct two light industrial buildings totaling 220,000 square feet in the Light Industrial Review (M-1S-R) zone.

The City of Sacramento, Development Services Department, Environmental Planning Services, has reviewed the proposed project and, on the basis of the whole record before it, has determined that there is no substantial evidence that the project, with mitigation measures as identified in the attached Initial Study, will have a significant effect on the environment. This Mitigated Negative Declaration reflects the lead agency's independent judgment and analysis. An Environmental Impact Report is not required pursuant to the Environmental Quality Act of 1970 (Sections 21000, et seq., Public Resources Code of the State of California).

This Mitigated Negative Declaration has been prepared pursuant to Title 14, Section 15070 of the California Code of Regulations and the Sacramento City Code.

A copy of this document and all supportive documentation may be reviewed or obtained at the City of Sacramento, Development Services Department, Environmental Planning Division, 300 Richards Boulevard, 3rd Floor, Sacramento, CA 95811. The public counter is open from 8:00 am to 4:00 pm; Monday through Friday.

Environmental Services Manager, City of Sacramento, California, a municipal corporation

By: _____

Wayne Court (P07-127)
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

This Initial Study has been prepared by the Development Services Department, Environmental Planning Services, 300 Richards Boulevard, 3rd Floor, Sacramento, CA 95811, pursuant to Title 14, Section 15070 of the California Code of Regulations; the Sacramento Local Environmental Regulations (Resolution 91-892) adopted by the City of Sacramento, and the Sacramento City Code.

This Initial Study is organized into the following sections:

SECTION I. - BACKGROUND: Provides summary background information about the project name, location, applicant, when the Initial Study was completed, and a project introduction.

SECTION II. - PROJECT DESCRIPTION: Includes a detailed description of the Proposed Project.

SECTION III. - ENVIRONMENTAL CHECKLIST AND DISCUSSION: Contains the Environmental Checklist form together with a discussion of the checklist questions. The Checklist Form is used to determine the following for the proposed project: 1) "Potentially Significant Impacts" that may not be mitigated to a less-than-significant level with the inclusion of mitigation measures, 2) "Potentially Significant Impacts Unless Mitigated" which could be mitigated with incorporation of mitigation measures, and 3) "Less-than-significant Impacts" which would be less-than-significant and do not require the implementation of mitigation measures.

SECTION IV. - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: Identifies which environmental factors were determined to have either a "Potentially Significant Impact" or "Potentially Significant Impacts Unless Mitigated," as indicated in the Environmental Checklist.

SECTION V. - DETERMINATION: Identifies the determination of whether impacts associated with development of the Proposed Project are significant, and what, if any, additional environmental documentation may be required.

ATTACHMENTS: **A** – Vicinity Map
B – Site Plan

SECTION I. BACKGROUND

File Number, Project Name:

P07-127, Wayne Court

Project Location:

The proposed project site is located east of South Watt Avenue, north of Alder Avenue, west of Hedge Avenue and south of Elder Creek. The project site includes Assessor's Parcel Number 062-0060-030.

Project Applicant, Project Planner, and Environmental Planner Contact Information:

Project Applicant
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Buzz Oates Construction
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Sacramento, CA 95828

Project Planner
Antonio Ablog, Associate Planner
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Environmental Planner
Kristin Ford, Assistant Planner
City of Sacramento, Development Services Department
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Introduction

The following Initial Study/Mitigated Negative Declaration has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 1500 *et seq.*). The City of Sacramento is the lead agency for the preparation of this Mitigated Negative Declaration for Wayne Court (P07-127).

The City has determined that a Mitigated Negative Declaration is the appropriate environmental document for the proposed project. This environmental review examines project effects identified as significant impacts on the environment and that may be substantially reduced or avoided by the adoption of revisions or conditions to the project. The project impacts would be reduced to less-than-significant levels with the implementation of appropriate mitigation measures. A Mitigated Negative Declaration is the proposed environmental document for this project.

This analysis may incorporate by reference all or portions of other documents (located on page 6 of this document, each of which is a matter of public record (CEQA Guidelines Section 15150(a)). These documents are available for public review at the City of Sacramento, Development Services Department, 300 Richards Boulevard, 3rd Floor reception, Sacramento, CA 95811. The public counter is open from 8:00 am to 4:00 pm; Monday through Friday.

Section 15130 (d) of the CEQA Guidelines states that "No further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or area-wide cumulative impacts of the proposed project have already been adequately addressed, as defined in 15152(f) (1), in a certified EIR for the plan." The proposed project is consistent with the General Plan designation for the site, and the SGPU adequately addressed the cumulative impacts that could be associated with the project.

The City is soliciting views of interested persons and agencies on the content of the environmental information presented in this document. Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but no later than the 30-day review period ending **June 23, 2008.**

Please send written responses to:

Kristin Ford, Assistant Planner
City of Sacramento, Development Services Department
300 Richards Boulevard
Sacramento, CA 95811
(916) 808-8419
FAX: 808-1077

SECTION II. PROJECT DESCRIPTION

Environmental Setting

The project site is composed of approximately 12.04 vacant acres. The site is bounded by industrial to the east and west, Morrison Creek to the north and open space to the south (APN 062-0060-030).

The project site topography is level and approximately 50 feet above mean sea level. The proposed site consists of disturbed, mostly bare ground. Vegetation, where present, is ruderal. The site is disturbed from past cultivation and more recent use of the site for storage materials.

Sycamore Environmental Consultants, Inc prepared a Biological Resources Evaluation and a wetland survey for the proposed project site. No special status species were observed. The results of the survey and wetland survey are discussed in the Biological Resources section of the Mitigated Negative Declaration.

Krazan and Associates completed a Phase I Environmental Site Assessment at the proposed site on January 27, 2005. During the site reconnaissance, numerous stockpiles of construction and demolition debris of unknown origin were observed throughout a significant area of the northern portion of the subject site. No evidence of hazardous materials storage/waste was observed within the on-site stockpiled debris.

The proposed project is located in an urban, built-up area. There are no agricultural uses on, or adjacent to, the project site.

Project Description

The proposed project is located in the (M-1S-R) zone which requires Planning Commission Plan Review for buildings greater than ten thousand (10,000) square feet in gross floor area. The proposed project would consist of two (2) 110,000 square feet buildings on 12 acres for light industrial use.

References

City of Sacramento. 1988. *General Plan Update.*

City of Sacramento. 1988. *Sacramento General Plan Update Draft Environmental Impact Report* (SGPU DEIR).

City of Sacramento Department of Utilities and County of Sacramento Water Resources Division, 2000. *January 2000 Guidance Manual for On-Site Stormwater Quality Control Measures.*

City of Sacramento, Development Services Department Engineering Division. January 2008. *Wayne Court Industrial Traffic Impact Analysis.*

Krazan and Associates, Inc. Site Development Engineers. 2005. January 27, 2005 *Phase I Environmental Site Assessment, 12-Acre Industrial Property, Hedge Avenue between Fruitridge and Elder Creek Roads, Sacramento, California.*

Sacramento Metropolitan Air Quality Management District (SMAQMD) 2004. *Guide to Air Quality Assessment in Sacramento County.*

Sycamore Environmental Consultants, Inc. 2008. *Biological Resources Evaluation for the Wayne Court Project, City of Sacramento, CA.*

SECTION III. ENVIRONMENTAL CHECKLIST AND DISCUSSION

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
1. LAND USE *Would the proposal:* A) Result in a substantial alteration of the present or planned use of an area?			✓
B) Affect agricultural resources or operation (e.g., impacts to soils or farmlands, or impact from incompatible land uses?)			✓

Environmental Setting

The project site is currently vacant. The area surrounding the site consists of land developed with industrial uses and vacant land. The proposed project is zoned Light Industrial/Special Permit/Review (M-1 S-R). Property surrounding the site is zoned Light Industrial/Special Permit/Review (M-1 S-R) to the north, east and south. The property to the west of the proposed project is zoned Heavy Industrial/Special Permit/Review (M-2 S-R). The M-1 zone permits most fabricating activities, with the exception of heavy manufacturing and the processing of raw materials. The M-2 zone permits the manufacturing or treatment of goods from raw materials.

The existing General Plan land use designation for the site is Heavy Commercial/Warehouse. The existing South Sacramento Community Plan land use designation for the site is Industrial.

Standards of Significance

For the purposes of this analysis, an impact is considered significant if the project would substantially alter an approved land use plan that would result in a physical change to the environment. Impacts to the physical environment resulting from the proposed project are discussed in subsequent sections of this document.

Answers to Checklist Questions

Question A

The project proposes industrial development containing two (2) 110,000 square feet of building area on approximately 12.04 vacant acres. The project proposes development of the site with uses that are consistent with the current land use designations and zoning. Impacts to the land use are ***less than significant***.

Question B

The project site does not include agricultural uses. No commercial agriculture operations exist in the project vicinity. Land uses include light industrial to the south, east and north and heavy industrial to the west.

Findings

The proposed project would result in a less-than-significant impact to the land use of the proposed site and surrounding area and to agricultural resources.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
2. POPULATION AND HOUSING *Would the proposal:* A) Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?			✓
B) Displace existing housing, especially affordable housing?			✓

Environmental Setting

The project site is currently zoned M-1 S-R (Light Industrial/Special Permit/Review). The land use designation for the City of Sacramento General Plan is Heavy Commercial/Warehouse. The South Sacramento Community Plan land use designation for the site is industrial. The land use south, north and west of the proposed project is M-1 S-R. The land use for the adjacent property to the east is M-2 S-R.

Standards of Significance

An impact is considered significant if the project would induce substantial growth that is inconsistent with the approved land use plan for the area or displace existing affordable housing.

Answers to Checklist Questions

Questions A

The project proposes develop approximately 12.04 vacant acres with an industrial development containing two (2) buildings of 110,000 square feet. The proposed project is consistent with the General Plan and South Sacramento Community Plan designations for the site.

The proposed project includes connections to water, sewer and storm drains. These improvements would serve only the site, and would not provide utilities to an area not previously served.

The project would not directly or indirectly induce substantial growth in the project area and the impact is ***less than significant***.

Question B

The project site is vacant and not in agricultural use. No commercial agricultural operations exist in the project vicinity. The site is bounded by industrial to the east and west, Morrison Creek to the north and open space to the south. The proposed project site is not in agricultural use and therefore, the impact would be ***less than significant***.

Findings

The proposed project would develop the project site in a manner that is consistent with the General Plan and community plan designations for the site. The project would not induce growth that is greater than that anticipated within the area's approved land used plans. The impacts to population and housing would be less than significant.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
3. SEISMICITY, SOILS, AND GEOLOGY *Would the proposal result in or expose people to potential impacts involving:* A) Seismic hazards?			✓
B) Erosion, changes in topography or unstable soil conditions?			✓
C) Subsidence of land (groundwater pumping or dewatering)?			✓
D) Unique geologic or physical features?			✓

Environmental Setting

Seismicity. The Sacramento General Plan Update (SGPU) Draft Environmental Impact Report (DEIR) identifies all the City of Sacramento as being subject to potential damage from earthquake ground shaking at a maximum intensity of VIII of the Modified Mercalli scale (SGPU DEIR, 1987, T-16). No active or potentially active faults are known to cross within close proximity to the project site.

Topography. Terrain of the proposed site is relatively flat. The elevation of the proposed project is approximately 50 feet above sea level.

Geology. The surface geology of the project site consists of Quaternary alluvium. Quaternary alluvium consists of gravel, sand, silt and clay deposited by present day stream and river systems.

Soils. According to the Soils Survey of Sacramento County prepared by the US Department of Agriculture Soil Conversation Services, the project site is primarily underlain with San Joaquin silt loam. The San Joaquin soil is moderately deep and moderately well-drained on low terraces. Permeability is very slow, and shrink-swell potential is high. The hazard from water erosion is moderate for San Joaquin soil. Water is perched above the claypan for short periods after heavy rainfall.

Standards of Significance

An impact is considered significant if it allows a project to be built that would introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against such hazards.

Answers to Checklist Questions

Question A

Because no active or potentially active faults are known in the project area, the proposed project would not be subject to hazards due to the rupture of a known earthquake fault.

The SGPU determined that an earthquake of Intensity VII on the Modified Mercalli Scale is a potential event due to the seismicity of the region. Such an event would cause alarm and moderate structural damage could be expected. People and property on the site could be subject to seismic hazards, such as groundshaking, liquefaction, and settlement, which could result in damage or failure of components of the proposed project. This seismic activity could disrupt utility service due to damage or destruction of infrastructure, resulting in unsanitary or unhealthful conditions or possible fires or explosion from damaged natural gas lines.

The City is located in Zone 3 of the Uniform Building Code (UBC) Seismic Risk Map. The City requires that all new structures be designed and constructed consistent with the UBC's Zone 3 requirements. Compliance with the California Uniform Building Code (CUBC) (Title 24) would minimize the potential for adverse effects on people and property due to seismic activity by requiring the use of earthquake protection standards in construction.

Implementation of applicable regulations, codes, and standard engineering practices would mitigate significant constraints on development of the proposed project site related to groundshaking or secondary seismic hazards. The impacts due to seismic activity would be ***less than significant*** and no mitigation is required.

Question B

Topography of the project site is relatively flat, and changes in topography would not be substantial because the project does not propose significant site grading. San Joaquin silt loam type soil has a moderate hazard of erosion. The City of Sacramento Department of Utilities would require Best Management Practices (BMP's) (e.g., use of erosion controlled barriers, hydro-seeding) to minimize erosion and sedimentation during grading).

The applicant/developer would be required to comply with the City's Grading, Erosion and Sediment Control Ordinance (Title 15). This ordinance requires the applicant to prepare erosion and sediment control plans for both construction and operation impacts of the proposed project, prepare preliminary and final grading plans, and prepare plans to control urban runoff pollution from the project site. The ordinance also requires preparation of a Post Construction Erosion and Sediment Control Plan to minimize the increase of urban runoff pollution caused by development of the area. Storm drain maintenance is required at all drain inlets. The project would include on-site source and treatment controls as required by the updated Table 2-1 Stormwater Quality Standards for Development Projects in the Guidance Manual for On-Site Stormwater Quality Control Measures (January 2000).

Compliance with the standard City requirements would ensure that impacts for erosion, changes in topography or exposure to unstable soil conditions are ***less than significant***.

Question C

According the SGPU DEIR, no significant subsidence of land has occurred within the City of Sacramento (T-13). State regulations and standards related to geotechnical considerations are reflected in the Sacramento City Code. Construction and design would require complying with the latest City-adopted code at the time of construction, including the Uniform Building Code. The Code would require construction and design of buildings to meet standards that would reduce risks associated with subsidence or liquefaction.

The proposed industrial buildings do not include below-grade features, such as basements, which would require extensive excavation. Well data from the State of California Department of Water Resources indicate the depth of the groundwater approximately one mile from the proposed project is approximately 50 feet below the ground surface. Given the depth of the groundwater in proximity, there is no chance of encountering groundwater during excavation. Construction of the proposed project is not anticipated to require groundwater pumping or dewatering.

Based on this analysis, there is no potential for subsidence of land due to the removal of groundwater and the impact is ***less than significant***.

Question D

No recognized unique geologic features or natural physical features exist on the project site. Therefore, related impacts to such features would be ***less than significant***.

Findings

The proposed project would have a ***less-than-significant*** impact due to seismicity, soils, or geology.

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
4. WATER *Would the proposal result in or expose people to potential impacts involving:* A) Changes in absorption rates, drainage patterns, or the rate and amount of surface/stormwater runoff (e.g. during or after construction; or from material storage areas, vehicle fueling/maintenance areas, waste handling, hazardous materials handling or storage, delivery areas, etc.)?			✓
B) Exposure of people or property to water related hazards such as flooding?			✓
C) Discharge into surface waters or other alterations to surface water quality that substantially impact the temperature, dissolved oxygen, turbidity, beneficial uses of receiving waters or areas that provide water quality benefits, or cause harm to the biological integrity of the waters?			✓
D) Changes in flow velocity or volume of stormwater runoff that cause environmental harm or significant increases in erosion of the project site or surrounding areas?			✓
E) Changes in currents, or the course or direction of water movements?			✓
F) Change in the quantity of ground waters, either through direct additions or withdrawal, or through interception of an aquifer by cuts or excavations or through substantial loss of recharge capability?			✓
G) Altered direction or rate of flow of groundwater?			✓
H) Impacts to groundwater quality?			✓

Environmental Setting

Drainage/Surface Water. The project site is located within drainage shed G260. The proposed project drainage flows into Morrison Creek. There is not a city sump system located near Wayne Court. There is a 15" drain line in Wayne Court which would require an extension of the public line to the property. A drainage study will be required by the Department of Utilities to show that the drainage system has the capacity to accept drainage.

Water Quality. The City's municipal water is received from the American River and Sacramento River. The water of the American River is considered to be of very good quality. The Sacramento River water is considered to be of good quality, although higher sediment loads and extensive irrigated agriculture upstream of Sacramento tends to degrade the water quality. During the spring and fall, irrigation tail waters are discharged into drainage canals that flow to the river. In the winter, runoff flows over these same areas. In both instances, flows are highly turbid and introduce large amounts of herbicides and pesticides into the drainage canals, particularly rice field herbicides in May and June. The aesthetic quality of the river is changed from relatively clear to turbid from irrigation discharges.

The Central Valley Regional Water Quality Control Board (RWQCB) has primary responsibility for protecting the quality of surface and groundwater within the City. The RWQCB's efforts are generally focused on preventing the introduction of the new pollutants into bodies of water that fall under its jurisdiction.

The RWQCB is concerned with all potential sources of contamination that may reach both these subsurface water supplies and the rivers through direct surface runoff or infiltration. Storm water runoff is collected in City drainage facilities and is sent directly to the Sacramento River. The RWQCB implements water quality standards and objectives that are in keeping with the State of California Standards.

The City of Sacramento has obtained a National Pollutant Discharge Elimination System (NPDES) permit from the State Water Resources Control Board under the requirements of the Environmental Protection Agency and Section 402 of the Clean Water Act. The goal of the permit is to reduce pollutants found in storm runoff. The general permit requires the permittee to employ Best Management Practices (BMP's) before, during, and after construction. The primary objective of the BMP's is to reduce non-point source pollution into waterways. These practices include structural and source control measures for residential areas and BMP's for construction sites. BMP mechanisms minimize erosion and sedimentation, and prevent pollutants such as grease from entering the storm water drains. BMP's are approved by Department of Utilities before beginning conduction (the BMP document is available form the Department of Utilities, Engineering Services Division, 1395 35th Avenue, Sacramento, CA). Components of BMP's include:

- maintenance of structures and roads;
- flood control management;
- comprehensive development plans;
- grading, erosion and sediment control measures;
- inspection and enforcement procedures;
- reduction of pesticide use; and

- site-specific structural and non-structural control measures.

Flooding. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map revised as of February 18, 2005 indicates that the project site is within the Flood Zone X. The flood zone identifies areas of 500-year flood and areas protected by levees from 100-year flood. Within the X zone, there are no requirements to elevate or flood proof structures.

Standards of Significance

Surface/Ground Water. For purposes of this environmental document, an impact is considered significant if the proposed project would substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increased sediments and other contaminants generated by consumption and/or operation activities.

Flooding. An impact is significant if it would substantially increase exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

Answers to Checklist Questions

Questions A, C, and D

Development of the proposed project would alter absorption rates and surface runoff through the addition of paved surfaces and buildings (impervious surfaces). The project site is located within drainage shed G260. The proposed project drainage flows into Morrison Creek. There is not a city sump system located near Wayne Court. There is a 15" drain line in Wayne Court which would require an extension of the public line to the property. A drainage study will be required by the Department of Utilities to show that the drainage system has the capacity to accept drainage.

During construction, the applicant/developer would be required to comply with the City's Grading, Erosion and Sediment Control Ordinance (Title 15). This ordinance requires the applicant to prepare erosion and sediment control plans for both during and post construction of the proposed project, prepare preliminary and final grading plans, and prepare plans to control urban runoff pollution from the project site during construction. This ordinance also requires that a Post Construction Erosion and Sediment Control Plan be prepared to minimize the increase of urban runoff pollution caused by development of the area. The project is not served by a regional water quality basin but is greater than an acre therefore both source control measures and onsite treatment control measures are required. Improvements plans must include both source control measures and onsite treatment control measures selected for the site as required by the update Table 3-2 Stormwater Quality Control Measure Selection Matrix in the Stormwater Quality Design Manual (May 2007).

General Stormwater Construction Permit

Development of the site would be required to comply with regulations involving the control of pollution in storm-water discharges under the National Pollutant Discharge Elimination System (NPDES) program (Section 402(p), Clean Water Act) and the City's NPDES permit.

The development work area is greater than one acre, and the developer would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP), which would include information on runoff, erosion control measures to be employed, and any toxic substance to be used during

construction activities. Surface runoff and drainage primarily limited to areas disturbed by grading during construction. Short term, construction-related, erosion control would be readily available by means of Best Management Practices (BMP's) (e.g., use of erosion control barriers, hydro-seeding). Long term erosion control would be accomplished by establishing vegetation and controlling surface water flow.

The SWRCB requires that the best available technology that is economically achievable and best conventional pollutant control technology be used to reduce pollutants. The features would be discussed in the SWPPP. A monitoring program would be implemented to evaluate the effectiveness of the measures included in the SWPPP. The RWQCB may review the final drainage plans for the project components.

Compliance with all applicable regulatory requirements, designed to maintain and improve water quality from development activities, would ensure that the proposed project would have a ***less-than-significant*** impact on drainage and water quality.

Question B

The project site is located within Flood Zone X. The Flood Zone identifies areas of 500-year flood and areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 100-year flood. Impacts from flooding would be ***less than significant.***

Question E

Stormwater from the project site would flow into the SRCSD system, which ultimately flows into the Sacramento River. The proposed project would not result in the direct discharge of storm water into either the Sacramento or American Rivers, both of which are approximately three miles from the proposed project site.

The proposed project site is currently vacant and undisturbed with no impervious surface area. Because the proposed project would not change currents, course, or direction of water movements and would be subject to grading and drainage controls in the design process the impacts are anticipated to be ***less than significant***

Questions F-H

Water for the proposed project would by provided by the City of Sacramento, which receives most of its water from surface water sources (for more detail, see the Utilities section). The project would not include large subsurface features or wells, and would consequently not affect the direction or rate of flow of ground water. The proposed project would result in a ***less-than-significant*** impact on groundwater.

Findings

This project would result in ***less-than-significant*** impacts to water resources.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
5. AIR QUALITY *Would the proposal:* A) Violate any air quality standard or contribute to an existing or projected air quality violation?			✓
B) Exposure of sensitive receptors to pollutants?			✓
C) Alter air movement, moisture, or temperature, or cause any change in climate?			✓
D) Create objectionable odors?			✓

Environmental Setting

The project area is located in the Sacramento Valley Air Basin, which is bounded by the Sierra Nevada on the east and the Coast Range on the west. Prevailing winds in the project area originate primarily from the southwest. These winds are the result of marine breezes coming through the Carquinez Straits. These marine breezes diminish during the winter months, and winds from the north occur more frequently at this time. Air quality within the project area and surrounding region is largely influenced by urban emission sources.

Regulatory Setting

Air quality management responsibilities exist at local, state, and federal levels of government. Air quality management planning programs were developed during the past decade generally in response to requirements established by the federal Clean Air Act (CAA) and the California Clean Air Act of 1988 (CCAA).

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is responsible for control of stationary- and indirect-source emissions, air monitoring, and preparation of air quality attainment plans in the Sacramento County portion of the Sacramento Valley Air Basin (SVAB).

Both the State of California and the federal government have established ambient air quality standards for several different pollutants. For some pollutants, separate standards have been set for different periods of the year. Most standards have been set to protect public health, although some standards have been based on other values, such as protection of crops, protection of materials, or avoidance of nuisance conditions.

The pollutants of greatest concern in the project area are carbon monoxide (CO), ozone, and inhalable particulate matter smaller than or equal to 10 microns in diameter (PM_{10}).

Based on ozone levels recorded between 1988 and 1991, the Sacramento County portion of the SBAB was classified by the CAA as a severe non-attainment area, with attainment required by 1999. Sacramento County is still classified as a non-attainment area for ozone.

Sacramento County is federally designated as a moderate non-attainment area for PM_{10}. Monitoring data have verified that no violation of the federal PM_{10} standards has occurred in the four most recent years for which data are available, allowing the SMAQMD to request a re-designation from non-attainment to attainment of the federal standards. SMAQMD is currently working with the EPA in preparing a report for the re-designation from non-attainment to attainment, and it expected to be completed within the next few years.

For CO, the region is designated as unclassified attainment by the EPA, and is also designated as being in attainment by the State. The State of California has designated the region as being a serious non-attainment area for ozone, and a non-attainment area for PM_{10}.

Standards of Significance

The SMAQMD has adopted the following thresholds of significance:

Ozone. An increase of nitrogen oxides (NO_x) above 85 pounds per day for short-term effects (construction) would result in significant impact. An increase of either ozone precursor, nitrogen oxides (NO_x) or reactive organic gases (ROG), above 65 pounds per day for long-term effects (operation) would result in a significant impact.

Particulate Matter. The threshold of significance for PM_{10} is a concentration based threshold equivalent to the California Ambient Air Quality Standard (CAAQS). For PM_{10}, a project would have a significant impact if it would emit pollutants at a level equal to or greater than five percent of the CAAQS (50 micrograms/cubic meter for 24 hours) if there were an existing or projected violation; however, if a project is below the ROG and NO_x thresholds, it can be assumed that the project is below the PM_{10} thresholds well SMAQMD, 2004.

Carbon Monoxide. The pollutant of concern for sensitive receptors is carbon monoxide (CO). Motor vehicle emissions are the dominant source of CO in Sacramento County (SMAQMD, 2004). For purposes of this environmental analysis, sensitive receptor locations generally include sidewalks and residences. Carbon monoxide concentrations are considered significant if they exceed the 1-hour state ambient air quality standard of 20.0 parts per million (ppm) or the 8-hour state ambient standard of 9.0 ppm.

Project-related air emissions would have a significant effect if they result in concentrations that

create either a violation of an ambient air quality standard or contribute to an existing air quality violation.

Answers to Checklist Questions

Questions A and B

Operational Impacts:

The URBEMIS 2007 9.2.4 model was used to calculate estimated emissions for the operation of the proposed project. Estimated ROG and NO_x summer emissions for using the URBEMIS 2007 9.2.4 model were calculated to be approximately 18.76 lbs/day and 17.45 lbs/day, respectively, which is below the 65 lbs/day threshold. The estimated ROG and NO_x winter emissions for using the URBEMIS 2007 9.2.4 model were calculated to be approximately 16.34 lbs/day and 26.33 lbs/day, respectively.

Project-Related Construction Impacts: The URBEMIS 2007 9.2.4 model was used to calculate estimated emissions for the construction of the proposed project. Based on the estimated emissions from running the URBEMIS model, the proposed project is not likely to exceed the short-term emissions threshold of 85 lbs/day for NO_x. Estimated NO_x summer and winter emissions using the URBEMIS 2007 9.2.4 model were calculated to be approximately 61.02 lbs/day, which is below the 85 lbs/day threshold.

Construction emissions do not exceed the maximum amount to be considered potentially significant the NO_x screen level. No potentially significant impacts to air quality due to construction source emissions are expected for these criteria pollutants.

The SMAQMD 2004 Guide to Air Quality Assessment states on page 3-2 that if the project's NO_x mass emissions from heavy-duty, mobile sources is determined not potentially significant using the recommended methodologies for estimating emissions (Manual Calculation, URBEMIS, and Roadway Construction Model), the Lead Agency may assume that exhaust emissions of other pollutants from operation of construction equipment and worker commute vehicles are also not significant. The URBEMIS 2007 model indicated that the project would not exceed the NO_x threshold and the analysis of other criteria pollutant emissions is not included in this discussion.

Construction activities would be required to comply with SMAQMD's Rule 403 on Fugitive Dust, which states that a person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions include, but are not limited to:

- the use of water or chemicals for control of dust, where possible, during construction operations (including roadways), or during the clearing of land;
- the application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces, which can give rise to airborne dusts;
- other means approved by the Air Pollution Control Officer.

The project, with mitigation, would comply with the air quality standards as established by SMAQMD, and would result in a ***less-than-significant*** impacts to air quality

Question C

The area surrounding the proposed project site is relatively flat. The existing built environment consists of industrial to the east and west, Morrison Creek to the north and open space to the south. The proposed structures are not of sufficient size to affect air movement or create shading impacts on neighboring properties. The proposed project would result in a ***less-than-significant*** impact related to changes in climate.

Question D

The predominant source of power for construction is diesel engines. Exhaust odors from diesel engines, as well as emissions associated with asphalt paving and the application of architectural coatings may be considered offensive. Because odors would temporary and would disperse rapidly with distance from the source, construction-generated odors would not result in the frequent exposure of the on-site receptors to objectionable odors emissions. As a result, short-term construction-related odors would be considered ***less than significant.***

Findings

The project would have a ***less-than-significant*** impact on air quality with the incorporation of compliance with the regulatory requirements and the above mitigation measures.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
6. TRANSPORTATION/CIRCULATION *Would the proposal result in:* A) Increased vehicle trips or traffic congestion?			✓
B) Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			✓
C) Inadequate emergency access or access to nearby uses?			✓
D) Insufficient parking capacity on-site or off-site?			✓
E) Hazards or barriers for pedestrians or bicyclists?			✓
F) Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?			✓
G) Rail, waterborne or air traffic impacts?			✓

Environmental Setting

The existing roadway component of the transportation system within the study area is described below.

Existing Roadways

Regional automobile access to the site is provided primarily by South Watt Avenue. Access to and from South Watt Avenue is provided at Fruitridge Road. Local automobile access is provided by a system of arterial and collector roadways in the project vicinity. Arterial roadways include Franklin Boulevard and Mack Road.

South Watt Avenue is a four-lane arterial road that runs north to south. Parking is not permitted in close proximity of the project site.

Fruitridge Road is a two to four lane arterial road that runs west to east from the freeway I-5 to Mayhew Road in the County of Sacramento.

Elder Creek Road is an east-west roadway between Stockton Boulevard in the west and Excelsior Road in the east. West of Stockton Boulevard, Elder Creek Road becomes 47th Avenue.

Wayne Court is a cul-de-sac 2-lane local street. The project is proposing access to the development site to be from Wayne Court. Wayne Court terminates at South Watt Avenue.

Standards of Significance

The following Standards of Significance have been established in assessing the impacts of proposed projects on the transportation facilities.

Signalized and unsignalized Intersections:

(1). An impact to the intersections is considered significant if the Project causes the LOS of the intersections to degrade from LOS C or better to LOS D or worse.

(2). For intersections that are already operating at LOS D, E, or F without the Project, an impact is significant if the implementation of the Project increases the average delay by 5 seconds or more at an intersection.

Transit Facilities:

An impact is considered significant if the implementation of the project will cause one or more of the following:

(1). The project-generated ridership, when added to the existing or future ridership, exceeds existing and/or planned system capacity. Capacity is defined as the total number of passengers the system of buses and light rail vehicles can carry during the peak hours of operation.

(2). Adversely affect the transit system operations or facilities in a way that discourages ridership (e.g., removes shelter, reduces park and ride).

Transit Facilities:

An impact is considered significant if the implementation of the project will cause one or more of the following:

(3). The project-generated ridership, when added to the existing or future ridership, exceeds existing and/or planned system capacity. Capacity is defined as the total number of passengers the system of buses and light rail vehicles can carry during the peak hours of operation.

(4). Adversely affect the transit system operations or facilities in a way that discourages ridership (e.g., removes shelter, reduces park and ride).

Bicycle Facilities:

An impact is considered significant if the implementation of the project will cause one or more of the following:

(1). eliminate or adversely affect an existing bikeway facility in a way that discourages the bikeway use;

(2). interfere with the implementation of a proposed bikeway;

(3). result in unsafe conditions for bicyclists, including unsafe bicycle/pedestrian or bicycle/motor vehicle conflicts.

Pedestrian Facilities: An impact is considered significant if the project will adversely affect the existing pedestrian facility or will result in unsafe conditions for pedestrians, including unsafe pedestrian/bicycle or pedestrian/motor vehicle conflicts.

Answers to Checklist Questions

Question A

Trip generation was estimated using the ITE's Trip Generation, Seventh Edition. The total number of additional trips estimated for the proposed project is 1,541 daily vehicle trips, 170 a.m. peak-hour trips and 151 p.m. peak-hour trips.

A traffic study titled "Wayne Court Industrial Traffic Impact Analysis" was prepared by Development Engineering for the proposed project. The study indentified one potential impact from transportation and circulation regarding intersections. The changes in intersection operation conditions with the addition of the project generated traffic impacts at the intersection of Fruitridge Road and South Watt Avenue. The mitigation measure below would ensure the LOS would not result in the degradation of intersections and would reduce the impact of the project to a ***less-than-significant*** level.

Transportation-1 The applicant shall pay a fair share towards signalization of the intersection of Fruitridge Road and South Watt Avenue.

Questions B & E

Pursuant to section 16.48.110 of the City of Sacramento Code, improvements shall be designed and constructed to City standards in place at the time that the Building Permit is issued. All improvements shall be designed and constructed to the satisfaction of the Development Engineering Division. There would be no hazards to safety from design features or incompatible uses.

The proposed project would not result in unsafe conditions for pedestrians, including unsafe bicycle/pedestrian or pedestrian/motor vehicle conflicts. Impacts of the project related to design hazards or hazards to bicyclist/pedestrians would be ***less than significant***.

Question C

Existing road infrastructure provides adequate emergency access to the proposed project site. The project site shall be designed to appropriate standards, to the satisfaction of the City of Sacramento's Development Services Department, Development Engineering Division and Fire Department. Potential emergency access impacts are ***less than significant***.

Question D

City Code Section 17.64.020 identifies the parking requirements by land use type. The project provides 231 spaces, and complies with the code requirements. There is space for grading equipment and construction workers to park on-site during construction and for use as a staging area for the project. The project would have a ***less-than-significant*** impact on parking.

Question F

The nearest bus service is provided at Florin Perkins Road and Fruitridge Road by Regional Transit route 61. Route 61 connects with the Fruitridge light rail station. The proposed project would not interfere with existing modes of alternative transportation or decrease the level of service provided by Regional Transit and the impact is ***less than significant***.

Question G

There are no railroad tracks or navigable waterways within, or adjacent to the project site. Impacts to rail or waterways would be ***less than significant***.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
7. BIOLOGICAL RESOURCES *Would the proposal result in impacts to:* A) Endangered, threatened or rare species or their habitats (including, but not limited to plants, fish, insects, animals and birds)?		✓	
B) Locally designated species (e.g., heritage or City street trees)?			✓
C) Wetland habitat (e.g., marsh, riparian and vernal pool)?			✓

Environmental Setting

The following discussion is based on the "Biological Resources Evaluation for the Wayne Court Project, City of Sacramento, CA." prepared by Sycamore Environmental Consultants (SEC) on April 24, 2008.

Site Description

The proposed project surrounded by industrial to the east and west, Morrison Creek to the north and open space to the south. The project site is an approximately 12.04 acres, and is located on the Carmichael USGS topographic quad. The proposed project is located approximately 50 feet above sea level and consists of one parcel located at the end of Wayne Court. The parcel is currently vacant. The site consists of disturbed, mostly bare, ground. Vegetation where present is ruderal. The site is highly disturbed from past cultivation and general neglect. The proposed project is spray annually with herbicide for fire control. There are four threes on the project site; one almond tree, two silver maple trees and one native valley oak.

Special-Status Species

The Biological Resources Evaluation for the Wayne Court Project, dated April 24, 2008 SEC states that the proposed project site does not contain;

-Vernal pools or other seasonal wetlands, and does not provide habitat for special-status species that occur in the surrounding region,
-Elderberry shrubs that may provide habitat for the Valley elderberry longhorn beetle,
-Observed burrowing owls or signs of occupied burrows.

The Biological Resources Evaluation indicates that the project site contains potential habitat for some species protected under the Department of Fish and Game Code 3503.5 and/or the Migratory Bird Treaty Act. No nests were observed on the proposed site.

The following is habitat found adjacent the project site;

-Year-round foraging habitat for the Northwestern pond turtle in Morrison Creek; and
-Potential habitat for the Sandford's arrowhead in Morrison Creek.

Heritage Trees

Chapter 12.56 of the City of Sacramento Code protects City trees and Chapter 12.64 of the City Code protects heritage trees. Chapter 12.56 defines a City tree as any tree growing in a public street right-of-way. Chapter 12.64 of the City Code defines a heritage tree as (1) Any tree of any species with a trunk circumference of one hundred (100) inches or more, which is of good quality, in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species, (2) Any native *Quercus* species, *Aesculus californica* or *Platanus racemosa*, having a circumference of thirty-six (36) inches or greater when a single trunk, or a cumulative circumference of thirty-six (36) inches or greater when a multi-trunk, (3) Any tree thirty-six (36) inches in circumference or greater in a riparian zone, and (4) any tree, grove of trees or woodland trees designated by resolution of the City Council to be of special historical or environmental value or of significant community benefit.

Wetlands

Sycamore Environmental Consultants prepared a wetland survey for the Wayne Court Project in the City of Sacramento. A data point taken in the lowest area of the proposed site does not meet the Army Corps of Engineers three-parameter test for wetlands. Morrison Creek, a "waters of the U.S.", under the federal Clean Water Act, is north of the proposed project. The survey found that the proposed project does not contain any vernal pools or any other seasonal wetlands. The proposed project does not provide habitat for special-status vernal pool species that occur in the surround region.

Standards of Significance

For purposes of this environmental document, an impact would be significant if any of the following conditions or potential thereof, would result with implementation of the proposed project:

- Creation of a potential health hazard, or use, production or disposal of materials that would pose a hazard to plant or animal populations in the area affected;
- Substantial degradation of the quality of the environment, reduction of the habitat, reduction of population below self-sustaining levels of threatened or endangered species of plant or animal;
- Affect other species of special concern to agencies or natural resource organizations (such as regulatory waters and wetlands); or
- Violate the Heritage Tree Ordinance (City Code Chapter 12.64).

For the purposes of this document, "special-status" has been defined to include those species, which are:

- Listed as endangered or threatened under the federal Endangered Species act (or

formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (Section 1901);
- Designated as fully protected, pursuant to California Fish and Game Code (Section 3511, 4700, or 5050);
- Designated as species of concern by U.S. Fish and Wildlife Service (USFWS), or as species of special concern to California Department of Fish and Game (CDFG);
- Plants or animals that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA);

Answers to Checklist Questions

Question A

Special-Status Species

The findings in the biological resources report prepared for the proposed project site concluded that no special- species were identified at the site, therefore no impacts to special-status species would occur.

Burrowing Owls

Although the survey found no evidence of nesting or foraging burrowing owls at the project site, the proximity of active foraging and nesting sites close to the project site indicates that there is the potential for owls to utilize the site in the future. Implementation of Mitigation Measure B-1 and B-2 would ensure a ***less-than-significant*** impact to burrowing owl foraging and nesting habitat.

Biological Resources-1 Prior to issuance of grading permits, the applicant shall retain a qualified biologist to conduct preconstruction surveys of suitable burrowing owl habitat within the project site within 30 days prior to construction to ensure that no burrowing owls have become established at the site. If ground disturbing activities are delayed or suspended for more that 30 days after the preconstruction survey, the site shall be re-surveyed. If no burrowing owls are located, then no further mitigation is required.

Biological Resources-2 If located, occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by California Department of Fish and Game (CDFG) verifies through noninvasive methods that either the birds have not begun egg-laying and incubation; or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Birds of Prey and Migratory Birds

The Department of Fish and Game Code 3503.5 protects all birds in the order of Falconiformes and Strigiformes (collectively known as birds of prey). Many birds, including migratory species and other species with ranges that cross international borders, are protected under the federal Migratory Bird Act (MTBA) of 1918. The MBTA makes it unlawful to take, possess, buy, sell,

purchase, or barter any migratory bird listed in the 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA applies to construction activities and construction-related disturbance. The proposed project provides potential foraging and/or nesting habitat for special-status birds. Implementation of Mitigation Measure B-3 would ensure a less-than-significant impact to special-status birds and birds of prey.

Biological Resources-3 To mitigate impacts to Birds of Prey, including those listed under the MBTA, during the nesting season (February 1 through September 15), the project applicant(s) shall retain a qualified biologist to conduct preconstruction surveys and to identify active nests on and within 0.5 mile of the project site. The surveys shall be conducted prior to the approval of grading and/or improvement plans (as applicable) and no more than 30 days before the beginning of construction. If construction occurs outside of the nesting season, no surveys will be required.

If no nests are found, no further mitigation is required.

If active nests are found, impacts to nesting Swainson's hawks and other raptors shall be avoided by establishment of appropriate buffers around the nests. No project activity shall commence within the buffer area until a qualified biologist confirms that any young have fledged and the nest is not longer active. DFG guidelines recommend implementation of 0.25-mile buffers for most raptors and 0.5-mile buffers for Swainson's hawk, but the size of the buffer may be adjusted if a qualified biologist and the City in consultation with DFG, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during and after construction activities will be required if the activity has potential to adversely affect the nest.

Biological Resources 4 Trees on the site that need to be removed to accommodate construction shall be felled between September 15 and January 31, outside of the general nesting season for raptors and other birds. Alternately, a pre-construction survey for nesting birds shall be conducted prior to tree removal between February 1 and September 15.

Question B

The Biological Resources Evaluation prepared by Sycamore Environmental Consultants identified the vegetation on the project site. There are four trees on the project site; one almond tree, two silver maple trees and one native valley oak. None of the trees on the project site qualify as Heritage Trees. City trees would not be impacted by the proposed project.

Because the proposed project would not impact Heritage or City street trees, impacts would be less than significant.

Question C

Sycamore Environmental Consultants prepared a wetland survey in which data points taken in the lowest area of the proposed site. The wetland survey identified no areas that would meet the Army Corps of Engineers three-parameter test for wetlands, and the analysis concluded that no

wetlands were present on the site. The proposed project does not contain any vernal pools or any other seasonal wetlands. The proposed project does not provide habitat for special-status vernal pool species that occur in the surround region.

Findings

With implementation of mitigation measures B-1 through B-4 would reduce potentially significant impacts to biological resources to a ***less-than-significant*** level by complying with the appropriate regulations, protecting the resource on-site or by purchasing mitigation land to protect the resource and its habitat in accordance with the California Environmental Quality Act and the Endangered Species Act.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
8. ENERGY *Would the proposal result in impacts to*: A) Power or natural gas?			✓
B) Use non-renewable resources in a wasteful and inefficient manner?			✓
C) Substantial increase in demand of existing sources of energy or require the development of new sources of energy?			✓

Environmental Setting

The Sacramento Municipal Utility District (SMUD) supplies electricity to portions of the City of Sacramento, including the project site. Pacific Gas and Electric (PG&E) is the natural gas utility for the City of Sacramento. Distribution conduits are located throughout the City, usually underground along City and County public utility easements (PUE's).

Standards of Significance

A significant impact would result if the project would use non-renewable resources in a wasteful and inefficient manner, or create a substantial new demand for energy resources.

Answers to Checklist Questions

Questions A – C

The project would consume fossil fuels during construction. The project site is located in an urbanized portion of the community, and is served by existing utility services. The project site is designated for commercial uses. The project would not create a substantial new demand for energy services, and would be required to comply with the state energy efficiency standards required of all new development. The project's impact to energy sources would be ***less than significant***.

Findings

The project would result in ***less-than-significant*** impacts to energy resources.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
9. HAZARDS *Would the proposal involve:* A) A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)?		✓	
B) Possible interference with an emergency evacuation plan?			✓
C) The creation of any health hazard or potential health hazard?			✓
D) Exposure of people to existing sources of potential health hazards?			✓
E) Increased fire hazard in areas with flammable brush, grass, or trees?			✓

Environmental Setting

The site is bounded by industrial to the east and west, Morrison Creek to the north and open space to the south. The proposed site has no evidence of recognized environmental conditions.

Standards of Significance

For the purposes of this document, an impact is considered significant if the proposed project would:

- expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities;
- expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials; or
- expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during de-watering activities; or
- expose people (e.g., residents, pedestrians, construction workers) to increase fire hazards.

Answers to Checklist Questions

Questions A, C & D

The project proposes the development of two light industrial buildings totaling 220,000 square feet on approximately 12.04 acres. These land uses would not create or use substantial amounts of materials that could result in the creation of significant health hazards.

Krazan and Associates completed a Phase I Environmental Site Assessment at the proposed site on January 27, 2005. During the site reconnaissance, numerous stockpiles of construction and demolition debris of unknown origin were observed throughout a significant area of the northern portion of the subject site. No evidence of hazardous materials storage/waste was observed within the on-site stockpiled debris. In the even that the stockpiled materials were historically associated with unknown hazardous substances or petroleum products, the potential exists for impacts to subsurface soils underlying the stockpiled debris. Implementation of the mitigation measure H-1 would ensure a ***less-than-significant*** impact to the release of potentially hazardous materials, would not create a hazard, or expose people to a hazard.

Hazards-1 The stockpiled debris on the project site shall be removed for proper disposal by a licensed contractor to be followed by a subsequent visual observation and assessment of the newly exposed ground surface by a person or firm qualified to perform Phase I environmental assessments. If it is determined that areas of concern (e.g., staining) exist following the visual assessment, a Limited Soils Assessment of areas of concern underlying the stockpiled debris shall be conducted to ascertain the presence or absence of an impact from potential constituents of concern.

Question B

The proposed site plan has been reviewed for adequacy by the City of Sacramento Fire Department. Recommendations by the Fire Department were incorporated into the site design. The project site is located in an urbanized portion of the community, and is served by local roadways that provide routes for travel in emergencies. The proposed project would result in a ***less-than-significant*** impact associated with interference with an emergency evacuation plan.

Questions E

The project site is currently vacant with a surrounding urban built-up area of developed land. Project site landscaping is maintained and does not pose a fire hazard. Development of the project site would not increase the potential for fire hazard. Impacts associated with fire hazards are ***less than significant***.

Findings

The proposed project would result in ***less-than-significant*** impacts regarding hazards.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
10. NOISE *Would the proposal result in:* A) Increases in existing noise levels? Short-term Long Term			 ✓ ✓
B) Exposure of people to severe noise levels? Short-term Long Term			 ✓ ✓

Environmental Setting

The proposed project site is bounded by industrial to the east and west, Morrison Creek to the north and open space to the south t. The primary source of noise in the area is South Watt Avenue.

Standards of Significance

Thresholds of significance are those established by the Title 24 standards and by the City's General Plan Noise Element and the City Noise Ordinance. Noise and vibration impacts resulting from the implementation of the proposed project would be considered significant if they cause any of the following results:

- Exterior noise levels at the proposed project, which are above the upper value of the normally acceptable category for various land uses (SGPU DEIR AA-27) caused by noise level increases due to the project. The maximum normally acceptable exterior community noise exposure for residential backyards it is 60 dB Ldn, and for residential interior it is 45 dB Ldn;

- Residential interior noise levels of 45 Ldn or greater caused by noise level increases due to the project; and

- Construction noise levels not in compliance with the City of Sacramento Noise Ordinance.

Construction-generated sound is exempt from limits if construction activities take place between the hours of 7:00 a.m. and 6:00 p.m. Monday-Saturday and between 9:00 a.m. and 6:00 p.m. on Sundays as specified in Section 8.68.080 of the City of Sacramento Noise Ordinance.

Answers to Checklist Questions

Questions A and B

The project does not require a rezone; therefore the land use is consistent with the existing zoning and general plan designation. Therefore, the proposed project would not create noise levels greater than have already been assumed.

For these reasons, the impacts related to increases in noise levels and exposure to people to severe noise levels would be ***less-than-significant.***

Construction Noise

The proposed project may temporarily increase noise in the area due to construction activities. However, the City of Sacramento Noise Ordinance exempts construction-related noise taking place between the hours of 7:00 a.m. and 6:00 p.m., on Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday. Therefore, because increases in ambient noise levels resulting from construction activities would be temporary, and would be required to comply with the City's Noise Ordinance, the impact would not be considered significant.

Findings

Because the thresholds of Industrial noise levels (70 dBA), would not be exceeded and the construction noise levels would be compliance with the City of Sacramento Noise Ordinance the proposed project would result in less-than-significant noise impacts.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
11. PUBLIC SERVICES *Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:* A) Fire protection?			✓
B) Police protection?			✓
C) Schools?			✓
D) Maintenance of public facilities, including roads?			✓
E) Other governmental services?			✓

Environmental Setting

The nearest Sacramento Fire Department stations to the proposed project site are; Station No. 7 located at 6500 Wyndham Drive in Sacramento, Station No. 10 located at 5642 66th Street in Sacramento and Station No. 60 located at 3301 Julliard Drive in Sacramento.

The area is served by the Sacramento City Police Department. The Joseph E. Rooney Police Facility serves the South Area of Sacramento and is located at 5303 Franklin Boulevard approximately 4 miles north of the project site.

The proposed project site is within the Elk Grove Unified School District.

Standards of Significance

For the purposes of this report, an impact would be considered significant if the project resulted in the need for new or altered services related to fire protection, police protection, school facilities, roadway maintenance, or other governmental services; the construction of which could cause significant environmental effects.

Answers to Checklist Questions

Questions A – E

The City's General Fund and other special collections such as Measure G, state school funds and developer fees provide the financial support to achieve basic safety, school, library and park

services. Police/fire personnel, schools, libraries, and parks provide a wide range of services that are affected by population increases.

Fire Protection

Implementation of the project would result in an increase in the demand for fire protection and emergency services. The proposed project would incorporate design features identified in the Uniform Building Code and the Uniform Fire Code. The Fire Department reviews and comments on the design of any proposed project that could affect fire safety. Project conditions will require the applicant to use Early Suppression Fast Response (ESFR) sprinklers, and obtain approval from the Fire Department for the design of the water supply system

With incorporation of fire safety measures required by the Uniform Building Code and the Uniform Fire Code, as well as City permitting requirements, any physical fire safety impacts associated with the project would be reduced to a ***less-than-significant*** level.

The proposed project size and compatibility with surrounding land uses would not significantly increase the anticipated demand for fire protection service in the area over what was anticipated in the SGPU.

Police

The City of Sacramento Police Department provides police protection services within the City of Sacramento. The Department takes an active role in crime prevention through the Crime Prevention through Environmental Design Program (CPTED). This program requires new development to coordinate with the Community Resources Division of the Police Department to facilitate public safety through appropriate design of new residential developments. The incorporation of City permitting requirements and CPTED Program would reduce any physical public safety impacts associated with the project to a less than significant level.

The proposed project size and compatibility with surrounding land uses would not significantly increase the anticipated demand for police protection service in the area over what was anticipated in the SGPU.

Schools

The project proposes to construct two light industrial buildings totaling 220,000 square feet on approximately a 12.04 acre undeveloped parcel. The proposed project would add industrial development to the area, and would not create a need for new or alter school services.

Findings

The proposed project would result in ***less-than-significant*** impacts to public services.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
12. UTILITIES *Would the proposal result in the need for new systems or supplies, or substantial alterations to the following utilities:* A) Communication systems?			✓
B) Local or regional water supplies?			✓
C) Local or regional water treatment or distribution facilities?			✓
D) Sewer or septic tanks?			✓
E) Storm water drainage?			✓
F) Solid waste disposal?			✓

Environmental Setting

Water. The City of Sacramento is identified as the water supplier for the proposed project. The project is within the City's Water Service Area. The City of Sacramento obtains water from three sources: the American River, the Sacramento River, and groundwater wells. Treated water is currently produced at two water treatment plants: the Fairbairn Water Treatment Plan (WTP) on the American River, and the Sacramento WTP on the Sacramento River.

Surface Water Rights: According to the City's Urban Water Management Plan (UWMP) (p. 4-2), the City holds an annual surface water entitlement of 81,000 acre-feet from the Sacramento River, and, ultimately, 245,000 acre-feet from the American River. The total annual diversion allowed by the City's four American River permits is 245,000 acre-feet at build-out of these entitlements in the year 2030. The maximum total combined water supply from both the Sacramento and American River by the year 2030 is 326,800 acre-feet.

According to the UWMP (p. 6-1), about 18 percent of the City's water demand is currently met through groundwater wells. The groundwater is generally of good quality. The City focuses on surface water and minimizes reliance on groundwater to avoid water quality problems and reduce the City's contribution to possible groundwater overdraft conditions.

Water Supply. Water supply facilities in the project area include a 12" inch water main located in Wayne Court. The property owner/developer shall construct an off-site public water main extension to the 12" water main east of the site and far enough within the property such that all required water taps can be made with a minimum of 3' separation. A 20' wide PUE for water only shall be recorded for the portion of the main that runs within the property, in which case the point

of service for taps off the main extension would be the easement lines.

Stormwater Drainage. . The project site is located within drainage shed G260. The proposed project drainage flows into Morrison Creek. There is not a city sump system located in Wayne Court. There is a 15" drain line in Wayne Court which would require an extension of the public line to the property. A drainage study will be required by the Department of Utilities to show that the drainage system has the capacity to accept drainage.

Sewage. The Sacramento Regional County Sanitation District (SRCSD) provides sewage treatment for the cities of Folsom and Sacramento and County Sanitation District (CSD-1), which serves the unincorporated urban portions of the County and portions of Sacramento. The SRCSD is responsible for the operation of all regional interceptors and wastewater treatment plants, while local collection districts operate the system that transport less than 10 million gallons of waste flow daily. This portion of the City is served by the CSD1, although treatment is provided by SRCSD. CSD-1 maintains an 8" sewer line in Wayne Court.

Solid Waste. The project is required to meet the City's Recycling and Solid Waste Disposal Regulations (Chapter 17.72 of the Zoning Ordinance). The purpose of the ordinance is to regulate the location, size, and design of features of recycling and trash enclosures in order to provide adequate, convenient space for the collection, storage, and loading of recyclable and solid waste material for existing and new development; increase recycling of used materials; and reduce litter. City solid waste collection services transport waste to the Sacramento Recycling and Transfer Station, located at 8191 Fruitridge Road, where it is ultimately transported to Lockwood Landfill in Nevada. The Lockwood Landfill has an approximate 40-year capacity.

Standards of Significance

For purposes of this environmental document, an impact is considered significant if the proposed project would:

- create an increase in water demand of more than 10 million gallons per day;
- substantially degrade water quality;
- generate more than 500 tons of solid waste per year;
- generate storm water that would exceed the capacity of the storm water system or
- result in a determination by the wastewater collection and treatment provider that it does not have adequate capacity to serve the project's projected demand in addition to existing commitments.

Answers to Checklist Questions

Question A

The project site is located in an urbanized portion of the community, and is served by existing communications systems. No impact to communications systems would result.

Questions B and C

Based on the figures presented in the City's UWMP, Sacramento's water supply is sufficient through year 2030. The UWMP illustrates the City's ability to meet foreseen water demand and indicates that the City of Sacramento has sufficient water rights and the infrastructure to deliver water in normal, single-dry, and multiple-dry years. The City would continue water conservation programs to reduce demand with the City (P. 7-4). Any impacts would be ***less than significant***.

Question D

CSD-1 maintains an 8" sewer main Wayne Court. CSD-1 has determined that the existing 8" sewer main would provide adequate sewage flows to the project site. The design and construction of wastewater facilities are subject to review and approval of the Department of Utilities and the County Sanitation District (CSD-1). With the development requirements established by the Department of Utilities and County Sanitation District (CSD-1), the proposed project would have a ***less-than-significant*** impact on sewer services.

Question E

Drainage from the proposed paved surfaces and buildings would be required to connect to the existing City's public drainage system. All onsite systems shall be designed to the City's standard for private storm drainage systems per Section 11.12 of the Design and Procedures Manual.

The project site is located within drainage shed G260. The proposed project drainage flows into Morrison Creek. There is not a city sump system located in Wayne Court. There is a 15" drain line in Wayne Court which would require an extension of the public line to the property.

All drainage improvements would be required to be developed to the satisfaction of the Department of Utilities. All drainage lines would be placed within the asphalt section of public rights-of-way as per the City's Design and Procedures Manual. A drainage study will be required by the Department of Utilities to show that the drainage system has the capacity to accept drainage.

Because the Department of Utilities will ensure that project's drainage system is appropriately sized and is connected appropriately to the City's drainage system, the project impacts on the City's drainage facilities would be ***less than significant***.

Question F

The project is required to meet the City's Recycling and Solid Waste Disposal Regulations (Chapter 17.72 of the Zoning Ordinance). The purpose of the ordinance is to regulate the location, size, design of features of recycling and trash enclosures in order to proved adequate, convenient space for the collection, storage, and loading of recyclable and solid waste material for existing and new development; increase recycling of used material; and reduce litter.

There is sufficient capacity for the solid waste generated by the City of Sacramento. Keifer Landfill has capacity until 2035 at the current throughput, and the Lockwood landfill has capacity for the 250 to 300 years.

For these reasons, it is anticipated that development of the proposed project would result in ***less-than-significant*** impacts from solid waste.

Findings

The proposed project would result in ***less-than-significant*** impacts to utility systems.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
13. AESTHETICS, LIGHT AND GLARE *Would the proposal:* A) Affect a scenic vista or adopted view corridor?			✓
B) Have a demonstrable negative aesthetic effect?			✓
C) Create light or glare?			✓

Environmental Setting

The project site is not in an adopted view corridor or a scenic vista. The project site currently consists of approximately 12.04 vacant acres in an urban setting with relatively flat topography. The site is bounded by industrial to the east and west, Morrison Creek to the north and open space to the south.

Standards of Significance

Visual impacts would include obstruction of a significant view or the introduction of a façade which lacks visual interest and compatibility which would be visible from a public gathering or viewing area.

Glare. Glare is considered to be significant if it would be cast in such a way as to cause public hazard or annoyance for a sustained period of time.

Light. Light is considered significant if it would be cast onto oncoming traffic or residential uses.

Answers to Checklist Questions

Question A

Because the project site is not located within an identified scenic corridor or viewshed, impacts to an identified scenic corridor or viewshed would not occur.

Question B

The project would be required to comply with the City of Sacramento's guidelines for the development of structures, which would ensure that the appearance of the project is compatible with existing development in the project vicinity.

For these reasons, the impacts related to a negative aesthetic effect would be ***less than significant***.

Question C

The proposed project includes construction of an industrial development. Industrial development is not typically considered to be substantial sources of glare, due to the limited height and the limited amount of reflective surface area (i.e., glass and metal surfaces). The proposed project would not be anticipated to result in substantial adverse affects associated with glare.

The proposed project would require improvements to the City rights-of-way. These improvements include the installation of street lighting, as required by the Department of Transportation as a condition of approval. The lighting would be installed and shielded consistent with City standards. With the design and orientation of lighting in compliance with the City standards, impacts associated with light and glare are anticipated to be ***less than significant***.

Findings

The project is determined to have a ***less-than-significant*** impact to visual resources.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
14. CULTURAL RESOURCES *Would the proposal:* A) Disturb paleontological resources?		✓	
B) Disturb archaeological resources?		✓	
C) Affect historical resources?			✓
D) Have the potential to cause a physical change, which would affect unique ethnic cultural values?			✓
E) Restrict existing religious or sacred uses within the potential impact area?			✓

Environmental Setting

The proposed project is not in a Primary Impact Area as defined by the Sacramento General Plan Update Draft Environmental Impact Report (SGPU) (DEIR, V-5). The SGPU defines a Primary Impact Area as an area that is most sensitive to urban development due to the potential presence of cultural resources. The proposed project site has five structures onsite; three single family residences, a garage and a shed. All five structures do not have cultural or historical value.

Standards of Significance

Cultural resource impacts may be considered significant if the proposed project would result in one or more of the following:

1. Cause a substantial change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5 or

2. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Answers to Checklist Questions

Questions A – D

Although there are no known cultural/historic resources, during construction previously unidentified cultural or historical resources may be unearthed. The mitigation measures listed below shall be implemented to ensure a less-than-significant impact to potential cultural resources.

Cultural Resources -1 The applicant shall hire a qualified archaeologist to conduct a records search for the project site, including a search of the North Central Information System at CSU Sacramento. The qualified archaeologist shall provide recommendations for mitigation should any resource be identified on the project site by the records search. Prior to issuance of grading permits, the applicant shall provide proof that the records search has been performed and that any cultural resources identified on the project site have been mitigated according to the recommendations of the qualified archaeologist.

Cultural Resoruces-2 In the event that any prehistoric subsurface archeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian and/or mortars are discovered during construction-related earth-moving activities, all work within 50 meters of the resources shall be halted, and the City shall consult with a qualified archeologist to assess the significance of the find. Archeological test excavations shall be conducted by a qualified archeologist to aid in determining the nature and integrity of the find. If the find is determined to be significant by the qualified archeologist, representatives of the City and the qualified archeologist shall coordinate to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis and professional museum curation. In addition, a report shall be prepared by the qualified archeologist according to current professional standards.

Cultural Resources-3 If a Native American site is discovered, the evaluation process shall include consultation with the appropriate Native American representatives.

If Native American archeological, ethnographic, or spiritual resources are involved, all identification and treatment shall be conducted by qualified archeologists, who are certified by the Society of Professional Archeologists (SOPA) and/or meet the federal standards as stated in the Code of Federal Regulations (36 CFR 61), and Native American representatives, who are approved by the local Native American community as scholars of the cultural traditions.

In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. If historic archeological sites are involved, all identified treatment is to be carried out by qualified historical archeologists, who shall meet either Register of Professional Archeologists (RPA), or 36 CFR 61 requirements.

Cultural Resources-4 If a human bone or bone of unknown origin is found during construction, all work shall stop in the vicinity of the find, and the County Coroner shall be contacted immediately. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission, who shall notify the person most likely believed to be a descendant. The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts. No additional work is to take place within the immediate vicinity of the find until the identified appropriate actions have taken place.

Question E

There are no known existing religious or sacred uses on the project site. Therefore, it is not anticipated that religious or sacred uses will be impacted by the proposed project, and a ***less-than-significant*** impact would occur.

Findings

The project would have less-than-significant impacts on cultural resources with the incorporation of the above mitigation measures.

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
15. RECREATION *Would the proposal:* A) Increase the demand for neighborhood or regional parks or other recreational facilities?			✓
B) Affect existing recreational opportunities?			✓

Environmental Setting

There are no existing recreational amenities within the project site, as the site is currently vacant. Granite Regional Park is located within two miles of the project site. Granite Regional Park includes 145.60-acres of; a dog park, three soccer fields, a horseshoe pit, a group picnic area, lake, landscaped walkways, ball fields and a wetlands area.

Standards of Significance

Recreation impacts would be considered significant if the project created a new demand for additional recreational facilities or affect existing recreational opportunities.

Answers to Checklist Questions

Questions A and B

The project would result in the construction of an industrial development. The project is consistent with the General Plan and the South Sacramento Community Plan designation for the site, and would not generate a greater impact on such resources than has been identified in the City's planning process. The project proponent would be responsible for paying the Park Development Fee to mitigate impacts to park facilities. The relatively small increase in population that could result from the project would result in a ***less-than-significant*** impact related to recreational facilities.

Findings

The proposed project would result in ***less-than-significant*** impacts to recreational resources.

MANDATORY FINDINGS OF SIGNIFICANCE

Issues:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less-than-significant Impact
16. MANDATORY FINDINGS OF SIGNIFICANCE A. Does the project have the potential to 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, 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? Disturb paleontological resources?		✓	
B. Does the project have the potential to achieve short-term, to the disadvantage of long-term environmental goals?			✓
C. 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.)			✓
D. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			✓

Question A

As discussed in the preceding sections, the proposed project, with the implementation of the mitigation measures, would not degrade the quality of the environment, including effects on animals or plants. The proposed project may affect cultural resources within the project site. Mitigation language has been included in the case that previously unidentified cultural or paleontological resources are uncovered during construction. Mitigation has been proposed in

order to reduce these impacts to ***less-than-significant*** levels.

Question B

The project does not require a variance from any regulations in order to be constructed. The proposed project would not result in short-term goals to the disadvantage of long term environmental goals because all significant impacts of the project can be mitigated to a ***less-than-significant*** level.

Question C

Section 15130 (d) of the CEQA Guidelines state that "No further cumulative impacts analysis is required when a project is consistent with a general, specific, matter or comparable programmatic plan where the lead agency determines that the regional or area-wide cumulative impacts of the proposed project have already been adequately addressed."

The proposed project would create a significant impact to biological resources, hazards, transportation and cultural resources. However, all impacts would be reduced to a less-than-significant level with mitigation. None of these impacts would affect offsite resources. Therefore, there would be no significant cumulative impacts.

For these reasons, there are no cumulatively considerable impacts and the impact is ***less than significant***.

Question D

The project does not have environmental effects that could cause substantial adverse effects on human beings, either directly or indirectly. The environmental effect on humans would be ***less than significant***.

SECTION IV. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below potentially would be affected by this project.

___	Land Use and Planning	✓	Hazards
___	Population and Housing	___	Noise
___	Seismicity, Soils and Geology	___	Public Services
___	Water	___	Utilities
___	Air Quality	___	Aesthetics, Light and Glare
✓	Transportation/Circulation	✓	Cultural Resources
✓	Biological Resources	___	Recreation
___	Energy	✓	Mandatory Findings of Significance
___	None Identified		

SECTION V. DETERMINATION

On the basis of the initial evaluation:

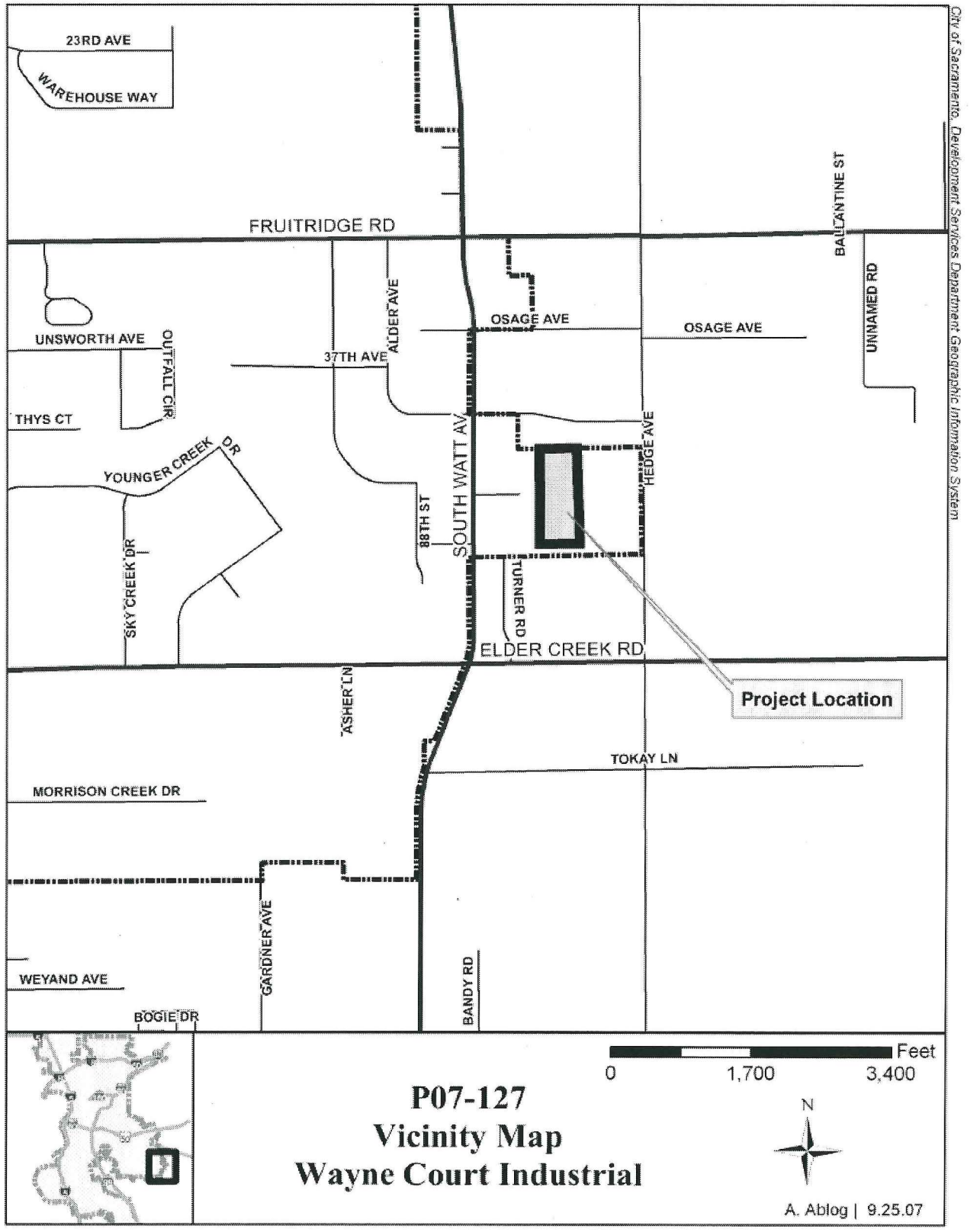
I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X 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 the project-specific mitigation measures described in Section III have been added to the project. A NEGATIVE DECLARATION will be prepared.

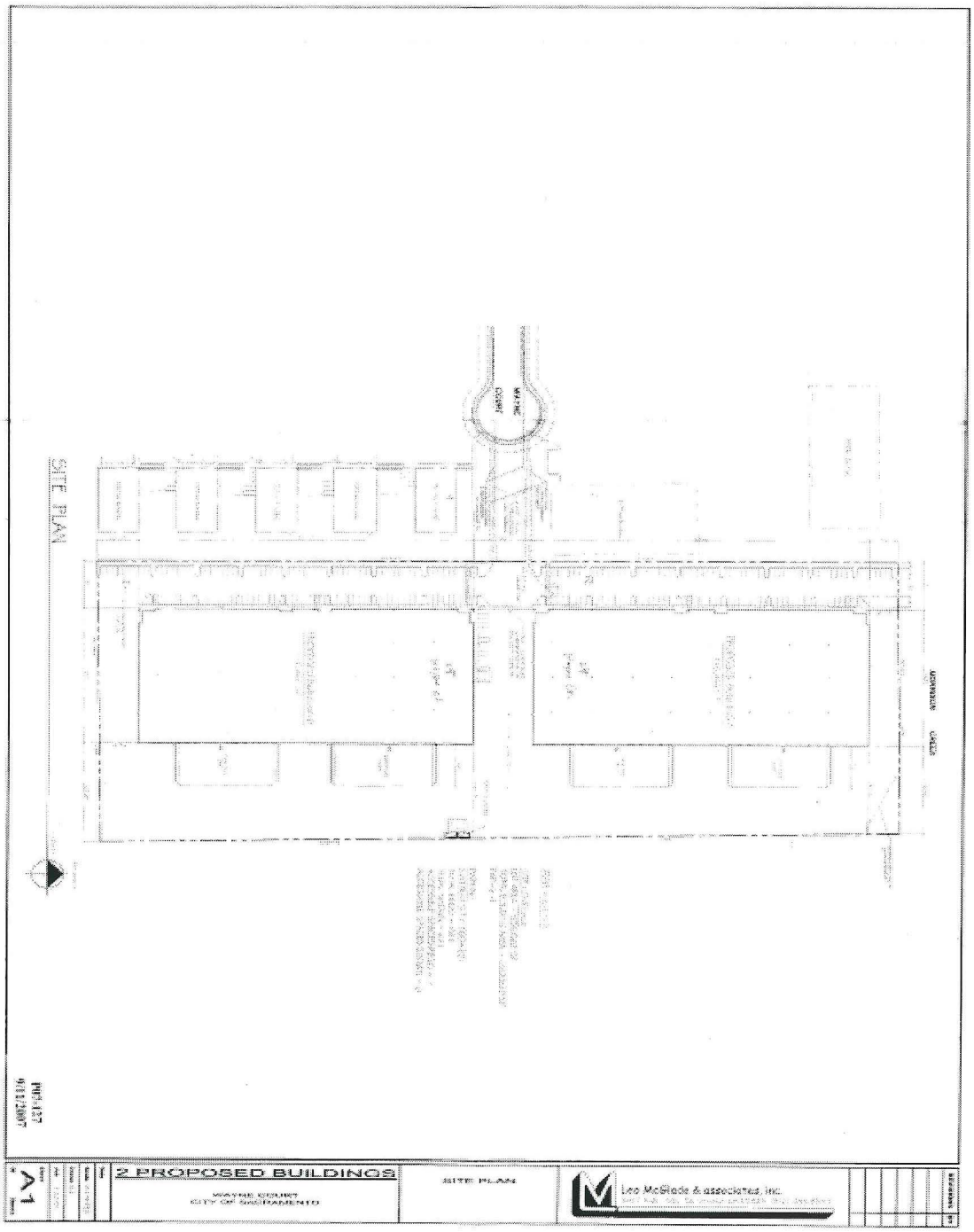
I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Kristin Ford, Assistant Planner

Date



Attachment A
Vicinity Map



Attachment B
Site Plan

APPENDIX B
AIR QUALITY AND GHG MODELING

Wayne Court Warehouses

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	219.34	1000sqft	5.04	219,336.00	0
Parking Lot	229.00	Space	0.80	91,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	440.33	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD rps calculation

Land Use - Applicant provided

Construction Phase - applicant provided

Grading - applicant provided on AQ/GHG questionnaire

Vehicle Trips - Traffic Impact Analysis

Energy Use -

Mobile Land Use Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - Applicant provided

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	120.00
tblConstructionPhase	NumDays	230.00	120.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	46.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	0.00
tblGrading	AcresOfGrading	23.00	12.31
tblGrading	MaterialImported	0.00	20,000.00
tblLandUse	LandUseSquareFeet	219,340.00	219,336.00
tblLandUse	LotAcreage	2.06	0.80
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	440.33
tblVehicleTrips	ST_TR	1.68	3.88
tblVehicleTrips	SU_TR	1.68	3.88
tblVehicleTrips	WD_TR	1.68	3.88

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2019	20.7606	44.6721	26.4977	0.0744	7.4556	4.1871	8.9239	3.6436	3.8705	4.9970	0.0000	7,721.0536	7,721.0536	1.2035	0.0000	7,751.1404
Maximum	**20.7606**	**44.6721**	**26.4977**	**0.0744**	**7.4556**	**4.1871**	**8.9239**	**3.6436**	**3.8705**	**4.9970**	**0.0000**	**7,721.0536**	**7,721.0536**	**1.2035**	**0.0000**	**7,751.1404**

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	lb/day										lb/day					
2019	20.7606	44.6721	26.4977	0.0744	7.4556	4.1871	8.9239	3.6436	3.8705	4.9970	0.0000	7,721.0536	7,721.0536	1.2035	0.0000	7,751.1404
Maximum	**20.7606**	**44.6721**	**26.4977**	**0.0744**	**7.4556**	**4.1871**	**8.9239**	**3.6436**	**3.8705**	**4.9970**	**0.0000**	**7,721.0536**	**7,721.0536**	**1.2035**	**0.0000**	**7,751.1404**

	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**

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	lb/day										lb/day					
Area	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Energy	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Mobile	2.0978	7.1457	23.7833	0.0667	5.2530	0.0660	5.3190	1.4048	0.0620	1.4669		6,738.5114	6,738.5114	0.3256		6,746.6509
Offroad	0.5761	5.1900	4.7211	6.1100e-003		0.3867	0.3867		0.3557	0.3557		592.1233	592.1233	0.1915		596.9109
Total	**7.9716**	**12.3650**	**28.5747**	**0.0729**	**5.2530**	**0.4550**	**5.7080**	**1.4048**	**0.4201**	**1.8250**		**7,365.3742**	**7,365.3742**	**0.5180**	**6.4000e-004**	**7,378.5137**

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	lb/day										lb/day					
Area	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Energy	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Mobile	2.0840	7.0571	23.3860	0.0654	5.1479	0.0648	5.2127	1.3767	0.0609	1.4377		6,610.2876	6,610.2876	0.3201		6,618.2903
Offroad	0.5761	5.1900	4.7211	6.1100e-003		0.3867	0.3867		0.3557	0.3557		592.1233	592.1233	0.1915		596.9109
Total	**7.9578**	**12.2764**	**28.1774**	**0.0717**	**5.1479**	**0.4538**	**5.6017**	**1.3767**	**0.4190**	**1.7957**		**7,237.1503**	**7,237.1503**	**0.5125**	**6.4000e-004**	**7,250.1531**

	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	**0.17**	**0.72**	**1.39**	**1.74**	**2.00**	**0.26**	**1.86**	**2.00**	**0.27**	**1.60**	**0.00**	**1.74**	**1.74**	**1.06**	**0.00**	**1.74**

3.0 Construction Detail

Construction Phase

Wayne Court Warehouses - Sacramento Metropolitan AQMD Air District, Summer

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2019	3/31/2019	5	0	
2	Grading	Grading	4/1/2019	6/3/2019	5	46	
3	Site Preparation	Site Preparation	4/27/2019	4/26/2019	5	0	
4	Paving	Paving	6/4/2019	6/18/2019	5	11	
5	Building Construction	Building Construction	6/19/2019	12/3/2019	5	120	
6	Architectural Coating	Architectural Coating	7/3/2019	12/17/2019	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12.31

Acres of Paving: 0.8

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 329,004; Non-Residential Outdoor: 109,668; Striped Parking Area: 5,496 (Architectural Coating – sqft)

OffRoad Equipment

Wayne Court Warehouses - Sacramento Metropolitan AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
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	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,500.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	131.00	51.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	26.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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	lb/day										lb/day					
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	lb/day										lb/day					
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	lb/day										lb/day					
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	lb/day										lb/day					
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 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	lb/day										lb/day					
Fugitive Dust					6.3958	0.0000	6.3958	3.3545	0.0000	3.3545			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.3958**	**1.3974**	**7.7932**	**3.3545**	**1.2856**	**4.6401**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 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	lb/day										lb/day					
Hauling	0.4737	16.2855	4.0097	0.0436	0.9457	0.0701	1.0158	0.2589	0.0670	0.3259		4,661.4506	4,661.4506	0.2704		4,668.2114
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
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	**0.5440**	**16.3241**	**4.5513**	**0.0448**	**1.0598**	**0.0709**	**1.1307**	**0.2891**	**0.0678**	**0.3569**		**4,784.2468**	**4,784.2468**	**0.2743**		**4,791.1043**

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	lb/day										lb/day					
Fugitive Dust					6.3958	0.0000	6.3958	3.3545	0.0000	3.3545			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.3958**	**1.3974**	**7.7932**	**3.3545**	**1.2856**	**4.6401**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 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	lb/day										lb/day					
Hauling	0.4737	16.2855	4.0097	0.0436	0.9457	0.0701	1.0158	0.2589	0.0670	0.3259		4,661.4506	4,661.4506	0.2704		4,668.2114
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
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	**0.5440**	**16.3241**	**4.5513**	**0.0448**	**1.0598**	**0.0709**	**1.1307**	**0.2891**	**0.0678**	**0.3569**		**4,784.2468**	**4,784.2468**	**0.2743**		**4,791.1043**

3.4 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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

3.4 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	lb/day										lb/day					
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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

3.4 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	lb/day										lb/day					
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**

3.5 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	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.1906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6450**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 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	lb/day										lb/day					
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
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
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	**0.0703**	**0.0386**	**0.5416**	**1.2300e-003**	**0.1141**	**8.1000e-004**	**0.1149**	**0.0303**	**7.5000e-004**	**0.0310**		**122.7963**	**122.7963**	**3.8600e-003**		**122.8929**

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	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.1906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6450**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 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	lb/day										lb/day					
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
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
Worker	0.0703	0.0386	0.5416	1.2300e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		122.7963	122.7963	3.8600e-003		122.8929
Total	**0.0703**	**0.0386**	**0.5416**	**1.2300e-003**	**0.1141**	**8.1000e-004**	**0.1149**	**0.0303**	**7.5000e-004**	**0.0310**		**122.7963**	**122.7963**	**3.8600e-003**		**122.8929**

3.6 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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.6 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	lb/day										lb/day					
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
Vendor	0.2413	6.1088	1.8240	0.0128	0.3070	0.0441	0.3510	0.0883	0.0422	0.1305		1,352.7797	1,352.7797	0.0813		1,354.8122
Worker	0.6138	0.3372	4.7299	0.0108	0.9965	7.1000e-003	1.0036	0.2643	6.5500e-003	0.2709		1,072.4207	1,072.4207	0.0338		1,073.2643
Total	**0.8552**	**6.4460**	**6.5539**	**0.0236**	**1.3035**	**0.0512**	**1.3547**	**0.3527**	**0.0487**	**0.4014**		**2,425.2004**	**2,425.2004**	**0.1151**		**2,428.0765**

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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.6 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	lb/day										lb/day					
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
Vendor	0.2413	6.1088	1.8240	0.0128	0.3070	0.0441	0.3510	0.0883	0.0422	0.1305		1,352.7797	1,352.7797	0.0813		1,354.8122
Worker	0.6138	0.3372	4.7299	0.0108	0.9965	7.1000e-003	1.0036	0.2643	6.5500e-003	0.2709		1,072.4207	1,072.4207	0.0338		1,073.2643
Total	**0.8552**	**6.4460**	**6.5539**	**0.0236**	**1.3035**	**0.0512**	**1.3547**	**0.3527**	**0.0487**	**0.4014**		**2,425.2004**	**2,425.2004**	**0.1151**		**2,428.0765**

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	lb/day										lb/day					
Archit. Coating	17.1560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**17.4224**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0.1218	0.0669	0.9388	2.1400e-003	0.1978	1.4100e-003	0.1992	0.0525	1.3000e-003	0.0538		212.8469	212.8469	6.7000e-003		213.0143
Total	**0.1218**	**0.0669**	**0.9388**	**2.1400e-003**	**0.1978**	**1.4100e-003**	**0.1992**	**0.0525**	**1.3000e-003**	**0.0538**		**212.8469**	**212.8469**	**6.7000e-003**		**213.0143**

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	lb/day										lb/day					
Archit. Coating	17.1560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**17.4224**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0.1218	0.0669	0.9388	2.1400e-003	0.1978	1.4100e-003	0.1992	0.0525	1.3000e-003	0.0538		212.8469	212.8469	6.7000e-003		213.0143
Total	**0.1218**	**0.0669**	**0.9388**	**2.1400e-003**	**0.1978**	**1.4100e-003**	**0.1992**	**0.0525**	**1.3000e-003**	**0.0538**		**212.8469**	**212.8469**	**6.7000e-003**		**213.0143**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	lb/day										lb/day					
Mitigated	2.0840	7.0571	23.3860	0.0654	5.1479	0.0648	5.2127	1.3767	0.0609	1.4377		6,610.2876	6,610.2876	0.3201		6,618.2903
Unmitigated	2.0978	7.1457	23.7833	0.0667	5.2530	0.0660	5.3190	1.4048	0.0620	1.4669		6,738.5114	6,738.5114	0.3256		6,746.6509

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	851.04	851.04	851.04	2,475,086	2,425,584
Total	851.04	851.04	851.04	2,475,086	2,425,584

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
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	10.00	5.00	6.50	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Unrefrigerated Warehouse-No Rail	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
NaturalGas Unmitigated	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472

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	lb/day										lb/day					
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
Unrefrigerated Warehouse-No Rail	294.451	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Total		**3.1800e-003**	**0.0289**	**0.0243**	**1.7000e-004**		**2.1900e-003**	**2.1900e-003**		**2.1900e-003**	**2.1900e-003**		**34.6413**	**34.6413**	**6.6000e-004**	**6.4000e-004**	**34.8472**

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	lb/day										lb/day					
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
Unrefrigerated Warehouse-No Rail	0.294451	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Total		**3.1800e-003**	**0.0289**	**0.0243**	**1.7000e-004**		**2.1900e-003**	**2.1900e-003**		**2.1900e-003**	**2.1900e-003**		**34.6413**	**34.6413**	**6.6000e-004**	**6.4000e-004**	**34.8472**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Unmitigated	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047

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	lb/day										lb/day					
Architectural Coating	0.5640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7262					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.3300e-003	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Total	**5.2946**	**4.3000e-004**	**0.0461**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.0981**	**0.0981**	**2.6000e-004**		**0.1047**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7262					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.3300e-003	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Total	**5.2946**	**4.3000e-004**	**0.0461**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.0981**	**0.0981**	**2.6000e-004**		**0.1047**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	4	8.00	260	89	0.20	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Forklifts	0.5761	5.1900	4.7211	6.1100e-003		0.3867	0.3867		0.3557	0.3557		592.1233	592.1233	0.1915		596.9109
Total	**0.5761**	**5.1900**	**4.7211**	**6.1100e-003**		**0.3867**	**0.3867**		**0.3557**	**0.3557**		**592.1233**	**592.1233**	**0.1915**		**596.9109**

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

Wayne Court Warehouses

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	219.34	1000sqft	5.04	219,336.00	0
Parking Lot	229.00	Space	0.80	91,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	440.33	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD rps calculation

Land Use - Applicant provided

Construction Phase - applicant provided

Grading - applicant provided on AQ/GHG questionnaire

Vehicle Trips - Traffic Impact Analysis

Energy Use -

Mobile Land Use Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - Applicant provided

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	120.00
tblConstructionPhase	NumDays	230.00	120.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	46.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	0.00
tblGrading	AcresOfGrading	23.00	12.31
tblGrading	MaterialImported	0.00	20,000.00
tblLandUse	LandUseSquareFeet	219,340.00	219,336.00
tblLandUse	LotAcreage	2.06	0.80
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	440.33
tblVehicleTrips	ST_TR	1.68	3.88
tblVehicleTrips	SU_TR	1.68	3.88
tblVehicleTrips	WD_TR	1.68	3.88

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2019	20.7144	45.3796	25.9569	0.0736	7.4556	4.1871	8.9261	3.6436	3.8705	4.9991	0.0000	7,636.0616	7,636.0616	1.2162	0.0000	7,666.4660
Maximum	**20.7144**	**45.3796**	**25.9569**	**0.0736**	**7.4556**	**4.1871**	**8.9261**	**3.6436**	**3.8705**	**4.9991**	**0.0000**	**7,636.0616**	**7,636.0616**	**1.2162**	**0.0000**	**7,666.4660**

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	lb/day										lb/day					
2019	20.7144	45.3796	25.9569	0.0736	7.4556	4.1871	8.9261	3.6436	3.8705	4.9991	0.0000	7,636.0616	7,636.0616	1.2162	0.0000	7,666.4660
Maximum	**20.7144**	**45.3796**	**25.9569**	**0.0736**	**7.4556**	**4.1871**	**8.9261**	**3.6436**	**3.8705**	**4.9991**	**0.0000**	**7,636.0616**	**7,636.0616**	**1.2162**	**0.0000**	**7,666.4660**

	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**

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	lb/day										lb/day					
Area	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Energy	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Mobile	1.6101	7.7400	21.7292	0.0601	5.2530	0.0667	5.3197	1.4048	0.0627	1.4676		6,082.2936	6,082.2936	0.3193		6,090.2763
Offroad	0.5761	5.1900	4.7211	6.1100e-003		0.3867	0.3867		0.3557	0.3557		592.1233	592.1233	0.1915		596.9109
Total	**7.4839**	**12.9593**	**26.5206**	**0.0664**	**5.2530**	**0.4557**	**5.7087**	**1.4048**	**0.4208**	**1.8256**		**6,709.1563**	**6,709.1563**	**0.5117**	**6.4000e-004**	**6,722.1391**

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	lb/day										lb/day					
Area	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Energy	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Mobile	1.5969	7.6394	21.4102	0.0590	5.1479	0.0655	5.2134	1.3767	0.0616	1.4383		5,966.6863	5,966.6863	0.3142		5,974.5422
Offroad	0.5761	5.1900	4.7211	6.1100e-003		0.3867	0.3867		0.3557	0.3557		592.1233	592.1233	0.1915		596.9109
Total	**7.4707**	**12.8587**	**26.2016**	**0.0652**	**5.1479**	**0.4545**	**5.6025**	**1.3767**	**0.4197**	**1.7964**		**6,593.5490**	**6,593.5490**	**0.5067**	**6.4000e-004**	**6,606.4050**

	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	**0.18**	**0.78**	**1.20**	**1.72**	**2.00**	**0.26**	**1.86**	**2.00**	**0.27**	**1.60**	**0.00**	**1.72**	**1.72**	**0.99**	**0.00**	**1.72**

3.0 Construction Detail

Construction Phase

Wayne Court Warehouses - Sacramento Metropolitan AQMD Air District, Winter

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2019	3/31/2019	5	0	
2	Grading	Grading	4/1/2019	6/3/2019	5	46	
3	Site Preparation	Site Preparation	4/27/2019	4/26/2019	5	0	
4	Paving	Paving	6/4/2019	6/18/2019	5	11	
5	Building Construction	Building Construction	6/19/2019	12/3/2019	5	120	
6	Architectural Coating	Architectural Coating	7/3/2019	12/17/2019	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12.31

Acres of Paving: 0.8

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 329,004; Non-Residential Outdoor: 109,668; Striped Parking Area: 5,496 (Architectural Coating – sqft)

OffRoad Equipment

Wayne Court Warehouses - Sacramento Metropolitan AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
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	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,500.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	131.00	51.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	26.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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	lb/day										lb/day					
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	lb/day										lb/day					
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	lb/day										lb/day					
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	lb/day										lb/day					
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 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	lb/day										lb/day					
Fugitive Dust					6.3958	0.0000	6.3958	3.3545	0.0000	3.3545			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.3958**	**1.3974**	**7.7932**	**3.3545**	**1.2856**	**4.6401**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 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	lb/day										lb/day					
Hauling	0.4908	16.9838	4.3007	0.0429	0.9457	0.0723	1.0180	0.2589	0.0692	0.3280		4,591.4048	4,591.4048	0.2836		4,598.4943
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
Worker	0.0647	0.0477	0.4660	1.0800e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		107.8500	107.8500	3.4200e-003		107.9356
Total	**0.5555**	**17.0316**	**4.7666**	**0.0440**	**1.0598**	**0.0731**	**1.1329**	**0.2891**	**0.0699**	**0.3590**		**4,699.2548**	**4,699.2548**	**0.2870**		**4,706.4299**

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	lb/day										lb/day					
Fugitive Dust					6.3958	0.0000	6.3958	3.3545	0.0000	3.3545			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.3958**	**1.3974**	**7.7932**	**3.3545**	**1.2856**	**4.6401**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.3 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	lb/day										lb/day					
Hauling	0.4908	16.9838	4.3007	0.0429	0.9457	0.0723	1.0180	0.2589	0.0692	0.3280		4,591.4048	4,591.4048	0.2836		4,598.4943
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
Worker	0.0647	0.0477	0.4660	1.0800e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		107.8500	107.8500	3.4200e-003		107.9356
Total	**0.5555**	**17.0316**	**4.7666**	**0.0440**	**1.0598**	**0.0731**	**1.1329**	**0.2891**	**0.0699**	**0.3590**		**4,699.2548**	**4,699.2548**	**0.2870**		**4,706.4299**

3.4 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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

3.4 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	lb/day										lb/day					
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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

3.4 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	lb/day										lb/day					
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**

3.5 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	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.1906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6450**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 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	lb/day										lb/day					
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
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
Worker	0.0647	0.0477	0.4660	1.0800e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		107.8500	107.8500	3.4200e-003		107.9356
Total	**0.0647**	**0.0477**	**0.4660**	**1.0800e-003**	**0.1141**	**8.1000e-004**	**0.1149**	**0.0303**	**7.5000e-004**	**0.0310**		**107.8500**	**107.8500**	**3.4200e-003**		**107.9356**

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	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.1906					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6450**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 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	lb/day										lb/day					
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
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
Worker	0.0647	0.0477	0.4660	1.0800e-003	0.1141	8.1000e-004	0.1149	0.0303	7.5000e-004	0.0310		107.8500	107.8500	3.4200e-003		107.9356
Total	**0.0647**	**0.0477**	**0.4660**	**1.0800e-003**	**0.1141**	**8.1000e-004**	**0.1149**	**0.0303**	**7.5000e-004**	**0.0310**		**107.8500**	**107.8500**	**3.4200e-003**		**107.9356**

3.6 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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.6 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	lb/day										lb/day					
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
Vendor	0.2537	6.2580	2.0748	0.0125	0.3070	0.0453	0.3522	0.0883	0.0433	0.1316		1,318.7876	1,318.7876	0.0881		1,320.9899
Worker	0.5650	0.4169	4.0693	9.4700e-003	0.9965	7.1000e-003	1.0036	0.2643	6.5500e-003	0.2709		941.8902	941.8902	0.0299		942.6376
Total	**0.8187**	**6.6749**	**6.1442**	**0.0219**	**1.3035**	**0.0524**	**1.3559**	**0.3527**	**0.0499**	**0.4025**		**2,260.6778**	**2,260.6778**	**0.1180**		**2,263.6275**

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	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.6 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	lb/day										lb/day					
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
Vendor	0.2537	6.2580	2.0748	0.0125	0.3070	0.0453	0.3522	0.0883	0.0433	0.1316		1,318.7876	1,318.7876	0.0881		1,320.9899
Worker	0.5650	0.4169	4.0693	9.4700e-003	0.9965	7.1000e-003	1.0036	0.2643	6.5500e-003	0.2709		941.8902	941.8902	0.0299		942.6376
Total	**0.8187**	**6.6749**	**6.1442**	**0.0219**	**1.3035**	**0.0524**	**1.3559**	**0.3527**	**0.0499**	**0.4025**		**2,260.6778**	**2,260.6778**	**0.1180**		**2,263.6275**

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	lb/day										lb/day					
Archit. Coating	17.1560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**17.4224**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0.1121	0.0827	0.8077	1.8800e-003	0.1978	1.4100e-003	0.1992	0.0525	1.3000e-003	0.0538		186.9400	186.9400	5.9300e-003		187.0884
Total	**0.1121**	**0.0827**	**0.8077**	**1.8800e-003**	**0.1978**	**1.4100e-003**	**0.1992**	**0.0525**	**1.3000e-003**	**0.0538**		**186.9400**	**186.9400**	**5.9300e-003**		**187.0884**

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	lb/day										lb/day					
Archit. Coating	17.1560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**17.4224**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

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	lb/day										lb/day					
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
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
Worker	0.1121	0.0827	0.8077	1.8800e-003	0.1978	1.4100e-003	0.1992	0.0525	1.3000e-003	0.0538		186.9400	186.9400	5.9300e-003		187.0884
Total	**0.1121**	**0.0827**	**0.8077**	**1.8800e-003**	**0.1978**	**1.4100e-003**	**0.1992**	**0.0525**	**1.3000e-003**	**0.0538**		**186.9400**	**186.9400**	**5.9300e-003**		**187.0884**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	lb/day										lb/day					
Mitigated	1.5969	7.6394	21.4102	0.0590	5.1479	0.0655	5.2134	1.3767	0.0616	1.4383		5,966.6863	5,966.6863	0.3142		5,974.5422
Unmitigated	1.6101	7.7400	21.7292	0.0601	5.2530	0.0667	5.3197	1.4048	0.0627	1.4676		6,082.2936	6,082.2936	0.3193		6,090.2763

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	851.04	851.04	851.04	2,475,086	2,425,584
Total	851.04	851.04	851.04	2,475,086	2,425,584

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
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	10.00	5.00	6.50	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Unrefrigerated Warehouse-No Rail	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
NaturalGas Unmitigated	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472

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	lb/day										lb/day					
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
Unrefrigerated Warehouse-No Rail	294.451	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Total		**3.1800e-003**	**0.0289**	**0.0243**	**1.7000e-004**		**2.1900e-003**	**2.1900e-003**		**2.1900e-003**	**2.1900e-003**		**34.6413**	**34.6413**	**6.6000e-004**	**6.4000e-004**	**34.8472**

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	lb/day										lb/day					
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
Unrefrigerated Warehouse-No Rail	0.294451	3.1800e-003	0.0289	0.0243	1.7000e-004		2.1900e-003	2.1900e-003		2.1900e-003	2.1900e-003		34.6413	34.6413	6.6000e-004	6.4000e-004	34.8472
Total		**3.1800e-003**	**0.0289**	**0.0243**	**1.7000e-004**		**2.1900e-003**	**2.1900e-003**		**2.1900e-003**	**2.1900e-003**		**34.6413**	**34.6413**	**6.6000e-004**	**6.4000e-004**	**34.8472**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Unmitigated	5.2946	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047

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	lb/day										lb/day					
Architectural Coating	0.5640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7262					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.3300e-003	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Total	**5.2946**	**4.3000e-004**	**0.0461**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.0981**	**0.0981**	**2.6000e-004**		**0.1047**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.7262					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.3300e-003	4.3000e-004	0.0461	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		0.0981	0.0981	2.6000e-004		0.1047
Total	**5.2946**	**4.3000e-004**	**0.0461**	**0.0000**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**		**0.0981**	**0.0981**	**2.6000e-004**		**0.1047**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	4	8.00	260	89	0.20	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Forklifts	0.5761	5.1900	4.7211	6.1100e-003		0.3867	0.3867		0.3557	0.3557		592.1233	592.1233	0.1915		596.9109
Total	**0.5761**	**5.1900**	**4.7211**	**6.1100e-003**		**0.3867**	**0.3867**		**0.3557**	**0.3557**		**592.1233**	**592.1233**	**0.1915**		**596.9109**

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

Wayne Court Warehouses

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	219.34	1000sqft	5.04	219,336.00	0
Parking Lot	229.00	Space	0.80	91,600.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	440.33	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SMUD rps calculation

Land Use - Applicant provided

Construction Phase - applicant provided

Grading - applicant provided on AQ/GHG questionnaire

Vehicle Trips - Traffic Impact Analysis

Energy Use -

Mobile Land Use Mitigation -

Energy Mitigation -

Operational Off-Road Equipment - Applicant provided

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	120.00
tblConstructionPhase	NumDays	230.00	120.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	46.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	0.00
tblGrading	AcresOfGrading	23.00	12.31
tblGrading	MaterialImported	0.00	20,000.00
tblLandUse	LandUseSquareFeet	219,340.00	219,336.00
tblLandUse	LotAcreage	2.06	0.80
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	440.33
tblVehicleTrips	ST_TR	1.68	3.88
tblVehicleTrips	SU_TR	1.68	3.88
tblVehicleTrips	WD_TR	1.68	3.88

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	1.3209	2.9024	2.1066	5.0900e-003	0.2584	0.1266	0.3851	0.1074	0.1188	0.2262	0.0000	464.5383	464.5383	0.0710	0.0000	466.3128
Maximum	**1.3209**	**2.9024**	**2.1066**	**5.0900e-003**	**0.2584**	**0.1266**	**0.3851**	**0.1074**	**0.1188**	**0.2262**	**0.0000**	**464.5383**	**464.5383**	**0.0710**	**0.0000**	**466.3128**

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	1.3209	2.9024	2.1066	5.0900e-003	0.2584	0.1266	0.3851	0.1074	0.1188	0.2262	0.0000	464.5380	464.5380	0.0710	0.0000	466.3125
Maximum	**1.3209**	**2.9024**	**2.1066**	**5.0900e-003**	**0.2584**	**0.1266**	**0.3851**	**0.1074**	**0.1188**	**0.2262**	**0.0000**	**464.5380**	**464.5380**	**0.0710**	**0.0000**	**466.3125**

	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	**4-1-2019**	**6-30-2019**	1.3153	1.3153
2	**7-1-2019**	**9-30-2019**	1.6351	1.6351
		Highest	1.6351	1.6351

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	0.9660	5.0000e-005	5.7600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0111	0.0111	3.0000e-005	0.0000	0.0119
Energy	5.8000e-004	5.2700e-003	4.4300e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	153.2005	153.2005	9.8200e-003	2.1100e-003	154.0762
Mobile	0.3068	1.3638	3.8278	0.0112	0.9236	0.0121	0.9356	0.2477	0.0113	0.2590	0.0000	1,027.4566	1,027.4566	0.0520	0.0000	1,028.7556
Offroad	0.0749	0.6747	0.6137	7.9000e-004		0.0503	0.0503		0.0462	0.0462	0.0000	69.8315	69.8315	0.0226	0.0000	70.3961
Waste						0.0000	0.0000		0.0000	0.0000	41.8527	0.0000	41.8527	2.4734	0.0000	103.6882
Water						0.0000	0.0000		0.0000	0.0000	17.9457	50.4777	68.4234	0.0651	0.0397	81.8854
Total	**1.3483**	**2.0438**	**4.4517**	**0.0120**	**0.9236**	**0.0627**	**0.9863**	**0.2477**	**0.0580**	**0.3057**	**59.7983**	**1,300.9774**	**1,360.7758**	**2.6229**	**0.0418**	**1,438.8134**

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	0.9660	5.0000e-005	5.7600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0111	0.0111	3.0000e-005	0.0000	0.0119
Energy	5.8000e-004	5.2700e-003	4.4300e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	153.2005	153.2005	9.8200e-003	2.1100e-003	154.0762
Mobile	0.3044	1.3463	3.7683	0.0110	0.9051	0.0118	0.9169	0.2428	0.0111	0.2539	0.0000	1,007.9518	1,007.9518	0.0511	0.0000	1,009.2297
Offroad	0.0749	0.6747	0.6137	7.9000e-004		0.0503	0.0503		0.0462	0.0462	0.0000	69.8315	69.8315	0.0226	0.0000	70.3961
Waste						0.0000	0.0000		0.0000	0.0000	41.8527	0.0000	41.8527	2.4734	0.0000	103.6882
Water						0.0000	0.0000		0.0000	0.0000	17.9457	50.4777	68.4234	0.0651	0.0397	81.8854
Total	**1.3459**	**2.0264**	**4.3922**	**0.0118**	**0.9051**	**0.0625**	**0.9676**	**0.2428**	**0.0578**	**0.3005**	**59.7983**	**1,281.4727**	**1,341.2710**	**2.6221**	**0.0418**	**1,419.2875**

	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	**0.18**	**0.85**	**1.34**	**1.75**	**2.00**	**0.35**	**1.89**	**2.00**	**0.36**	**1.69**	**0.00**	**1.50**	**1.43**	**0.03**	**0.00**	**1.36**

3.0 Construction Detail

Construction Phase

Wayne Court Warehouses - Sacramento Metropolitan AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2019	3/31/2019	5	0	
2	Grading	Grading	4/1/2019	6/3/2019	5	46	
3	Site Preparation	Site Preparation	4/27/2019	4/26/2019	5	0	
4	Paving	Paving	6/4/2019	6/18/2019	5	11	
5	Building Construction	Building Construction	6/19/2019	12/3/2019	5	120	
6	Architectural Coating	Architectural Coating	7/3/2019	12/17/2019	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12.31

Acres of Paving: 0.8

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 329,004; Non-Residential Outdoor: 109,668; Striped Parking Area: 5,496 (Architectural Coating – sqft)

OffRoad Equipment

Wayne Court Warehouses - Sacramento Metropolitan AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
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	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,500.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	131.00	51.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	26.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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 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					0.1471	0.0000	0.1471	0.0772	0.0000	0.0772	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0594	0.6520	0.3748	6.8000e-004		0.0321	0.0321		0.0296	0.0296	0.0000	61.2772	61.2772	0.0194	0.0000	61.7619
Total	**0.0594**	**0.6520**	**0.3748**	**6.8000e-004**	**0.1471**	**0.0321**	**0.1792**	**0.0772**	**0.0296**	**0.1067**	**0.0000**	**61.2772**	**61.2772**	**0.0194**	**0.0000**	**61.7619**

3.3 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	0.0110	0.3884	0.0940	1.0000e-003	0.0211	1.6300e-003	0.0227	5.7900e-003	1.5600e-003	7.3500e-003	0.0000	96.6485	96.6485	5.7500e-003	0.0000	96.7922
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.8000e-004	0.0106	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3162	2.3162	7.0000e-005	0.0000	2.3180
Total	**0.0124**	**0.3894**	**0.1046**	**1.0300e-003**	**0.0236**	**1.6500e-003**	**0.0253**	**6.4600e-003**	**1.5800e-003**	**8.0400e-003**	**0.0000**	**98.9647**	**98.9647**	**5.8200e-003**	**0.0000**	**99.1102**

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					0.1471	0.0000	0.1471	0.0772	0.0000	0.0772	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0594	0.6520	0.3748	6.8000e-004		0.0321	0.0321		0.0296	0.0296	0.0000	61.2771	61.2771	0.0194	0.0000	61.7618
Total	**0.0594**	**0.6520**	**0.3748**	**6.8000e-004**	**0.1471**	**0.0321**	**0.1792**	**0.0772**	**0.0296**	**0.1067**	**0.0000**	**61.2771**	**61.2771**	**0.0194**	**0.0000**	**61.7618**

3.3 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	0.0110	0.3884	0.0940	1.0000e-003	0.0211	1.6300e-003	0.0227	5.7900e-003	1.5600e-003	7.3500e-003	0.0000	96.6485	96.6485	5.7500e-003	0.0000	96.7922
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-003	9.8000e-004	0.0106	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3162	2.3162	7.0000e-005	0.0000	2.3180
Total	**0.0124**	**0.3894**	**0.1046**	**1.0300e-003**	**0.0236**	**1.6500e-003**	**0.0253**	**6.4600e-003**	**1.5800e-003**	**8.0400e-003**	**0.0000**	**98.9647**	**98.9647**	**5.8200e-003**	**0.0000**	**99.1102**

3.4 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

3.4 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	0.0000	0.0000	0.0000	0.0000	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					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

3.4 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	0.0000	0.0000	0.0000	0.0000	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**

3.5 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	8.0000e-003	0.0838	0.0807	1.3000e-004		4.5400e-003	4.5400e-003		4.1700e-003	4.1700e-003	0.0000	11.2614	11.2614	3.5600e-003	0.0000	11.3504
Paving	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.0500e-003**	**0.0838**	**0.0807**	**1.3000e-004**		**4.5400e-003**	**4.5400e-003**		**4.1700e-003**	**4.1700e-003**	**0.0000**	**11.2614**	**11.2614**	**3.5600e-003**	**0.0000**	**11.3504**

3.5 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	3.3000e-004	2.3000e-004	2.5300e-003	1.0000e-005	6.1000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.5539	0.5539	2.0000e-005	0.0000	0.5543
Total	**3.3000e-004**	**2.3000e-004**	**2.5300e-003**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**6.1000e-004**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5539**	**0.5539**	**2.0000e-005**	**0.0000**	**0.5543**

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	8.0000e-003	0.0838	0.0807	1.3000e-004		4.5400e-003	4.5400e-003		4.1700e-003	4.1700e-003	0.0000	11.2613	11.2613	3.5600e-003	0.0000	11.3504
Paving	1.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.0500e-003**	**0.0838**	**0.0807**	**1.3000e-004**		**4.5400e-003**	**4.5400e-003**		**4.1700e-003**	**4.1700e-003**	**0.0000**	**11.2613**	**11.2613**	**3.5600e-003**	**0.0000**	**11.3504**

3.5 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	3.3000e-004	2.3000e-004	2.5300e-003	1.0000e-005	6.1000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.7000e-004	0.0000	0.5539	0.5539	2.0000e-005	0.0000	0.5543
Total	**3.3000e-004**	**2.3000e-004**	**2.5300e-003**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**6.1000e-004**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5539**	**0.5539**	**2.0000e-005**	**0.0000**	**0.5543**

3.6 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	0.1417	1.2647	1.0298	1.6100e-003		0.0774	0.0774		0.0728	0.0728	0.0000	141.0625	141.0625	0.0344	0.0000	141.9216
Total	**0.1417**	**1.2647**	**1.0298**	**1.6100e-003**		**0.0774**	**0.0774**		**0.0728**	**0.0728**	**0.0000**	**141.0625**	**141.0625**	**0.0344**	**0.0000**	**141.9216**

3.6 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	0.0147	0.3754	0.1147	7.6000e-004	0.0179	2.6700e-003	0.0206	5.1700e-003	2.5600e-003	7.7300e-003	0.0000	72.8557	72.8557	4.5700e-003	0.0000	72.9699
Worker	0.0318	0.0223	0.2412	5.8000e-004	0.0577	4.3000e-004	0.0582	0.0154	3.9000e-004	0.0158	0.0000	52.7700	52.7700	1.6400e-003	0.0000	52.8110
Total	**0.0465**	**0.3977**	**0.3559**	**1.3400e-003**	**0.0756**	**3.1000e-003**	**0.0787**	**0.0205**	**2.9500e-003**	**0.0235**	**0.0000**	**125.6257**	**125.6257**	**6.2100e-003**	**0.0000**	**125.7809**

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	0.1417	1.2647	1.0298	1.6100e-003		0.0774	0.0774		0.0728	0.0728	0.0000	141.0624	141.0624	0.0344	0.0000	141.9215
Total	**0.1417**	**1.2647**	**1.0298**	**1.6100e-003**		**0.0774**	**0.0774**		**0.0728**	**0.0728**	**0.0000**	**141.0624**	**141.0624**	**0.0344**	**0.0000**	**141.9215**

3.6 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	0.0147	0.3754	0.1147	7.6000e-004	0.0179	2.6700e-003	0.0206	5.1700e-003	2.5600e-003	7.7300e-003	0.0000	72.8557	72.8557	4.5700e-003	0.0000	72.9699
Worker	0.0318	0.0223	0.2412	5.8000e-004	0.0577	4.3000e-004	0.0582	0.0154	3.9000e-004	0.0158	0.0000	52.7700	52.7700	1.6400e-003	0.0000	52.8110
Total	**0.0465**	**0.3977**	**0.3559**	**1.3400e-003**	**0.0756**	**3.1000e-003**	**0.0787**	**0.0205**	**2.9500e-003**	**0.0235**	**0.0000**	**125.6257**	**125.6257**	**6.2100e-003**	**0.0000**	**125.7809**

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	1.0294					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1101	0.1105	1.8000e-004		7.7300e-003	7.7300e-003		7.7300e-003	7.7300e-003	0.0000	15.3195	15.3195	1.2900e-003	0.0000	15.3519
Total	**1.0454**	**0.1101**	**0.1105**	**1.8000e-004**		**7.7300e-003**	**7.7300e-003**		**7.7300e-003**	**7.7300e-003**	**0.0000**	**15.3195**	**15.3195**	**1.2900e-003**	**0.0000**	**15.3519**

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	6.3100e-003	4.4300e-003	0.0479	1.2000e-004	0.0115	8.0000e-005	0.0115	3.0500e-003	8.0000e-005	3.1300e-003	0.0000	10.4734	10.4734	3.3000e-004	0.0000	10.4816
Total	**6.3100e-003**	**4.4300e-003**	**0.0479**	**1.2000e-004**	**0.0115**	**8.0000e-005**	**0.0115**	**3.0500e-003**	**8.0000e-005**	**3.1300e-003**	**0.0000**	**10.4734**	**10.4734**	**3.3000e-004**	**0.0000**	**10.4816**

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	1.0294					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1101	0.1105	1.8000e-004		7.7300e-003	7.7300e-003		7.7300e-003	7.7300e-003	0.0000	15.3195	15.3195	1.2900e-003	0.0000	15.3519
Total	**1.0454**	**0.1101**	**0.1105**	**1.8000e-004**		**7.7300e-003**	**7.7300e-003**		**7.7300e-003**	**7.7300e-003**	**0.0000**	**15.3195**	**15.3195**	**1.2900e-003**	**0.0000**	**15.3519**

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	6.3100e-003	4.4300e-003	0.0479	1.2000e-004	0.0115	8.0000e-005	0.0115	3.0500e-003	8.0000e-005	3.1300e-003	0.0000	10.4734	10.4734	3.3000e-004	0.0000	10.4816
Total	**6.3100e-003**	**4.4300e-003**	**0.0479**	**1.2000e-004**	**0.0115**	**8.0000e-005**	**0.0115**	**3.0500e-003**	**8.0000e-005**	**3.1300e-003**	**0.0000**	**10.4734**	**10.4734**	**3.3000e-004**	**0.0000**	**10.4816**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	0.3044	1.3463	3.7683	0.0110	0.9051	0.0118	0.9169	0.2428	0.0111	0.2539	0.0000	1,007.9518	1,007.9518	0.0511	0.0000	1,009.2297
Unmitigated	0.3068	1.3638	3.8278	0.0112	0.9236	0.0121	0.9356	0.2477	0.0113	0.2590	0.0000	1,027.4566	1,027.4566	0.0520	0.0000	1,028.7556

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	851.04	851.04	851.04	2,475,086	2,425,584
Total	851.04	851.04	851.04	2,475,086	2,425,584

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
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	10.00	5.00	6.50	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Unrefrigerated Warehouse-No Rail	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	147.4653	147.4653	9.7100e-003	2.0100e-003	148.3069
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	147.4653	147.4653	9.7100e-003	2.0100e-003	148.3069
NaturalGas Mitigated	5.8000e-004	5.2700e-003	4.4300e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.7353	5.7353	1.1000e-004	1.1000e-004	5.7693
NaturalGas Unmitigated	5.8000e-004	5.2700e-003	4.4300e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.7353	5.7353	1.1000e-004	1.1000e-004	5.7693

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					
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
Unrefrigerated Warehouse-No Rail	107475	5.8000e-004	5.2700e-003	4.4300e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.7353	5.7353	1.1000e-004	1.1000e-004	5.7693
Total		**5.8000e-004**	**5.2700e-003**	**4.4300e-003**	**3.0000e-005**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**5.7353**	**5.7353**	**1.1000e-004**	**1.1000e-004**	**5.7693**

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					
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
Unrefrigerated Warehouse-No Rail	107475	5.8000e-004	5.2700e-003	4.4300e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.7353	5.7353	1.1000e-004	1.1000e-004	5.7693
Total		**5.8000e-004**	**5.2700e-003**	**4.4300e-003**	**3.0000e-005**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**5.7353**	**5.7353**	**1.1000e-004**	**1.1000e-004**	**5.7693**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	32060	6.4034	4.2000e-004	9.0000e-005	6.4399
Unrefrigerated Warehouse-No Rail	706262	141.0619	9.2900e-003	1.9200e-003	141.8670
Total		**147.4653**	**9.7100e-003**	**2.0100e-003**	**148.3069**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	32060	6.4034	4.2000e-004	9.0000e-005	6.4399
Unrefrigerated Warehouse-No Rail	706262	141.0619	9.2900e-003	1.9200e-003	141.8670
Total		**147.4653**	**9.7100e-003**	**2.0100e-003**	**148.3069**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9660	5.0000e-005	5.7600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0111	0.0111	3.0000e-005	0.0000	0.0119
Unmitigated	0.9660	5.0000e-005	5.7600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0111	0.0111	3.0000e-005	0.0000	0.0119

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1029					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e-004	5.0000e-005	5.7600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0111	0.0111	3.0000e-005	0.0000	0.0119
Total	**0.9660**	**5.0000e-005**	**5.7600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0111**	**0.0111**	**3.0000e-005**	**0.0000**	**0.0119**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1029					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e-004	5.0000e-005	5.7600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0111	0.0111	3.0000e-005	0.0000	0.0119
Total	**0.9660**	**5.0000e-005**	**5.7600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0111**	**0.0111**	**3.0000e-005**	**0.0000**	**0.0119**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	68.4234	0.0651	0.0397	81.8854
Unmitigated	68.4234	0.0651	0.0397	81.8854

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	50.7224 / 0	68.4234	0.0651	0.0397	81.8854
Total		**68.4234**	**0.0651**	**0.0397**	**81.8854**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	50.7224 / 0	68.4234	0.0651	0.0397	81.8854
Total		**68.4234**	**0.0651**	**0.0397**	**81.8854**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.8527	2.4734	0.0000	103.6882
Unmitigated	41.8527	2.4734	0.0000	103.6882

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	206.18	41.8527	2.4734	0.0000	103.6882
Total		**41.8527**	**2.4734**	**0.0000**	**103.6882**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	206.18	41.8527	2.4734	0.0000	103.6882
Total		**41.8527**	**2.4734**	**0.0000**	**103.6882**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	4	8.00	260	89	0.20	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Forklifts	0.0749	0.6747	0.6137	7.9000e-004		0.0503	0.0503		0.0462	0.0462	0.0000	69.8315	69.8315	0.0226	0.0000	70.3961
Total	**0.0749**	**0.6747**	**0.6137**	**7.9000e-004**		**0.0503**	**0.0503**		**0.0462**	**0.0462**	**0.0000**	**69.8315**	**69.8315**	**0.0226**	**0.0000**	**70.3961**

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

Wayne Court Warehouses

Sacramento Metropolitan AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	4	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	6	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	10	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	1.59900E-002	1.10120E-001	1.10480E-001	1.80000E-004	7.73000E-003	7.73000E-003	0.00000E+000	1.53195E+001	1.53195E+001	1.29000E-003	0.00000E+000	1.53519E+001
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	2.64600E-002	3.15370E-001	1.20380E-001	3.00000E-004	1.33700E-002	1.23000E-002	0.00000E+000	2.72052E+001	2.72052E+001	8.61000E-003	0.00000E+000	2.74204E+001
Excavators	6.00000E-003	6.16800E-002	7.50500E-002	1.20000E-004	2.97000E-003	2.74000E-003	0.00000E+000	1.06648E+001	1.06648E+001	3.37000E-003	0.00000E+000	1.07491E+001
Forklifts	2.87900E-002	2.57100E-001	2.14950E-001	2.70000E-004	1.99200E-002	1.83200E-002	0.00000E+000	2.47096E+001	2.47096E+001	7.82000E-003	0.00000E+000	2.49051E+001
Generator Sets	2.66400E-002	2.26670E-001	2.23390E-001	3.90000E-004	1.35500E-002	1.35500E-002	0.00000E+000	3.39125E+001	3.39125E+001	2.15000E-003	0.00000E+000	3.39662E+001
Graders	1.11900E-002	1.51330E-001	4.22700E-002	1.50000E-004	4.86000E-003	4.47000E-003	0.00000E+000	1.37216E+001	1.37216E+001	4.34000E-003	0.00000E+000	1.38301E+001
Pavers	3.17000E-003	3.43700E-002	3.19200E-002	5.00000E-005	1.68000E-003	1.55000E-003	0.00000E+000	4.64522E+000	4.64522E+000	1.47000E-003	0.00000E+000	4.68196E+000
Paving Equipment	2.34000E-003	2.48200E-002	2.77600E-002	4.00000E-005	1.23000E-003	1.13000E-003	0.00000E+000	4.02474E+000	4.02474E+000	1.27000E-003	0.00000E+000	4.05657E+000
Rollers	2.49000E-003	2.46500E-002	2.09800E-002	3.00000E-005	1.62000E-003	1.49000E-003	0.00000E+000	2.59139E+000	2.59139E+000	8.20000E-004	0.00000E+000	2.61189E+000
Rubber Tired Dozers	2.61000E-002	2.77710E-001	9.85300E-002	2.00000E-004	1.35400E-002	1.24600E-002	0.00000E+000	1.76401E+001	1.76401E+001	5.58000E-003	0.00000E+000	1.77796E+001
Tractors/Loaders/Backhoes	5.27300E-002	5.29410E-001	5.21560E-001	7.00000E-004	3.53400E-002	3.25200E-002	0.00000E+000	6.31929E+001	6.31929E+001	1.99900E-002	0.00000E+000	6.36927E+001
Welders	2.31100E-002	9.74600E-002	1.08430E-001	1.50000E-004	5.98000E-003	5.98000E-003	0.00000E+000	1.12932E+001	1.12932E+001	1.89000E-003	0.00000E+000	1.13404E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	1.59900E-002	1.10120E-001	1.10480E-001	1.80000E-004	7.73000E-003	7.73000E-003	0.00000E+000	1.53195E+001	1.53195E+001	1.29000E-003	0.00000E+000	1.53519E+001
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	2.64600E-002	3.15370E-001	1.20380E-001	3.00000E-004	1.33700E-002	1.23000E-002	0.00000E+000	2.72051E+001	2.72051E+001	8.61000E-003	0.00000E+000	2.74203E+001
Excavators	6.00000E-003	6.16800E-002	7.50500E-002	1.20000E-004	2.97000E-003	2.74000E-003	0.00000E+000	1.06648E+001	1.06648E+001	3.37000E-003	0.00000E+000	1.07491E+001
Forklifts	2.87900E-002	2.57100E-001	2.14950E-001	2.70000E-004	1.99200E-002	1.83200E-002	0.00000E+000	2.47096E+001	2.47096E+001	7.82000E-003	0.00000E+000	2.49050E+001
Generator Sets	2.66400E-002	2.26670E-001	2.23380E-001	3.90000E-004	1.35500E-002	1.35500E-002	0.00000E+000	3.39124E+001	3.39124E+001	2.15000E-003	0.00000E+000	3.39661E+001
Graders	1.11900E-002	1.51330E-001	4.22700E-002	1.50000E-004	4.86000E-003	4.47000E-003	0.00000E+000	1.37215E+001	1.37215E+001	4.34000E-003	0.00000E+000	1.38301E+001
Pavers	3.17000E-003	3.43700E-002	3.19200E-002	5.00000E-005	1.68000E-003	1.55000E-003	0.00000E+000	4.64522E+000	4.64522E+000	1.47000E-003	0.00000E+000	4.68196E+000
Paving Equipment	2.34000E-003	2.48200E-002	2.77600E-002	4.00000E-005	1.23000E-003	1.13000E-003	0.00000E+000	4.02473E+000	4.02473E+000	1.27000E-003	0.00000E+000	4.05657E+000
Rollers	2.49000E-003	2.46500E-002	2.09800E-002	3.00000E-005	1.62000E-003	1.49000E-003	0.00000E+000	2.59139E+000	2.59139E+000	8.20000E-004	0.00000E+000	2.61189E+000
Rubber Tired Dozers	2.61000E-002	2.77710E-001	9.85300E-002	2.00000E-004	1.35400E-002	1.24600E-002	0.00000E+000	1.76401E+001	1.76401E+001	5.58000E-003	0.00000E+000	1.77796E+001
Tractors/Loaders/Backhoes	5.27300E-002	5.29410E-001	5.21560E-001	7.00000E-004	3.53400E-002	3.25200E-002	0.00000E+000	6.31928E+001	6.31928E+001	1.99900E-002	0.00000E+000	6.36927E+001
Welders	2.31100E-002	9.74600E-002	1.08430E-001	1.50000E-004	5.98000E-003	5.98000E-003	0.00000E+000	1.12932E+001	1.12932E+001	1.89000E-003	0.00000E+000	1.13404E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.30552E-006	1.30552E-006	0.00000E+000	0.00000E+000	1.30277E-006
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.10273E-006	1.10273E-006	0.00000E+000	0.00000E+000	1.45877E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.37668E-007	9.37668E-007	0.00000E+000	0.00000E+000	9.30309E-007
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21410E-006	1.21410E-006	0.00000E+000	0.00000E+000	1.20457E-006
Generator Sets	0.00000E+000	0.00000E+000	4.47648E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17951E-006	1.17951E-006	0.00000E+000	0.00000E+000	1.17764E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.28781E-007	7.28781E-007	0.00000E+000	0.00000E+000	1.44612E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.48463E-006	2.48463E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.70067E-006	1.70067E-006	0.00000E+000	0.00000E+000	1.12488E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.10772E-006	1.10772E-006	0.00000E+000	0.00000E+000	1.09903E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.77097E-006	1.77097E-006	0.00000E+000	0.00000E+000	8.81801E-007

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.08	0.02	0.08	0.02	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.15	0.08	0.15	0.08	0.00	0.00
Grading	Roads	0.02	0.01	0.02	0.01	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.78	1.28	1.55	1.88	1.83	1.85	0.00	1.90	1.90	1.64	0.00	1.90
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.07	0.27		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.02			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.02			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24	30.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

APPENDIX C
GEOTECHNICAL INVESTIGATION UPDATE

GHD Geotechnical Investigation Update

Wayne Court Commercial Development
Sacramento, California

November 2015

November 20, 2015

Cybil Bryant
The Buzz Oates Group of Companies
555 Capital Mall, Ninth Floor
Sacramento, CA 95814

RE: Geotechnical Investigation Update, Wayne Court Commercial Developement

Dear Ms. Bryant,

GHD Inc (GHD) is pleased to present the attached report update containing the results of our geotechnical investigation update for the proposed Wayne Court Commercial Development in Sacramento, California. It is our understanding that the proposed project consists of constructing two tilt-up construction buildings, loading docks, and a parking lot. The study was conducted in accordance with the contract between Buzz Oates Group of Companies and GHD, dated October 20, 2015.

The accompanying report presents our findings, conclusions (section 4), and recommendations (section 5) developed from our geotechnical investigation for design and construction of the proposed improvements as well as site grading, excavation, and earthwork. The results of the subsurface exploration and laboratory testing programs, which form the basis of our recommendations, are also included in the report. On the basis of our investigation, the site is suitable, from a geotechnical perspective, to receive the planned improvements provided the recommendations included in the report are adhered to.

If you have any questions regarding the information contained in this report, or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,
GHD Inc

Christopher D. Trumbull, P.E., G.E., D.GE
Project Manager

Kyle Jermstad, E.I.T., Q.S.P.
Staff Engineer

GHD Inc
4080 Plaza Goldorado Circle Suite B Cameron Park CA 95682 USA
T 1 530 677 5515 **W** www.ghd.com

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Buzz Oates Construction, Inc.
555 Capital Mall, Ninth Floor
Sacramento, CA 95814

From: GHD Inc
Christopher Trumbull, P.E., G.E., D.GE
Kyle M. Jermstad, E.I.T., Q.S.P.
4080 Plaza Goldorado Circle, Suite B
Cameron Park, CA 95682

1. Introduction

This report presents the findings, conclusions, and recommendations developed from our geotechnical engineering investigation. The investigation was conducted in accordance with the contract between Buzz Oates Group of Companies (Buzz Oates) and GHD Inc (GHD), dated October 20, 2015. This investigation updates and supersedes the Carlton Engineering Inc (now GHD) 2008 Geotechnical Engineering Study and 2008 Geotechnical Study Update.

1.1 Project Description

Our understanding of the proposed project is based upon discussions with Buzz Oates (Client), and on the site layout presented in the 2008 civil plans. We understand the proposed project consists of two (2) buildings, each being 110,466 square feet in size, with four (4) depressed loading docks on the east side of the buildings, parking areas, and a shared driveway off of Wayne Court. The project site, as shown on Figure A-1 is approximately twelve (12) acres and is bounded by Morrison Creek to the north, industrial property to the south, agricultural property to the east, and commercial property to the west.

1.2 Purpose and Scope of Work

The purpose of this investigation was to update the 2008 geotechnical studies which evaluated the suitability of the project site, from a geotechnical perspective, for the proposed improvements. The main objectives of the investigation were to characterize the subsurface materials, perform engineering analyses, develop geotechnical recommendations and criteria to be used for design and construction, and document our findings, conclusions, and recommendations in this report.

The scope of our geotechnical investigation update included the following:

- Review available published geotechnical and geologic data applicable to the project, including the 2008 Geotechnical Engineering Study and Update;
- Review historical aerial photographs;
- Review the current development plan and Buzz Oates' Development standards;
- Perform supplemental earthwork evaluations; and
- Prepare an updated design-level geotechnical investigation report.

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2. Field Exploration and Laboratory Testing

2.1 Field Exploration

Ten borings were drilled on April 22, 2008, at the approximate locations shown on Figure A-2. The borings were located in the field based on our understanding of the potential site improvements. The borings were drilled to a maximum depth of approximately 41.5 feet below ground surface (bgs) under the supervision of Moranda Kellogg of Carlton Engineering (now GHD) utilizing a Diedrich D120 drill rig. Soil samples were collected using split-spoon barrel samplers for bearing capacity.

Both the samples and drill cuttings were visually classified based on the Unified Soil Classification System (USCS) in general accordance with ASTM D2488.

The subsurface conditions encountered are summarized in Section 3.2. Logs of the borings were prepared based on the field logging, visual examination of the soil samples in the laboratory, and the results of laboratory testing. The soil boring key and the logs of borings are presented in Appendix B.

2.2 Geotechnical Laboratory Testing

Laboratory testing was conducted on disturbed soil samples recovered during the site investigation. Tests conducted include the following:

- Standard Test Method for Amount of Material in Soils Finer than the No. 200 Sieve (ASTM D1140);
- Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)) (ASTM D1557);
- Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock by Mass (ASTM D2216);
- Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937);
- Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions (ASTM D3080);
- Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318);
- Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils (CTM 301); and
- pH, Minimum-Resistivity, and Chloride and Sulfate Contents (Caltrans 643 Mod., 417, and 422).

Geotechnical laboratory test results are presented in Appendix C.

3. Site and Subsurface Conditions

3.1 Site Conditions

The project is situated on one continuous parcel and is located at 24 Wayne Court in Sacramento, California. The site encompasses approximately 12 acres and was undeveloped at the time of our exploration in 2008 and remains undeveloped as of the writing of this update. The terrain across the site was observed to have an overall slope of about 0.3% to the north with Morrison Creek located at the north boundary of the property. Elevations range between approximately 51 feet mean sea level (msl) at the north end of the property and 54 feet msl near the south end of the property. There are no trees located within the property boundaries.

3.2 Subsurface Conditions

3.2.1 General Geology and Faulting

The site is located within California's Great Valley geomorphic province. The Great Valley is a northwest trending structural trough, approximately 400 miles long and averaging 50 miles wide, that is filled with Cretaceous, Tertiary and Quaternary period sediments. The province is fault-bounded on the west by the Coast Ranges, and bounded on the east by the Sierra Nevada foothills with the hardpan of the Sierra Nevada block dipping gently westward beneath the valley sediments. The sedimentary formations comprising the valley fill are nearly lying flat and are derived from erosion of the Sierra Nevada and the Coast Ranges. Gently westward dipping Tertiary volcanic flows and ash from the Sierra Nevada cover older marine and delta deposits, which in turn are covered by lake and alluvial deposits in the northern portion near the eastern edge of the valley. The western extent of the valley is filled by thousands of feet of sediment with the deepest filling in the southwestern portion being more than 30,000 feet thick.

The California Geological Survey (CGS, 1987) has mapped the underlying formation in the area of the project as Riverbank Formation, consisting of alluviums. Alluvium, soil deposited by a stream, consists of both fine particles (silt and clay) and larger particles (sand and gravel).

The site is not located within a current Alquist-Priolo Earthquake Fault Zone (Hart and Bryant, 1997), and no active faults appear to be trending toward the site; therefore, we consider the probability of ground surface rupture along a fault trace to be low at the site. The site vicinity is located in an area generally characterized as having low to moderate seismicity. The nearest mapped fault to the project site is the Willows Fault Zone; however, this fault zone is not classified as active or potentially active. The nearest known active fault to the site is the Dunningan Hills Fault, located approximately 26 miles to the northwest (Jennings, 2010). Consequently, we judge that it is unlikely that the site will be subjected to strong earthquake shaking during the life of the improvements.

3.2.2 Subsurface Materials

The results of our field exploration and laboratory analysis indicate that the subsurface materials generally consist of light brown to red brown fine sandy clay with areas of fine clayey sands. Soft unsuitable material was encountered adjacent to a historical drainage indicated on aerial photographs and is shown on Figure A-2. Details of subsurface materials are presented in the logs of borings presented in Appendix B.

Boring CE-1, located approximately 60 feet north of the southerly boundary line and 280 feet west of the easterly boundary line, encountered light brown to red brown, stiff to hard fine silty clay to an approximate depth of 11.5 feet bgs, the maximum depth explored for this boring. No groundwater was encountered.

Boring CE-2, located approximately 200 feet north of the southerly boundary line and 170 feet west of the easterly boundary line, encountered dark brown to red brown, soft to hard fine sandy clay to an approximate depth of 10 feet bgs. The sandy clay was underlain by brown, very dense fine clayey sand to an approximate depth of 11.5 feet bgs, the maximum depth explored for this boring. No groundwater was encountered. Clay in the top 4 feet was found to be marginally soft.

Boring CE-3, located approximately 550 feet north of the southerly boundary line and 170 feet west of the easterly boundary line, encountered light brown to brown, medium to very dense fine clayey sand to an approximate depth of 13 feet bgs. The clayey sand was underlain by brown, hard fine sandy clay to an approximate depth of 16.3 feet bgs, the maximum depth explored for this boring. Groundwater was encountered at approximately 15.5 feet bgs; however, the water may be perched.

Boring CE-4, located approximately 550 feet north of the southerly boundary line and 80 feet east of the westerly boundary line, encountered orange brown, loose fine clayey sand to an approximate depth of 2 feet bgs. The clayey sand was underlain by orange brown to dark brown, medium stiff to hard fine sandy clay to an approximate depth of 11.3 feet bgs, the maximum depth explored for this boring. No groundwater was encountered.

Boring CE-5, located approximately 200 feet north of the southerly boundary line and 80 feet east of the westerly boundary line, encountered red brown, very stiff fine sandy clay to an approximate depth of 8 feet bgs. The sandy clay was underlain by red brown, dense fine clayey sand to an approximate depth of 12 feet bgs. The clayey sand was underlain by brown, hard fine sandy clay to an approximate depth of 16.5 feet bgs, the maximum depth explored for this boring. No groundwater was encountered.

Boring CE-6, located approximately 650 feet north of the southerly boundary line and 80 feet east of the westerly boundary line, encountered light brown to brown, soft to hard fine sandy clay to an approximate depth of 11.5 feet bgs, the maximum depth explored for this boring. No groundwater was encountered; however, the materials did appear moist to wet and soft from approximately 2 to 5 feet bgs. Clay in the top 6 feet bgs was found to be marginally soft.

Boring CE-7, located approximately 150 feet east of the end of the Wayne Court cul-de-sac, encountered brown, fine sandy clay to an approximate depth of 6 feet bgs. The sandy clay was underlain by brown, dense to very dense fine clayey sand to an approximate depth of 11.5 feet bgs, the maximum depth explored for this boring. No groundwater was encountered; however, some of the materials were moist to wet from approximately 6 feet bgs to maximum depth explored.

Boring CE-8, located approximately 170 feet south of the northerly boundary line and 80 feet east of the westerly boundary line, encountered brown, hard fine sandy clay to an approximate depth of 4 feet bgs. The sandy clay was underlain by brown, dense clayey sand to an approximate depth of 8 feet bgs. The sandy clay was underlain by brown, hard fine sandy clay to an approximate depth of 16.5 feet bgs, the maximum depth explored for this boring. Groundwater was encountered at approximately 14 feet bgs; however, the water may be perched.

Boring CE-9, located approximately 200 feet south of the northerly boundary line and 170 feet west of the easterly boundary line, encountered light brown to orange brown, stiff to hard, fine sandy clay to an approximate depth of 11.5 feet bgs, the maximum depth explored for this boring. No groundwater was encountered.

Boring CE-10, located approximately 60 feet south of the northerly boundary line and 250 feet west of the easterly boundary line, encountered brown to orange brown, hard fine sandy clay to an approximate depth of 22.5 feet bgs. The sandy clay was underlain by brown, dense clayey sand to an approximate depth of 38 feet bgs. The clayey sand was underlain by brown, hard sandy clay to an approximate depth of 41.5 feet bgs, the maximum depth explored for this boring. Groundwater was encountered at approximately 14 feet bgs; however, the water may be perched.

All borings were backfilled with grout per the Sacramento County Department of Environmental Management Inspector.

3.2.3 Soil Corrosivity

The results of laboratory resistivity testing and chemical analysis performed on sample CE3-1A of near-surface soil are presented in Table 1. This information can be used in the design of corrosion protection and sulfate resistance for buried ferrous metal and concrete structures.

Table 1 General Physical and Chemical Properties

Properties	Samples / Test Results
Soil pH	7.59
Minimum Resistivity (Ohm-cm x 1000)	1.18
Chloride (ppm)	14.4
Sulfate (ppm)	48.1

Caltrans corrosion guidelines consider a site to be corrosive if chloride concentration is 500 ppm or greater; sulfate concentration is 2,000 ppm or greater, or pH is 5.5 or less.

ACI 318 considers sulfate exposure to structural concrete to be negligible for concentrations of less than 0.1 percent. Due to low concentrations of less than 0.005 percent, the possibility for sulfate attack is considered to be negligible.

To evaluate the potential for external corrosion potential on ductile iron pipe from soil, the 10-point system in C105/A21.5 (ANSI/AWWA, 1999) was used. Test results are assigned a point value based on the values in Table 2 below. The long life of historical unprotected pipe in soil with less than 10 points indicates a non-corrosive environment (AWWA 2005). Due to resistivity of less than 1,500 Ohm, the point value of the soil sample tested is 10, indicating a potentially corrosive condition for iron pipe.

Our scope of services does not include corrosion engineering; therefore, a detailed analysis of the corrosion test results is not included in this report. A qualified corrosion engineer should be retained to review the test results and design any mitigation that may be required.

Table 2 10-Point Soil Corrosion Evaluation System

10-point soil test evaluation for iron pipe

Soil Characteristics	Points*
Resistivity—*Ωcm*†	
<1,500	10
≥1,500–1,800	8
>1,800–2,100	5
>2,100–2,500	2
>2,500–3,000	1
>3,000	0
pH	
0–2	5
2–4	3
4–6.5	0
6.5–7.5	0‡
7.5–8.5	0
>8.5	3
Redox potential—*mV*	
>+100	0
+50 – +100	3.5
0 – +50	4
Negative	5
Sulfides	
Positive	3.5
Trace	2
Negative	0
Moisture	
Poor drainage, continuously wet	2
Fair drainage, generally moist	1
Good drainage, generally dry	0

*10 points: corrosive to iron pipe; protection is indicated.
†Based on water-saturated soil box. This method is designed to obtain the lowest and most accurate resistivity reading.
‡If sulfides are present and low (<100 mV) or negative redox-potential results are obtained, three points should be given for this range.

3.2.4 Groundwater Conditions

Water was encountered in 3 of the 10 borings (CE-3, CE-8, and CE-10) at approximate depths of 14 to 15.5 feet bgs. Considering the vicinity of the site to Morrison Creek and the sandy clay materials encountered, it is likely the water levels are influenced by the proximity of the creek. The water is likely to move through the alluvial materials and to be perched on top of less permeable clay. The depth to groundwater could be affected by creek levels and vary seasonally or yearly based on drought conditions.

4. Conclusions

Based on the data obtained from our field and laboratory studies, and on the results of our engineering analyses, we conclude that the project site is feasible from a geotechnical perspective, provided the recommendations presented in this report are adhered to. The primary geotechnical issues are discussed below.

4.1 Unsuitable Material

Approximately 6 feet of soft moist clay was found Borings CE-2 and CE-6. After a review of historical aerial photographs, the marginally soft clays encountered in the upper 6 feet appear to be within a historical drainage or irrigation channel. With this historical information, the area of compressible material is likely linear and is shown on Figure A-2. The unsuitable material should be removed and over-excavated, while scarifying the exposed subgrade and rebuilding with engineered fill.

4.2 Foundation Support and Settlement

Based on our subsurface exploration, we judge that the planned structures can be supported on conventional spread, or mat foundations and slab-on-grade, provided the recommendations presented in this report are adhered to. For foundations and subgrade designed and prepared as recommended in this report, differential settlements are expected to be about ½ inch over a horizontal distance of 20 feet. Total settlements of about ½ inch are anticipated.

4.3 Expansion Potential

Expansive soils are defined as soils that undergo large volume changes (shrink or swell) due to variations in moisture content. Such volume changes may cause damaging settlement and/or heave of foundations, slabs-on-grade, pavements, etc.

Laboratory results of a sample of near surface material revealed a Plasticity Index (PI) of 15 and 28 (see appendix for lab sample and location). Highly plastic (fat) material is characterized by a PI of greater than 25. Expansive materials were identified within the limits of the historical drainage shown on Figure A-2.

4.4 Groundwater and Wet Weather Earthwork

As discussed previously, water was found in borings CE-3, CE-8, and CE-10 at depths of between approximately 14 and 15.5 feet bgs. Considering the vicinity of site to Morrison Creek and the sandy clay materials encountered, it is likely the water levels are influenced by the proximity of the creek. The water is likely to move through the alluvial materials and to be perched on less permeable clay. Any excavations planned to or near these depths could encounter groundwater; dewatering or stabilization may be necessary.

During the wet season, infiltration of surface runoff may create wet or saturated near-surface soil conditions. Such conditions may adversely impact grading operations. Wet soils, if used for engineered fill, may require several days to dry to a workable moisture content. The time required for drying can be reduced by discing, ripping, or otherwise aerating the soil.

Groundwater perched on shallow clay or hardpan may be encountered throughout the site, particularly during the rainy season. Surface or subsurface drains may be required to intercept seepage and reduce its impact on the proposed site development. The need for such drains as well as their locations should be determined when the subgrade conditions are fully exposed during site grading or if seepage is observed during or after grading.

4.5 Seismic Hazards

4.5.1 Liquefaction

Seismic liquefaction occurs when excess pore pressures are generated in loose, saturated, generally cohesionless soil (sand, gravel, and some silts) during earthquake shaking, causing the soil to experience a partial to complete loss of shear strength. Such a loss of shear strength can result in settlement and/or horizontal movement (lateral spreading) of the soil mass.

Based on the blow counts, density and clay content of the soil encountered at the site, the potential for liquefaction to occur in the areas explored is considered to be low.

4.5.2 Volumetric Contraction

Seismic settlement generally occurs when relatively loose to medium dense cohesionless soils come to a more compact or dense state under earthquake shaking. Settlement can also occur as a result of volumetric contraction or in unsaturated soils above the water table. Due to the relatively dense state of the cohesionless soils at the site, we judge that significant seismic settlement is unlikely to occur in the areas explored.

4.5.3 Ground Surface Rupture

The site is not mapped in an Alquist Priolo “Earthquake Fault Zone” (CGS, 2015). Additionally, there are no known faults trending toward or traversing the site (CGS, 1994 & 1984). Based upon this information, the probability of ground surface rupture along a fault trace is considered to be low at the site.

5. Recommendations

5.1 Site Preparation and Earthwork

5.1.1 Unsuitable Material

Due to the soft clays encountered in the historic drainage in the upper 6 feet, the unsuitable materials within the limits shown on Figure A-2 are to be over-excavated, scarifying the exposed subgrade and replaced with engineered fill. Excavation of the unsuitable material should be sloped at 2:1 H:V to reduce the potential for differential settlement within the building footprint. It is anticipated that most of the native material generated from excavation will be suitable for use as engineered fill. Limits of excavation of unsuitable material should be verified in the field by GHD geotechnical staff.

Any additional soft or loose material encountered outside of the historical drainage should be removed and replaced as engineered fill or treated with lime per the Treated Subgrade section below.

The building pads should be damp at the time concrete is placed. Cracks in foundation excavation soil, or building pad soil that is to support concrete slabs, should be closed by wetting prior to placing concrete.

5.1.2 Site Preparation

General site preparation should include removal of trash and debris, rubble, pavement, abandoned foundations and the stripping of any surface vegetation including the root zone. Roots larger than 1 inch in diameter should be removed. Abandoned underground structures such as culverts or utility vaults should be removed and replaced with engineered fill, placed and compacted as recommended in the Earthwork section below. Existing utilities deeper than 5 feet below the proposed bottom of foundations and in properly compacted trenches may remain provided the ends are plugged with cement slurry. Existing utilities less than 5 feet below foundations should be evaluated qualified geotechnical staff in the field on a case-by-case basis.

5.1.3 Earthwork

5.1.3.1 General Subgrade Preparation

To provide uniform support for the proposed structures, the subgrade in all areas to receive structural improvements, including engineered fill, pavement and flatwork, should be scarified to a depth of at least 8 inches, moisture conditioned as necessary, and compacted as engineered fill.

5.1.3.2 Treated Subgrade

Per the 2007 “Buzz Oates Construction – Construction Guidelines,” the subgrade for the building slab and pavement design is to include a 12-inch treated section. Due to the clay content within the soil, lime treatment is recommended for the treated section. The building pads and truck traffic areas and 5 feet beyond (unless 5 feet beyond is not within the boundary limits), should be treated to a minimum depth of 12 inches. The lime should be either high-calcium or dolomitic quicklime. The amount of lime to be

added to the soil should be verified by GHD prior to construction. For cost estimating purposes, a treatment rate of 4 percent lime, as measured by the dry unit weight of compacted soil, can be assumed.

5.1.3.3 Engineered Fill

Engineered fill should consist of a homogenous mixture of soil and rock free of vegetation, organic material, rubbish, and/or rubble. Highly plastic or organic soils should not be used for engineered fill but may be placed in landscape areas.

We anticipate that most of the materials generated from on-site excavations will be suitable for use as engineered fill behind structures, or to raise site grades, provided the rock content is low enough to allow formation of a well-compacted soil matrix. Imported material to be used as engineered fill should be free of organic material and meet the specifications listed in Table 3 after compaction.

Table 3 Import Fill Specifications

R-Value[1] (CTM 301)	Atterberg Limits (ASTM D4318)	Particle Size (ASTM C136 or D422)
>22	PI < 15 LL < 40	100% passing the 6 inch sieve minimum of 85% passing the 2-1/2 inch sieve maximum of 30% passing the #200 sieve

[1] Required only in paved areas

A qualified geotechnical representative should observe and approve import fill material in writing prior to the material being brought on site. Engineered fill material should not contain rocks greater than 6 inches in largest dimension. Rocks placed in fill should be surrounded by a well-compacted soil matrix to prevent "nesting" and the creation of voids within the fill.

GHD should observe and approve fill material in writing prior to the material being brought on site.

To the extent practical, engineered fill material should not contain rocks greater than 6 inches in largest dimension. In general, rocks placed in fill should be surrounded by a well-compacted soil matrix to prevent "nesting" and the creation of voids within the fill.

5.1.3.4 Compaction

Engineered fill should be placed in horizontal loose lifts not exceeding 8 inches in thickness, moisture conditioned as necessary and compacted to a minimum of 95 percent of the maximum dry density as determined by the ASTM D 1557 test method.

In localized areas where there is not sufficient space between the sides of the excavation and the walls of structures or pipes to properly compact backfill, we recommend that controlled low strength material (CLSM) be utilized. CLSM is an excavatable mixture of cement, pozzolan, coarse and fine aggregates and water that can be poured into inaccessible areas. The material should be mixed in accordance with ASTM standard C94 and should have a 28-day compressive strength of between 50 and 150 psi.

5.1.3.5 Fill Slopes

Fill slopes should be constructed at an inclination no steeper than 2H:1V, should be laterally over-built at least one foot, and the slope face trimmed back to firm, compacted material.

5.1.4 Temporary Slopes/Shoring

Temporary slopes and shoring should conform to OSHA standards. Shored excavations should be constructed from the top down in cuts not exceeding 5 vertical feet in depth. Excavation of subsequent cuts should not be performed until shoring of the adjacent upper cut has been completed. Protection of workers and adjacent structures, shoring design, and the stability of all temporary slopes should be contractually established as solely the responsibility of the contractor.

5.2 Foundations

5.2.1 Bearing Capacity

The proposed structure may be supported on conventional shallow spread foundations, or mat foundations and slab-on-grade, on engineered fill or dense native soil prepared as recommended in this report. Continuous foundations should be at least 12 inches wide and isolated foundations at least 18 inches wide. The proposed footings should be excavated into native soil to a minimum depth of 18 inches below the lowest adjacent grade. Footings should be designed with maximum allowable bearing capacities of 2,000 pounds per square foot (psf) for dead plus live loads. The allowable bearing capacity can be increased by one-third for all loads including wind and seismic. Adjacent foundations or parallel utility trenches should be located such that the bottom of the foundations are below an imaginary 2:1 (H:V) plane projected up from the bottom of adjacent foundations or trenches.

5.2.2 Passive Resistance

Passive earth resistance or passive earth pressure is the amount of resistance provided by the soil in response to a movement of a structure resulting in a compressive force upon the soil. A passive equivalent fluid pressure (EFP) of 350 pounds per cubic foot (pcf) should be used if the upper foot of soil is ignored. A friction coefficient of 0.35 is recommended. If the foundation is poured against neatly excavated soil without the use of forms, both the friction coefficient and the passive resistance may be used in design.

5.3 Loading Dock Walls

The recommendations presented below are applicable to restrained loading dock walls up to 6 feet in height except for instances where structural improvements are founded within an imaginary 2:1 (H:V) envelope with the toe of the wall. For walls greater than 6 feet in height, walls supporting structures or parking areas within an imaginary 2:1 (H:V) plane, or for walls founded in a slope, GHD can be contacted for additional recommendations. It is anticipated that retaining walls should be supported on spread foundations bearing on native materials or engineered fill prepared in accordance with the recommendations presented in this report.

A restrained lateral earth pressure of 70 pcf should be used for a flat backfill inclination. In addition to lateral earth pressures, retaining walls must be designed to resist horizontal pressures due to traffic, adjacent structures, or other surcharge loads. Where a surcharge load exists on native soil, walls should be designed for an additional horizontal uniform pressure equivalent to the surcharge (psf) multiplied by an earth pressure coefficient of 0.56 for restrained wall conditions. The lateral earth pressure above assumes fully drained backfill conditions.

5.4 Seismic Design

The seismic design criteria for the site (38.516°N, 121.366°W), listed in the table below, were developed in accordance with ASCE 7-10 and 2009 NEHRP based on the sub-surface information obtained from our geotechnical engineering study.

Table 4 Seismic Design Criteria

Parameter	Recommended Value	Reference (ASCE/SEI 7-10)
Site Class	D	Table 20.3-1
Mapped MCE spectral response at short period (S_s)	0.608 g	Figure 22-1
Mapped MCE spectral response at 1 sec period (S_1)	0.276 g	Figure 22-2
Site coefficient (F_a)	1.313	Table 11.4-1
Site coefficient (F_v)	1.849	Table 11.4-2
MCE spectral response acceleration for short period (S_{ms})	0.799 g	Equation 11.4-1
MCE spectral response acceleration for 1 sec period (S_{m1})	0.509 g	Equation 11.4-2

5.5 Slab-on-Grade

Concrete slab-on-grade can be supported on subgrade soils prepared as recommended in the Earthwork section above. Slab-on-grade floor systems should be designed by the structural engineer based upon anticipated floor loads. Slab-on-grade can be designed using CBC minimum requirements; however, experience has shown that such designs may result in unacceptable performance regarding structural integrity, durability, wear resistance, aesthetics and impacts to floor coverings. These shortcomings are most often associated with the following:

- Concrete cracking and attendant differential vertical and horizontal movement of slab sections and

- Migration of moisture up through slabs resulting in damage to floor coverings and/or development of mold.

To address these performance issues, the design and construction elements for slab-on-grade construction recommended by the Portland Cement Association (PCA) in its manual Design and Control of Concrete Mixtures 15th Edition (PCA 2011) may be incorporated as considered appropriate by the structural engineer and the Client. A low water to cement ratio is advantageous for slab-on-grade performance.

As discussed earlier, due to the presence of groundwater, there is a potential for perched groundwater to come in contact with the base of slab-on-grade. Conventional capillary breaks and moisture retarders (gravel and plastic sheeting) will not effectively reduce transmission of moisture up through slabs in such a situation; therefore, if moisture transmission through slab-on-grade is a concern, we recommend that a slab underdrain be installed as described below.

Where hardpan or perched water is encountered within 2 feet of rough pad grade, the subgrade beneath interior slab-on-grade areas should be sloped to drain into a 12-inch-deep trench excavated beneath the middle of each slab. Where in soil, the trench should be lined completely with a filter fabric such as Mirafi 140N, or approved equivalent. A rigid 4-inch-diameter perforated pipe (PVC Schedule 40 or ABS with SDR of 35 or thicker) should be placed in the bottom of the trench on a 1-inch layer of clean 3/4-inch crushed drain rock with perforations down to collect drainage. The perforated pipe should be sloped to drain by gravity and connected to a solid 4-inch pipe to convey drainage water to a storm drain or other suitable location for disposal. The trench should be filled with drain rock up to slab subgrade elevation, and the filter fabric wrapped over the top of the drain rock. The drain pipe should transition to a solid (no perforations) pipe one to two feet from the perimeter foundation and convey drainage water to a storm drain or other suitable location for disposal. The trench for the non-perforated pipe should be backfilled with engineered fill.

Interior slabs (with or without underdrain) shall be underlain by at least 4 inches of 3/4-inch clean crushed rock to provide a capillary break to potential under-slab moisture. Crushed rock shall be underlain by 12 inches of lime treated soil per the Treated Subgrade section above.

Where moisture sensitive floor coverings are to be installed, the flooring manufacturer should be contacted for its recommended moisture and vapor protection measures. Other moisture-proofing measures such as concrete admixtures or sealants may be necessary, depending on the level of protection required. In general, the quality and thickness of the concrete slab are primary factors in reducing moisture and moisture vapor transmission. Transmission of moisture vapor up through the slab should be designed by the architect or by a moisture vapor expert; however an ASTM E174 Type A vapor retarder should be placed over the rock where vapor transmission is undesirable, such as in areas where flooring will be placed on the slab-on-grade. The effectiveness of the plastic in reducing water vapor transmission is highly dependent on the quality of workmanship to maintain the integrity of the plastic throughout the construction process. A 2-inch-thick layer of clean sand is commonly placed over the vapor retarder to provide puncture protection, and aid in slab curing utilizing a wet cure curing method and with a water to cement ratio of 0.43 to reduce the water and, therefore, the vapor released during curing. The sand should be uniformly lightly damp (not wet) when the concrete is placed.

Building slabs, per the “Buzz Oates Construction – Construction Guidelines,” dated March 16, 2007, should be 6 inches concrete with #4 @ 24 inches o.c. or fiber-mesh over 2” AB or crushed rock over 12 inches treated soil per soils engineer recommendations. GHD recommends #4 rebar at 24 inches o.c. from middle of slab or with W2.9 x W2.9 welded fabric sheets.

5.6 Pavement

5.6.1 Flexible Pavement

It is our understanding that pavement for the proposed project will consist of parking and drive areas. Flexible pavement recommendations are designed based on the “Buzz Oates Construction – Construction Guidelines” dated March 16, 2007. Per the construction guidelines “Parking lot section shall be 3 inches AC over 3 inches AB over 12 inches treated soil per soil engineer’s recommendations.” This section correlates to a traffic index (TI) of 7. If higher traffic loadings are anticipated, alternative sections are provided below in Table 5 Drive Pavement Sections considering a native subgrade R-value of 22. Truck trips assume one pass unloaded and one pass fully loaded and the equivalent TI was based on a 5-axle truck, a 5-day work week, and a 20-year pavement life.

Table 5 Drive Pavement Sections

Truck Trips/Day	Traffic Index	Lime Treated Subgrade Thickness (in)	Aggregate Base Thickness (in)	Hot Mix Asphalt Thickness (in)
8	7	12	3	3
23	8	12	7	3
		18	3	3
63	9	12	10	3
		18	5	3
152	10	12	13	3
		18	7	3

For areas not receiving truck traffic, primarily utilized for passenger vehicle traffic and parking, a TI of 7 may be over-conservative. Presented below in Table 6 Parking Pavement Sections are alternatives for lower traffic indexes without lime treatment of subgrade.

Table 6 Parking Pavement Sections

Traffic Index	Lime Treated Subgrade Thickness (in)	Aggregate Base Thickness (in)	Hot Mix Asphalt Thickness (in)
4	0	7	2
5	0	8	3

5.6.2 Rigid Pavement

The loading docks are to consist of a rigid pavement section (PCC) based on the "Buzz Oates Construction – Construction Guidelines," dated March 16, 2007. Per the construction guidelines "Loading Dock slabs shall be 6 inches concrete with #4 @ 24 inches o.c. or fiber-mesh over 2-inch AB or crushed rock over 12 inches treated soil per soils engineer recommendations." GHD recommends #4 rebar at 24 inches o.c. from middle of slab or with W2.9 x W2.9 welded fabric sheets. According to the Concrete Pavement Design (ACPA) manual, a 6-inch slab supports 50 trucks per day. To accommodate 100 trucks per day, a 6.5-inch slab is recommended.

The PCC should have a minimum 28-day compressive strength of 3,000 pounds per square inch (psi). The transition between rigid and flexible pavements can be problematic with respect to pavement durability and longevity. Accordingly, we recommend that both pavement types be constructed with thickened sections in the transition areas.

5.6.3 General

Native subgrade soils should be scarified to a depth of 8 inches, moisture conditioned as necessary, and compacted to a minimum relative compaction of 95 percent based on the ASTM D 1557 test method.

All AB beneath pavements should be moisture conditioned as necessary and compacted to a minimum relative compaction of 95 percent based on the ASTM D1557 test method. Subgrade should be stable (not pumping/yielding) at the time AB is placed.

The performance of pavement is highly dependent on uniform and properly compacted subgrade as well as proper compaction of trench backfill within the limits of the pavement. All earthwork within pavement areas should be performed in accordance with the recommendations contained in this report. Materials, quality and construction of the structural pavement section should, at a minimum, conform to applicable provisions of the current Caltrans Standard Specifications.

The transition between rigid and flexible pavements can be problematic with respect to pavement durability and longevity. Accordingly, we recommend that both pavement types be constructed with thickened sections in the transition areas.

5.7 Surface Drainage and Erosion Control

Drainage around structures should be constructed in a way such that soils near the structures do not become saturated. Surfaces within 10 feet of structures should be sloped a minimum of 2 percent to

direct water away and prevent ponding. All downspouts should be tied into storm drains. We recommend the surface drainage be designed in accordance with the latest edition of the California Building Code.

Erosion control measures should be implemented for exposed surfaces, which may be subject to soil erosion during periods of intensive rainfall. If structural improvements cannot be completed prior to the rainy season, erosion control and subgrade mitigation measures may be necessary. In general, all construction surfaces should be graded to drain to prevent water from ponding.

5.8 Plan Review and Construction Observation

Our conclusions and recommendations are contingent upon GHD being retained to review project plans and specifications during construction document phase to evaluate if they are consistent with our recommendations. They are also contingent upon GHD being retained to provide intermittent observation and appropriate field and laboratory testing during site preparation and grading, foundation excavation, fill placement and compaction, and sub-drain installation to evaluate if the subsurface conditions are as anticipated and to check for conformance with our recommendations in Table 7 below.

Table 7 Recommended Field Verification Testing for Engineered Fill

Material	Test Performed	Frequency	Purpose
Fill	In Situ Density/ Moisture Test	4 per 1,000 cubic yards or at a minimum of 4 tests per day	Assess adequacy of compaction effort
	Confirmation of Nuclear Gauge	1 per 10,000 cubic yards	Assess reliability of field density
	Modified Proctor	1 per 5,000 cubic yards or 1 per day, whichever is more appropriate	Assess material change
	Gradation Test	1 per 5,000 cubic yards or per each import source	Assess particle size gradation adequacy
	Lime Treatment R-Value	1 per 5,000 cubic yards or per each import source	Assess accuracy of lime treatment

If the subsurface conditions are observed to be different from those described in this report, we should be notified immediately so that the changed conditions can be evaluated and our recommendations revised, if appropriate. The recommendations in this report are contingent upon our notification and review of changed conditions. The services proposed above would be performed on an as-needed basis under a supplemental task order.

6. References

American Concrete Pavement Association, 2006. *Design of Concrete Pavement for Streets and Roads*

ANSI/AWWA, 1999. C105/A21.5. American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.

AWWA 2005, Bonds et. al, Corrosion and Corrosion Control of Iron Pipe, AWWA Journal 97.6

Building Code Requirements for Structural Concrete (ACI 318-02), American Concrete Institute 2001.

Bowles, Joseph E. , P.E., S.E. *Foundation Analysis and Design* Fifth Edition, International Edition 1997.

California Department of Transportation (Caltrans). 2012. *Corrosion Guidelines Version 2.0*.

California Geological Survey, 1987. Geologic Map of the Sacramento Quadrangle, 1:250,000 scale.

California Geological Survey, 2010. Fault Activity Map of California and Adjacent Areas, 1:750,000 scale.

California Geological Survey, 1996. Probabilistic Seismic Hazard Assessment for the State of California, California, Open-File Report 96-08.

California Geological Survey, 1997. Special Publication 42 - Fault Rupture Hazard Zones in California (supplemented 1999).

INTERNATIONAL CODE COUNCIL, INC. May 30, 2014, *2015 International Building Code*

International Conference of Building Officials, 2013. *California Building Code*, Vol. 2.

U.S. Geologic Survey, June 12, 2014, *U.S. Seismic Design Maps*, http://earthquake.usgs.gov/designmaps/us/application.php.

7. Limitations

This Geotechnical Investigation ("Report"):

- Has been prepared by GHD Inc ("GHD") for The Buzz Oates Group of Companies (Buzz Oates) under the professional supervision of those senior partners and/or senior staff whose seals and signatures appear herein.
- May only be used and relied on by Buzz Oates, which is responsible to ensure that all relevant parties to the project, including designers, contractors, subcontractors, etc., are made aware of this report in its entirety.
- Must not be copied to, used by, or relied on by any person other than Buzz Oates without the prior written consent of GHD; and
- May only be used for the purpose of engineering design of the proposed structures at the project site described in this report (and must not be used for any other purpose).

GHD and its servants, employees and officers otherwise expressly disclaim responsibility to any person other than Buzz Oates arising from or in connection with this Report.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD and the Report are excluded unless they are expressly stated to apply in this Report.

The services undertaken by GHD in connection with preparing this Report:

- In regard to site exploration and testing
    - Site exploration and testing characterizes subsurface conditions only at the locations where the explorations or tests are performed; actual subsurface conditions between explorations may be different than those described in this report. Variations of subsurface conditions from those analyzed or characterized in this report are not uncommon and may become evident during construction. In addition, changes in the condition of the site can occur over time as a result of either natural processes (such as earthquakes, flooding, or changes in ground water levels) or human activity (such as construction adjacent to the site, dumping of fill, or excavating). If changes to the site's surface or subsurface conditions occur since the performance of the field work described in this report, or if differing subsurface conditions are encountered, we should be contacted immediately to evaluate the differing conditions to assess if the opinions, conclusions, and recommendations provided in this report are still applicable or should be amended.
- In regard to limitations
    - Our scope of services was limited to the proposed work described in this report, and did not address other items or areas.
    - The geotechnical investigation upon which this report is based was conducted for the proposed structures at the project site described in this report. The conclusions and recommendations contained in this report are not valid for other structures and/or project sites. If the proposed project is modified or relocated, or if the subsurface conditions found during construction differ from those described in this report, GHD should be

provided the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations need revision.

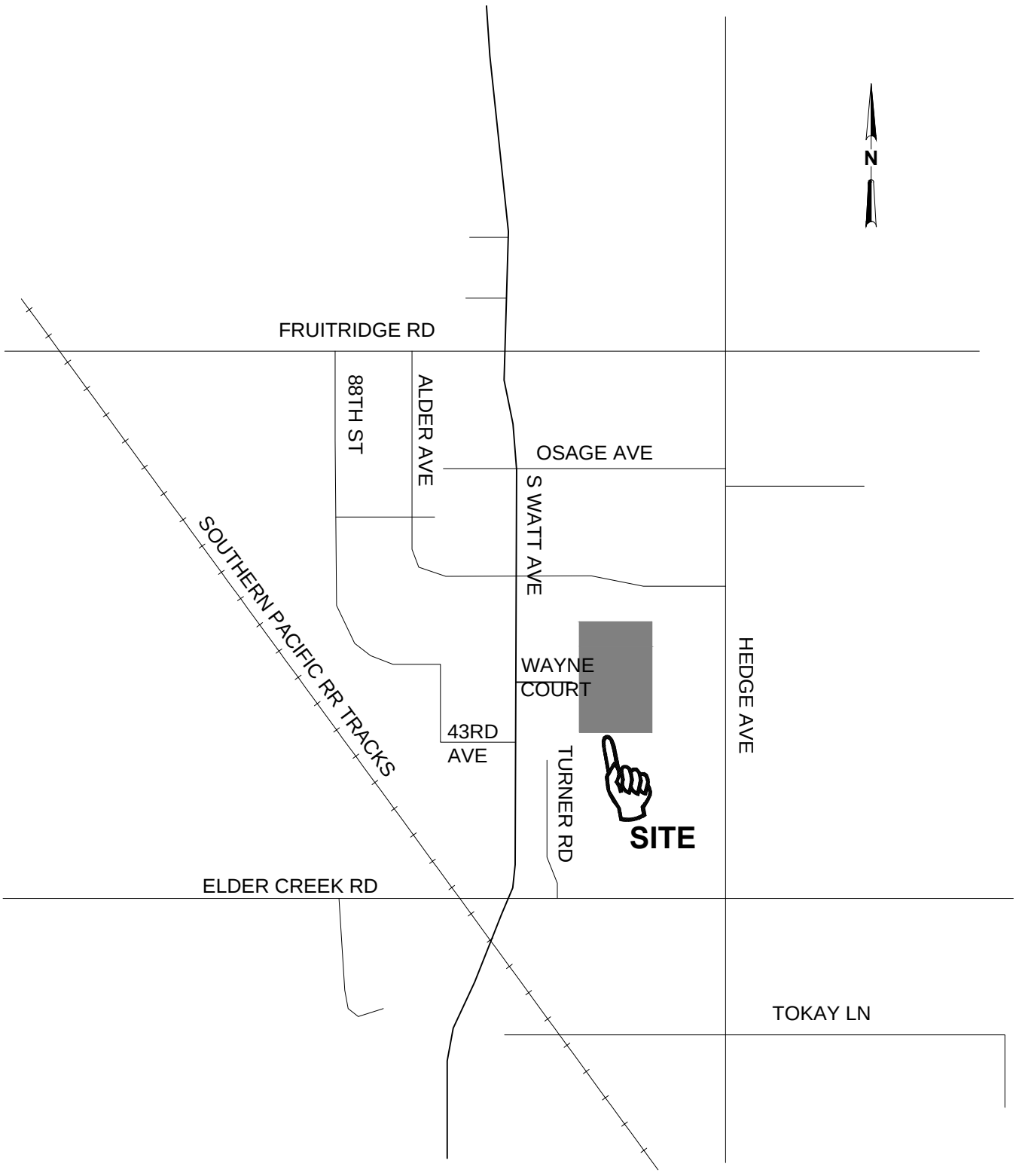
- Did not include evaluation or investigation of the presence or absence of wetlands.
- Did not include a fault investigation.

GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with any of the Assumptions being incorrect. There is no warranty, either expressed or implied. GHD accepts no liability regarding completeness or accuracy of the information presented and/or provided to us, or any conclusions and decisions which may be made by the client or others regarding the subject site/project. Verification of our conclusions and recommendations is subject to our review of the project plans and specifications, and our observations of construction.

Subject to the paragraphs in this section of the Report, the interpretations of data, findings, conclusions, recommendations and professional opinions in this Report are based on the information reviewed, site conditions encountered, and samples collected during our field exploration and were developed in accordance with generally accepted geotechnical engineering principles and practices and as prescribed by the client. This Report is considered valid for the proposed project for a period of two years from the report date provided that the site conditions and development plans remain unchanged. With the passage of time, changes in the conditions of a property can occur due to natural processes or the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Depending on the magnitude of any changes, GHD may require that additional studies (at additional cost) be performed and that an updated report be issued. Additional studies may disclose information which may significantly modify the findings of this report. GHD will retain untested samples collected during our field investigation for a period not to exceed 60 days unless other arrangements are made with the client. After a period of two years from the report date, GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with those opinions, conclusions and any recommendations.

Appendix A

Figures



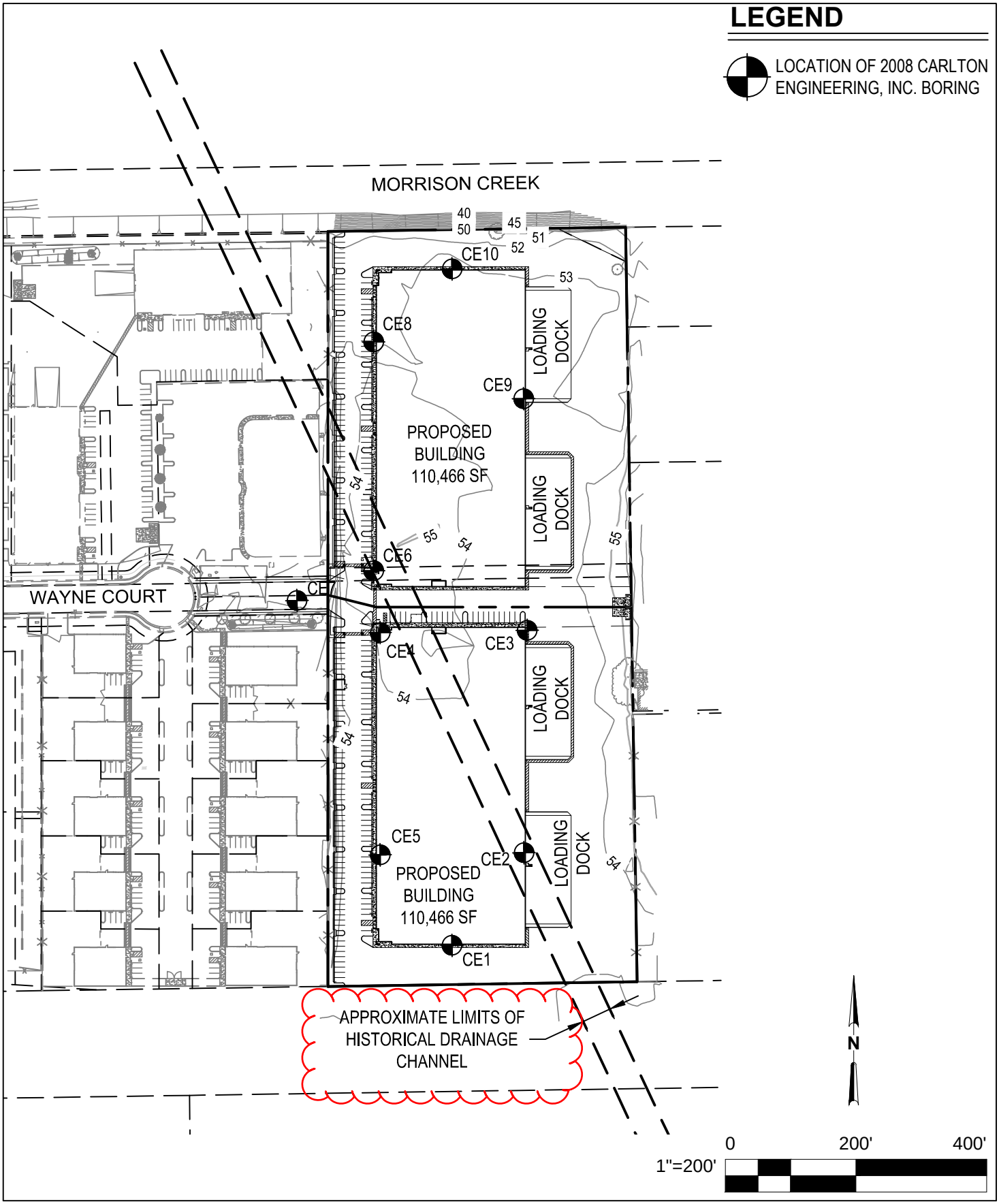
Vicinity Map

Wayne Court Commercial Development

Sacramento, CA

Project Number: 11110091

FIGURE A-1



Site Plan

Wayne Court Commercial Development

Sacramento, CA

Project Number: 11110091

FIGURE A-2

Appendix B

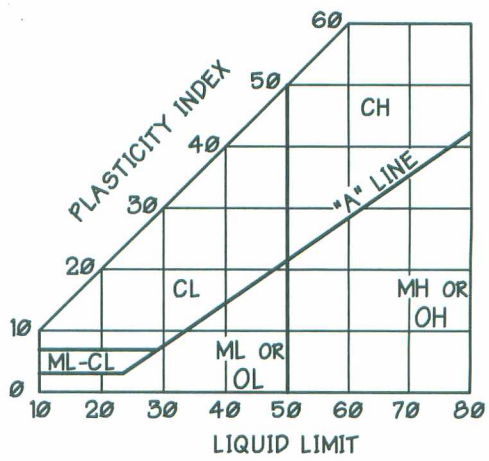
Logs of Borings

Boring Log Explanation

SYMBOLS

- WATER LEVEL AT TIME OF DRILLING
- WATER LEVEL AFTER DRILLING
- BULK, BAG, OR GRAB SAMPLE
- SHELBY TUBE (3" OUTSIDE DIAMETER)
- SPT SAMPLER (2" O.D.)
- MODIFIED CALIFORNIA SAMPLER (2.5" O.D.)
- CALIFORNIA SAMPLER (3" O.D.)
- U.S. ARMY CORPS SAMPLER (3" I.D.) USING HAND SAMPLING TOOLS

PLASTICITY CHART



SOIL CLASSIFICATION

COARSE GRAINED SOILS < 50% PASSES #200 SIEVE	GRAVELS < 50% COARSE FRACTION PASSES #4 SIEVE	GRAVELS LITTLE OR NO FINES	GW	WELL GRADED GRAVEL, GRAVEL/SAND MIXES
			GP	POORLY GRADED GRAVEL, GRAVEL/SAND MIXES
		GRAVELS > 12% FINES	GM	SILTY GRAVEL, POORLY GRADED GRAVEL/SAND/SILT MIXES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL/SAND/CLAY MIXES
	SANDS > 50% COARSE FRACTION PASSES #4 SIEVE	SANDS LITTLE OR NO FINES	SW	WELL GRADED SAND, GRAVELLY SAND
			SP	POORLY GRADED SAND, GRAVELLEY SAND
		SANDS > 12% FINES	SM	SILTY SAND, POORLY GRADED SAND, SAND/GRAVEL/SILT MIXES
			SC	CLAYEY SAND, POORLY GRADED SAND/GRAVEL/CLAY MIXES
FINE GRAINED SOILS > 50% PASSES #200 SIEVE	SILTS & CLAYS LIQUID LIMIT < 50		ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND SILTS OF LOW PLASTICITY
	SILTS & CLAYS LIQUID LIMIT > 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC SILTS AND CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT

OTHER SOIL CLASSIFICATION

COBBLE	CBL	COBBLE AND / OR BOULDER
ROCK	RX	
CONCRETE		
PAVEMENT		ASPHALT, CONCRETE, AND / OR AGGREGATE BASE

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LOG OF BORING CE-1

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**11.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By:	**D. Jermstad**	Borehole Backfill:	**Grout Backfill**
				Coordinate Location:	

Remarks: **No Groundwater Encountered**

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
54	0	Light brown to red brown, fine Silty Clay (CL), dry to moist, stiff to hard								
53	1									
52	2						9			
51	3				SS SS	1-1A 1-1	7 6	13	21.7	110.6
50	4									
49	5						10			
48	6		CL		SS SS	1-2A 1-2	9 16	25		
47	7									
46	8									
45	9									
44	10						14			
43	11				SS SS	1-3A 1-3	21 48	69		
42	12	No Groundwater Encountered. Grout Backfilled on 4/23/08.								

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LOG OF BORING CE-2

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**11.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By:	**D. Jermstad**	Borehole Backfill:	**Grout Backfill**
Coordinate Location:					
Remarks:	**No Groundwater Encountered**				

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
54	0	Dark brown to red brown, fine Sandy Clay (CL), moist to dry, soft to hard								
53	1									
52	2				SS	2-1A	2			
51	3				SS	2-1	2 2	4		
50	4									
49	5	Gravel found in sample	CL		SS	2-2A	43		12.6	102.5
48	6				SS	2-2	50			
47	7									
46	8									
45	9									
44	10	Brown, fine Clayey Sand (SC), moist, very dense					9			
43	11		SC		SS	2-3A	10	22	14.5	99.4
					SS	2-3	12			
		No Groundwater Encountered. Grout backfilled on 4/23/08.								
42	12									

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LOG OF BORING CE-3

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**16.3**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By: **D. Jermstad**	Borehole Backfill:	**Grout Backfill**	Coordinate Location:
Remarks:	**Groundwater Encountered at 15.5 feet**				

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
54	0	Light brown to brown, fine Clayey Sand (SC), moist, medium to very dense	SC							
52	2				SS	3-1A	20			
51	3				SS	3-1	39 50	89		
49	5				SS	3-2A	9 11	26	8.2	89.2
48	6				SS	3-2	15			
44	10				SS	3-3A	14 24	52		
43	11				SS	3-3	28			
41	13	Brown, fine Sandy Clay (CL), wet, hard	CL							
39	15				SS	3-4A	17 29	79	37.4	81.9
38	16	ATD ▽			SS	3-4	50			
37	17	Groundwater Encountered at 15.5 feet. Water may be perched and not actual groundwater. Grout backfilled on 4/23/08.								

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LOG OF BORING CE-4

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**11.3**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By:	**D. Jermstad**	Borehole Backfill:	**Grout Backfill**
				Coordinate Location:	

Remarks: **No Groundwater Encountered**

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
54	0	Orange brown, fine Clayey Sand (SC), moist, loose								
53	1		SC							
52	2	Orange brown to dark brown, fine Sandy Clay (CL), moist, medium stiff to hard					4			
51	3				SS SS	4-1A 4-1	3 5	8	16.4	110.8
50	4									
49	5						2			
48	6				SS SS	4-2A 4-2	5 5	10		
47	7		CL							
46	8									
45	9									
44	10						21			
43	11				SS SS	4-3A 4-3	39 50	89		
		No Groundwater Encountered. Grout Backfilled on 4/23/08.								
42	12									

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LOG OF BORING CE-5

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**16.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By: **D. Jermstad**	Borehole Backfill:	**Grout Backfill**	Coordinate Location:
Remarks:	**No Groundwater Encountered**				

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
54	0	Red brown, fine Sandy Clay (CL), moist, very stiff								
53	1									
52	2						3			
51	3				SS SS	5-1A 5-1	5 22	27		
50	4		CL							
49	5						8			
48	6				SS SS	5-2A 5-2	11 18	29	22.4	88.6
47	7									
46	8	Red brown, fine Clayey Sand (SC), moist, dense								
45	9									
44	10		SC				13			
43	11				SS SS	5-3A 5-3	27 24	51	28.9	89.7
42	12	Brown, fine Sandy Clay (CL), moist, hard								
41	13									
40	14		CL							
39	15						15			
38	16				SS SS	5-4A 5-4	25 50	75	36.1	85.0
37	17	No Groundwater Encountered. Grout backfilled on 4/23/08.								

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LOG OF BORING CE-6

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**11.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By:	**D. Jermstad**	Borehole Backfill:	**Grout Backfill**
				Coordinate Location:	

Remarks: **No Groundwater Encountered**

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index
54	0	Light brown to brown, fine Sandy Clay (CL), moist, soft to hard										
53	1											
52	2	Materials wet and soft from 2 to 5 feet.					2					
51	3				SS SS	6-1A 6-1	2 3	5				
50	4											
49	5						2					
48	6		CL		SS SS	6-2A 6-2	4 5	9			42	
47	7											
46	8											
45	9											
44	10	1" granite rock found in sampler.					17					
43	11				SS SS	6-3A 6-3	35 46	81	31.8	83.7		
42	12	No Groundwater Encountered. Grout backfilled on 4/23/08.										

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LOG OF BORING CE-7

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**11.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**54**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By: **D. Jermstad**	Borehole Backfill:	**Grout Backfill**	Coordinate Location:
Remarks:	**No Groundwater Encountered**				

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
54	0	Brown, fine Sandy Clay (CL), moist								
53	1									
52	2									
51	3		CL		BK	Bulk A				
50	4									
49	5						5			
48	6	Brown, fine Clayey Sand (SC), moist to wet, dense to very dense			SS SS	7-1A 7-1	13 17	30	15.8	94.5
47	7									
46	8									
45	9		SC							
44	10						12			
43	11				SS SS	7-2A 7-2	27 50	77		
42	12	No Groundwater Encountered. Grout Backfilled on 4/23/08.								

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LOG OF BORING CE-8

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**16.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**53**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By:	**D. Jermstad**	Borehole Backfill:	**Grout Backfill**
				Coordinate Location:	

Remarks: **Groundwater Encountered at 14 feet**

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)
53	0	Brown, fine Sandy Clay (CL), moist, hard								
52	1									
51	2		CL		SS	8-1A	17			
50	3				SS	8-1	39 50	89	32.0	88.2
49	4	Brown, fine Clayey Sand (SC), moist, dense								
48	5						12			
47	6		SC		SS	8-2A	16	39	31.6	84.4
46	7				SS	8-2	23			
45	8	Brown, fine Sandy Clay (CL), moist to wet, hard								
44	9									
43	10						14			
42	11				SS	8-3A	22	57	30.7	88.9
41	12		CL		SS	8-3	35			
40	13									
39	14	ATD								
38	15						19			
37	16				SS	8-4A	23	73		
36	17	Grounwater encountered at 14.0 feet. Water may be perched and not actual groundwater. Grout backfilled on 4/23/08.			SS	8-4	50			
35	18									
34	19									
33	20									

LOG OF BORING WAYNE COURT.GPJ CARLTON ENGINEERING.GDT 5/29/08

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LOG OF BORING CE-9

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**11.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**53**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By: **D. Jermstad**	Borehole Backfill:	**Grout Backfill**	Coordinate Location:

Remarks: **No Groundwater Encountered**

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit	Plasticity Index
53	0	Light brown to orange brown, fine Sandy Clay (CL), moist, stiff to hard	CL		BK	Bulk B					59	31	
52	1												
51	2												
50	3												
49	4												
48	5						2						
47	6				SS SS	9-1A 9-1	4 9	13					
46	7												
45	8						13						
44	9				SS SS	9-2A 9-2	33 50	83	26.3	98.6			
43	10						11						
42	11				SS SS	9-3A 9-3	15 20	35					
41	12	No Groundwater Encountered. Grout backfilled on 4/23/08.											

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LOG OF BORING CE-10

Sheet 1 of 1

Project: Wayne Court - Buzz Oates PO#74359

Location: **24 Wayne Court, Sacramento, CA** Project Number: **6276-01-08**

Start Date:	**4/22/08**	Finish Date:	**4/22/08**	Total Depth Drilled (ft bgs):	**41.5**
Drilling Method:	**4-inch Solid Auger**	Drilling Contractor:	**Taber Consultants**	Arbitrary Ground Surface Elevation:	**53**
Drill Rig:	**D120 Dieorich**	Hammer Type:	**Automatic Trip**	Hammer Weight / Drop:	**140 lbs. / 30 inches**
Logged By:	**M. Kellogg**	Reviewed By:	**D. Jermstad**	Borehole Backfill:	**Grout Backfill**
Coordinate Location:					
Remarks:	**Groundwater Encountered at 14 feet**				

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	USCS Classification	Graphic Log	Sample Type	Sample/Run No.	Blows/6"	N Value (uncorrected)	Water Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve
50	0	Brown to orange brown, fine Sandy Clay (CL), moist to wet, hard									
					SS	10-1A	8				
45	5				SS	10-1	14 31	45	40.9	79.6	
			CL		SS	10-2A	9				
40	10				SS	10-2	16 21	37			
		ATD			SS	10-3A	15				
35	15				SS	10-3	36 40	76			
		Soil Cuttings not wet from 16.5 to 19 feet.									
30	20				SS	10-4A	19				
					SS	10-4	27 42	69			
25	25	Brown, fine Clayey Sand (SC), moist to wet, dense			SS	10-5A	7				
					SS	10-5	14 17	31	7.4	102.0	
25	30		SC		SS	10-6A	10				
					SS	10-6	14 18	32			16
20	35				SS	10-7A	7				
					SS	10-7	14 24	38			
15	40	Brown, fine Sandy Clay (CL), moist, hard	CL		SS	10-8A	9				
					SS	10-8	21 33	54	50	69.1	
10	45	Groundwater Encountered at 14.0 feet. Water may be perched and not actual groundwater. Grout backfilled on 4/23/08.									

LOG OF BORING WAYNE COURT.GPJ CARLTON ENGINEERING.GDT 5/29/08

Appendix C

Geotechnical Laboratory Test Results

MOISTURE CONTENT & UNIT WEIGHT TEST RESULTS

Sample Identification	Depth, ft.	Wet Unit Weight, lb/ft.^{3}	Dry Unit Weight, lb/ft.^{3}	Moisture Content, %
CE 1-1	3-3.5'	134.5	110.6	21.7
CE 2-2	5-5.5	115.4	102.5	12.6
CE 2-3	10-11.5'	113.8	99.4	14.5
CE 3-2	5-6.5'	96.5	89.2	8.2
CE 3-4	15-16.5'	112.6	81.9	37.4
CE 4-1	2-3.5'	129.1	110.8	16.4
CE 5-2	5-6.5'	108.5	88.6	22.4
CE 5-3	10-11.5'	115.7	89.7	28.9
CE 5-4	15-16.5'	115.8	85.0	36.1
CE 6-3	10-11.5'	110.3	83.7	31.8
CE 7-1	5-6.5'	109.4	94.5	15.8
CE 8-1	2-3.5'	116.4	88.2	32.0
CE 8-2	5-6.5'	111.0	84.4	31.6
CE 8-3	10-11.5'	116.2	88.9	30.7
CE 9-2	8-9.5'	124.5	98.6	26.3
CE 10-1	5-6.5'	112.1	79.6	40.9
CE 10-5	25-26.5'	109.6	102.0	7.4
CE 10-8	40-41.5'	103.6	69.1	50.0

Test Method: ASTM D2216, ASTM D2937

PROJECT NUMBER:	6276-01-08	April 25, 2008	Wayne Court - Buzz Oates PO#74359

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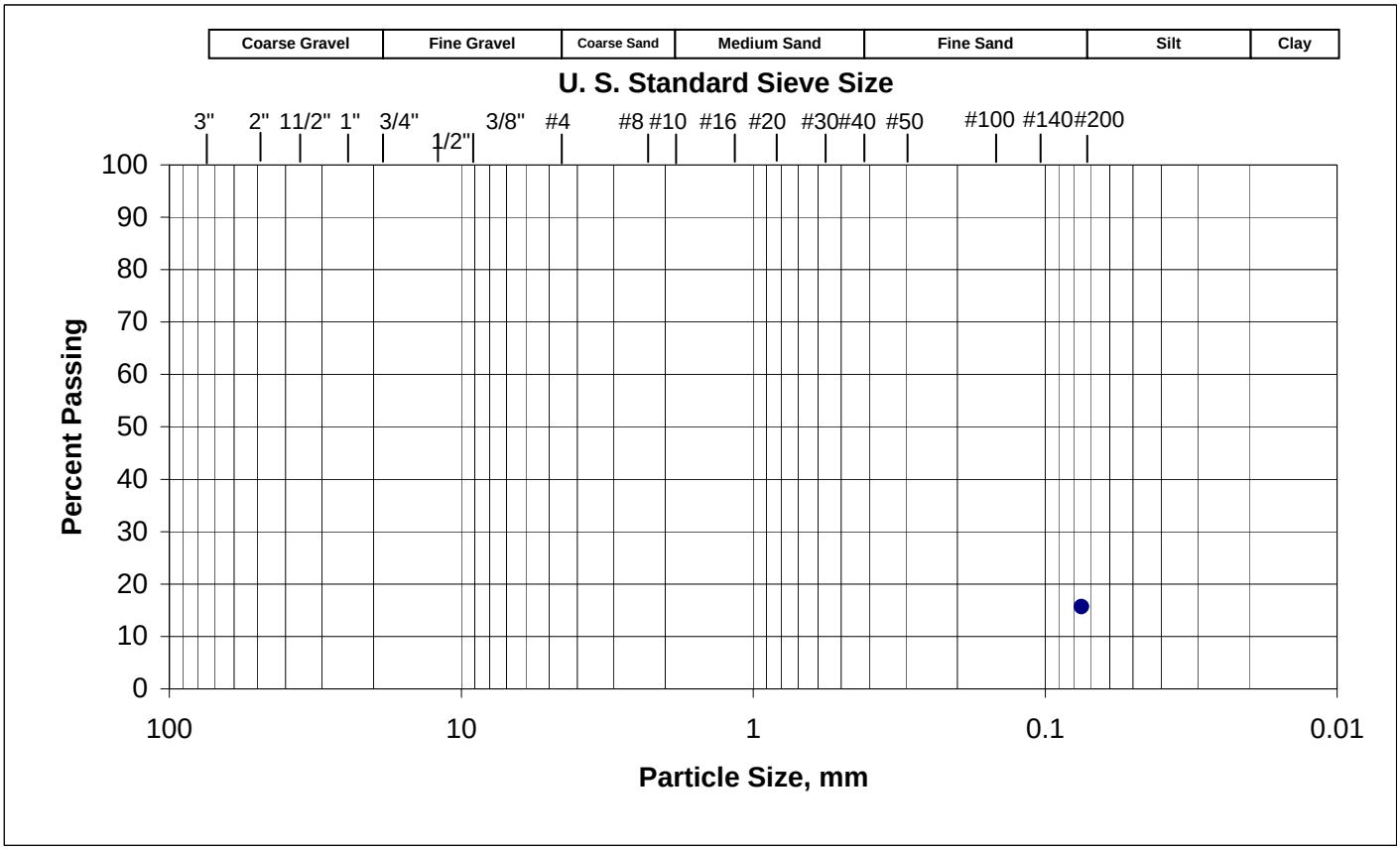
Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

SIEVE ANALYSIS TEST REPORT



SIEVE SIZE	SIZE, mm	PASSING
3 INCH	76.2	
2 INCH	50.8	
1 1/2 INCH	38.1	
1 INCH	25.4	
3/4 INCH	19.1	
1/2 INCH	12.7	
3/8 INCH	9.5	
NO. 4	4.75	
NO. 8	2.36	
NO. 16	1.18	
NO. 30	0.60	
NO. 50	0.30	
NO.100	0.15	
NO 200	0.075	16

Test Method: ASTM C136

SAMPLE IDENTIFICATION: CE 10-6a SAMPLE DEPTH, ft. : 30'-31.5' Lab Number: 6146
SAMPLE DESCRIPTION: Brown Clayey Sand Group Symbol: SC
REMARKS:

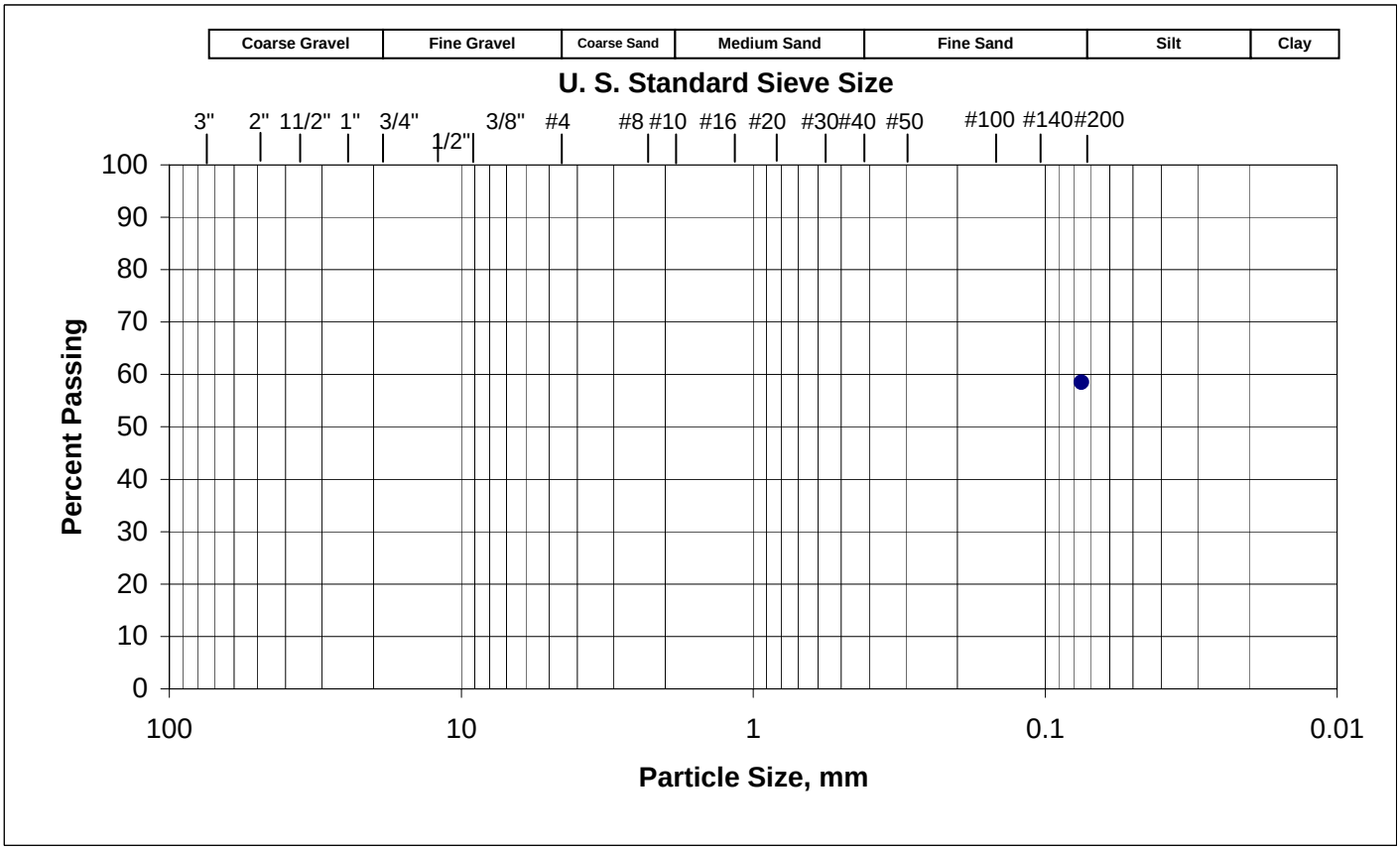
PROJECT NUMBER: **6276-01-08** April 28, 2008

Wayne Court - Buzz Oates
PO#74359

CARLTON Engineering Inc.

Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

SIEVE ANALYSIS TEST REPORT



SIEVE SIZE	SIZE, mm	PASSING
3 INCH	76.2	
2 INCH	50.8	
1 1/2 INCH	38.1	
1 INCH	25.4	
3/4 INCH	19.1	
1/2 INCH	12.7	
3/8 INCH	9.5	
NO. 4	4.75	
NO. 8	2.36	
NO. 16	1.18	
NO. 30	0.60	
NO. 50	0.30	
NO.100	0.15	
NO 200	0.075	59

Test Method: ASTM C136

SAMPLE IDENTIFICATION: Bulk B SAMPLE DEPTH, ft. : 0'-5' Lab Number: 6119

SAMPLE DESCRIPTION: Orange Brown sandy clay Group Symbol: CL

REMARKS:

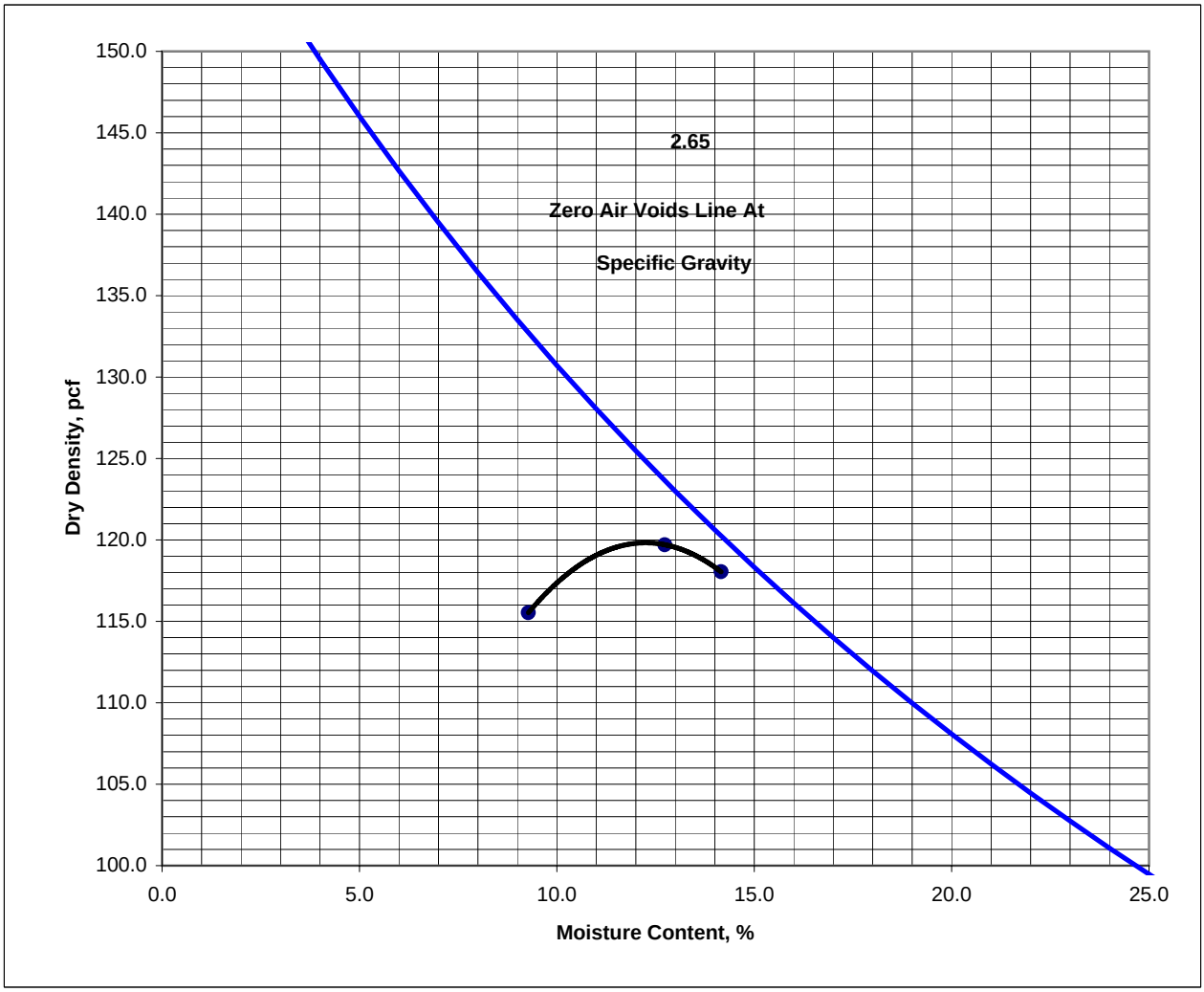
PROJECT NUMBER: **6276-01-08** April 24, 2008

Wayne Court - Buzz Oates
PO#74359

CARLTON Engineering Inc.

Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

MOISTURE DENSITY RELATIONSHIP CURVE



Maximum Dry Density (pcf)	**120.0**
Optimum Moisture Content (%)	**12.5**

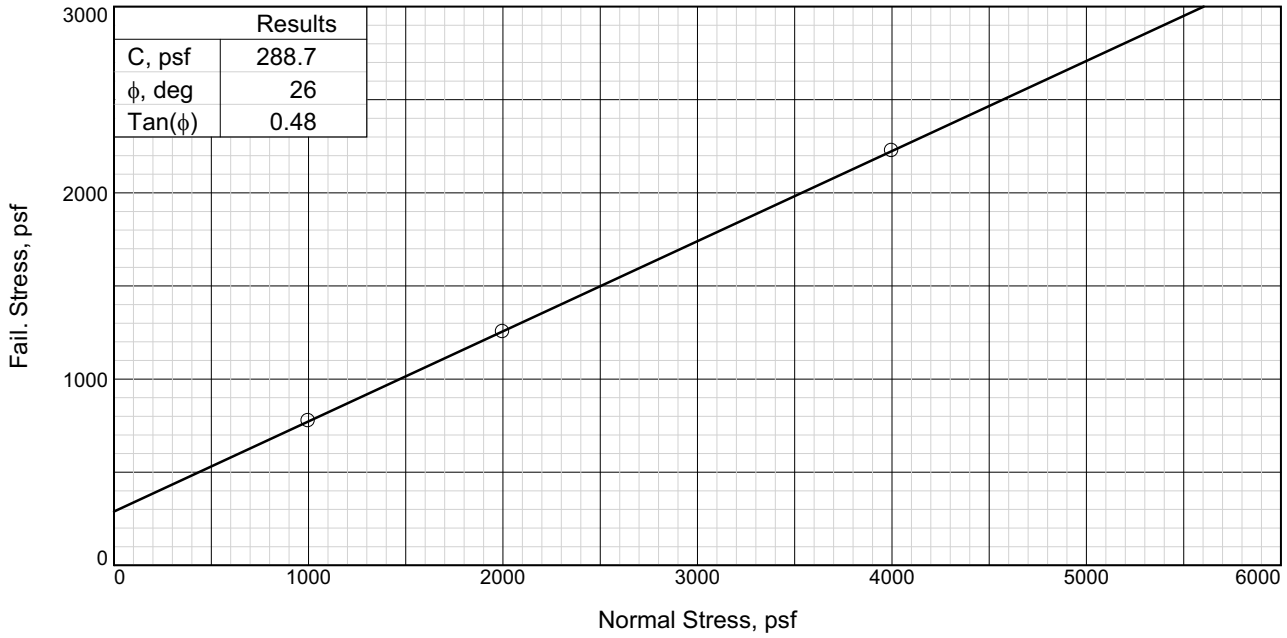
Test Method: ASTM D1557 Method: B

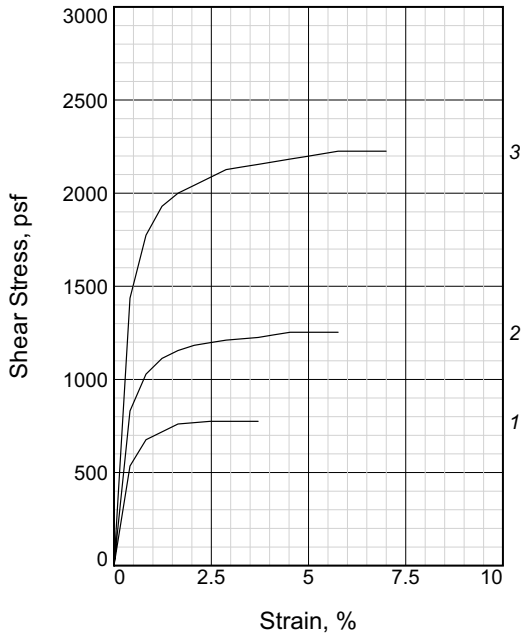
SAMPLE IDENTIFICATION: Bulk B LAB NUMBER: 6118
SAMPLE DESCRIPTION: Orange Brown Sandy Clay
SAMPLE LOCATION: CE 9

PROJECT NUMBER: **6276-01-08** April 24, 2008

Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

Wayne Court - Buzz Oates
PO#74359





Sample No.		1	2	3
Initial	Water Content, %	14.4	14.4	14.5
	Dry Density, pcf	107.5	107.7	107.6
	Saturation, %	68.7	69.0	69.3
	Void Ratio	0.5675	0.5646	0.5660
	Diameter, in.	2.430	2.430	2.430
	Height, in.	0.825	0.825	0.825
At Test	Water Content, %	19.0	18.5	17.7
	Dry Density, pcf	111.3	112.3	114.1
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.5143	0.5007	0.4768
	Diameter, in.	2.430	2.430	2.430
	Height, in.	0.797	0.791	0.778
Normal Stress, psf		1000.0	2000.0	4000.0
Fail. Stress, psf		774.6	1253.5	2225.3
Strain, %		2.5	4.5	5.8
Ult. Stress, psf				
Strain, %				
Strain rate, in./min.		0.060	0.060	0.060

Sample Type: Remold
Description: Brown Sandy Lean Clay (CL)

LL= 31 **PL=** 16 **PI=** 15
Assumed Specific Gravity= 2.70
Remarks: A three point DS/UU Quick test was run on this sample. 90% R/C @ +2% OMC.

Plate _____

Client: Carlton Engineering

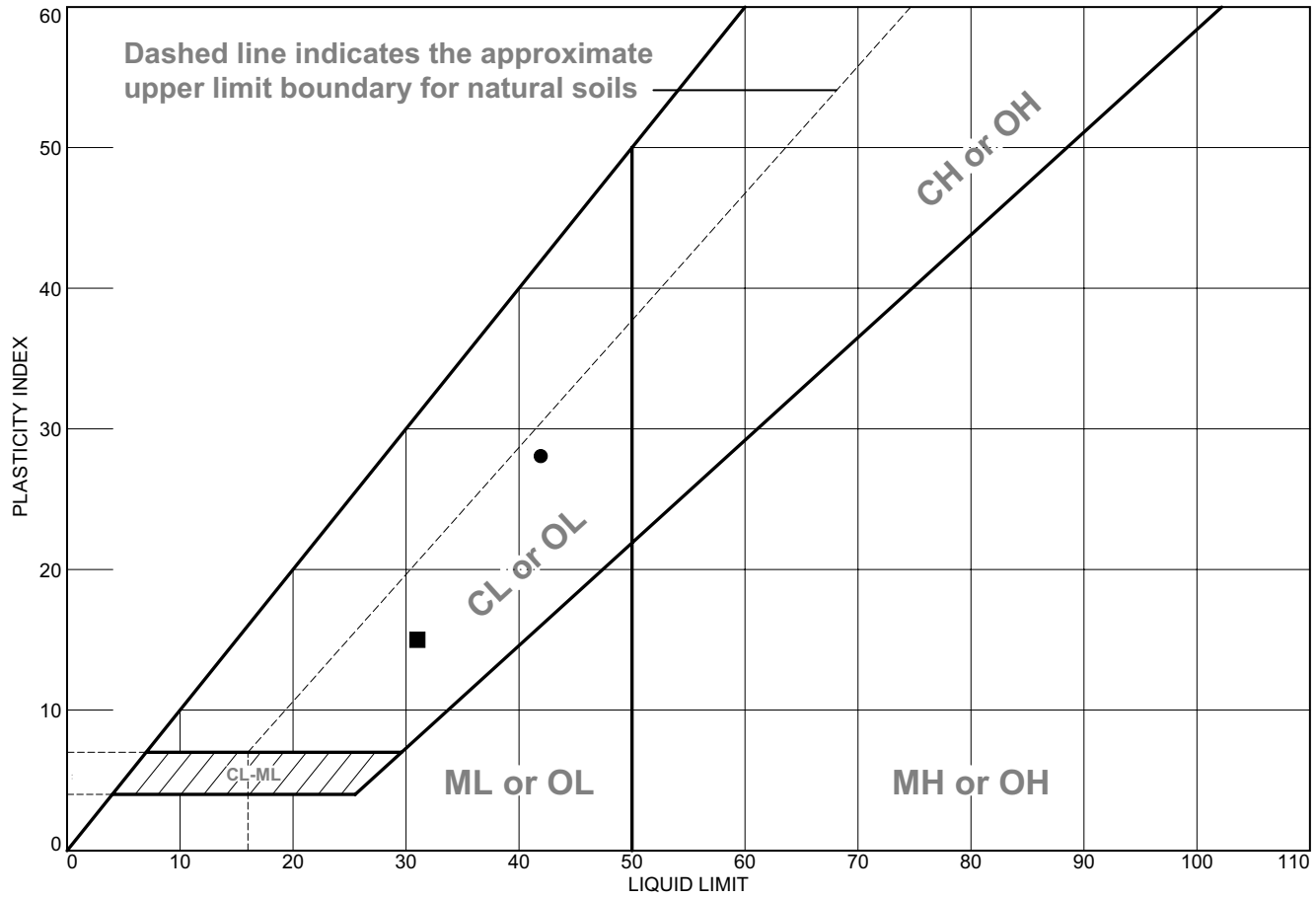
Project: Wayne Court

Source of Sample: CE-9 **Depth:** 0.0-5.0'
Sample Number: Bulk B
Proj. No.: 6276-01-08 **Date Sampled:** 5-8-08

RGH CONSULTANTS, INC.

Tested By: GEF **Checked By:** TMc

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Lean Clay W/Sand (CL)	42	14	28			CL
■	Brown Sandy Lean Clay (CL)	31	16	15			CL

Project No. 6276-01-08 **Client:** Carlton Engineering

Project: Wayne Court

●**Source of Sample:** CE-6-2 **Depth:** 5.0-6.5'

■**Source of Sample:** CE-9 **Depth:** 0.0-5.0' **Sample Number:** Bulk B

Remarks:

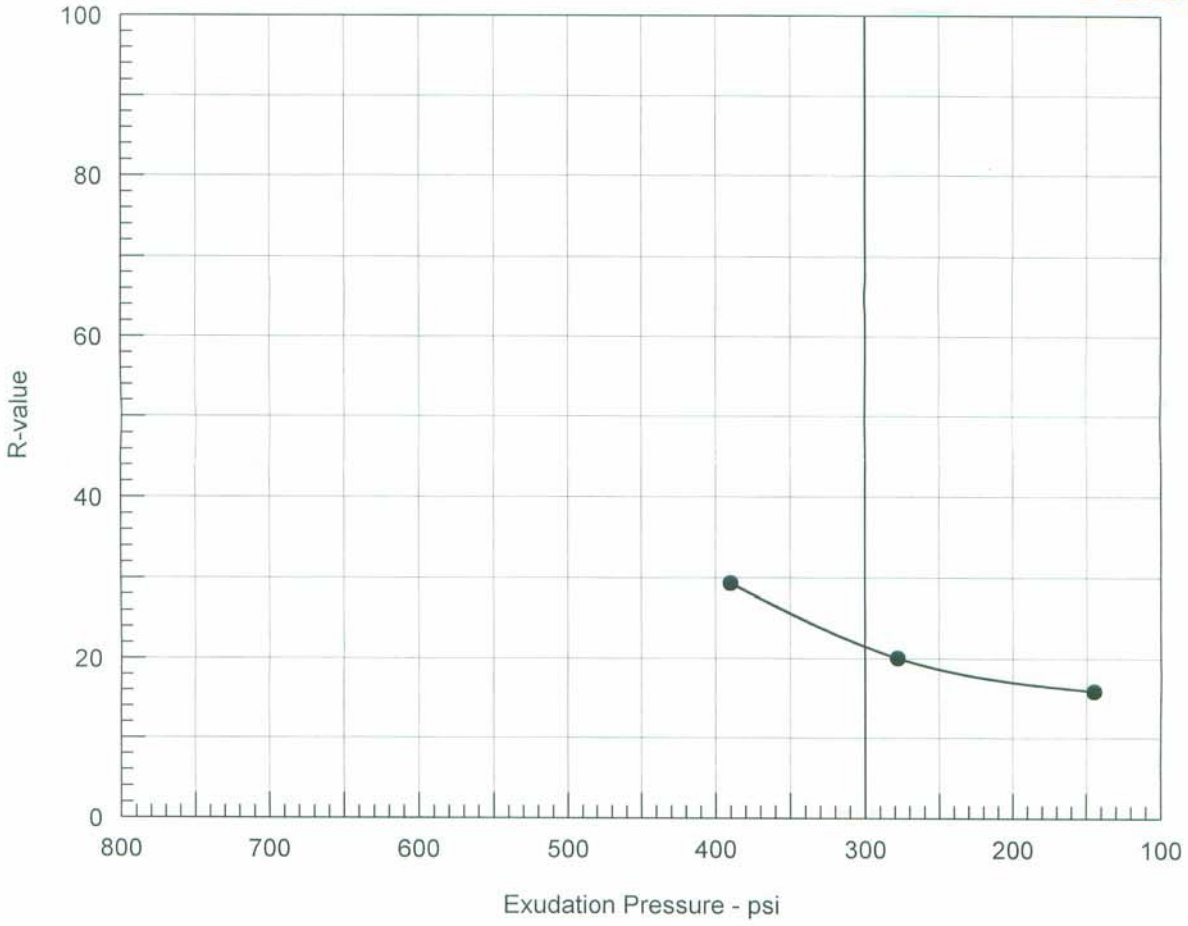
RGH CONSULTANTS, INC.

Plate

Tested By: ○ CMc ☐ SW **Checked By:** TMc

R-VALUE TEST REPORT

Taber
Since 1954



Resistance R-Value and Expansion Pressure - Cal Test 301

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	225	107.1	18.9	0	97	2.55	390	29	29
2	200	105.5	19.4	0	111	2.54	278	20	20
3	165	103.7	20.0	0	119	2.49	145	16	16

Test Results	Material Description
R-value at 300 psi exudation pressure = 22	Visual: Brown silty clay / clayey silt.

Project No.: 2T2/308/074-6
Project: Wayne Court CD's / #6276-01-08
Sample Number: CE7/Bulk A **Depth:** 0-5'
Date: 4/30/2008

Tested by: RJF
Checked by:
Remarks:

R-VALUE TEST REPORT

Taber Consultants

Figure 1

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Reprint of Report
Dated 5-30-08

Date Reported 05/02/2008
Date Submitted 04/28/2008

To: Toby Phillips
Carlton Engineering, Inc.
3883 Ponderosa Rd.
Shingle Springs, CA 95682

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager RH

The reported analysis was requested for the following location:
Location : 6276-01-04/WAYNE CRT Site ID : CE3-1A @ 2-3.5'.
Your purchase order number is 74359.
Thank you for your business.

* For future reference to this analysis please use SUN # 53115-106350.

EVALUATION FOR SOIL CORROSION

Soil pH	7.59	
Minimum Resistivity	1.18 ohm-cm (x1000)	
Chloride	14.4 ppm	00.00144 %
Sulfate	48.1 ppm	00.00481 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

GHD Inc

4080 Plaza Goldorado Circle
Suite B
Cameron Park, CA 95682 USA
T: 1 530 677 5515

www.ghd.com

APPENDIX D
DRAFT TRANSPORTATION ANALYSIS

Transportation Analysis
24 Wayne Court
Prepared for
City of Sacramento

November 14, 2018

DKS

8950 Cal Center Drive, Suite 340
Sacramento, California 95628
(916) 368-2000

TABLE OF CONTENTS

INTRODUCTION

This transportation analysis addresses transportation and circulation conditions associated with a proposed development project at 24 Wayne Court in the City of Sacramento. The analysis focuses on the project's relationship to the City street system, including nearby intersections, the proposed access point, and on-site circulation. The analysis includes consideration of motorized vehicle traffic impacts on roadway capacity, vehicle-miles travelled (VMT), construction impacts, and potential impacts to transit service, bicyclists, and pedestrians. Quantitative transportation analyses have been conducted for the following scenarios:

- Existing (2018)
- Existing Plus Project

PROJECT DESCRIPTION

As illustrated in Figure 1, the 6.22-acre project site is located at 24 Wayne Court, east of South Watt Avenue. The site currently is vacant. As shown in Figure 2, the project proposes two tilt-up warehouses, each of which will be 109,668 square feet. The total development size is 219,336 square feet.

The project site is located within an industrial (M-1) zone. Surrounding parcels consist of industrial and commercial uses.

ENVIRONMENTAL SETTING

The roadway, transit, bicycle, and pedestrian transportation systems within the study area are described below. Figure 1 illustrates the roadway system near the project site.

ROADWAY SYSTEM

South Watt Avenue is a north-south arterial that extends to Folsom Boulevard to the north, where it becomes Watt Avenue. Watt Avenue provides access to US 50 and extends northerly across the American River. To the north, it provides access through northern Sacramento County to I-80 and into Placer County. To the south, South Watt Avenue extends to Florin Road, where it becomes Elk Grove Florin Road. Elk Grove Florin Road extends to Stockton Boulevard in the City of Elk Grove. South Watt Avenue has two to six through lanes. It is a two-lane roadway at its intersection with Wayne Court.

Wayne Court is an east-west local street that extends easterly from South Watt Avenue about 500 feet to a cul-de-sac. Access to the project site would be provided via driveway from the eastern end of the cul-de-sac.

Fruitridge Road is an east-west arterial located about 0.6 miles north of the project site. To the west, the roadway provides access to SR 99 and extends to South Land Park Drive. To the east, Fruitridge Road extends to Mayhew Road. Fruitridge Road has two to four through lanes.

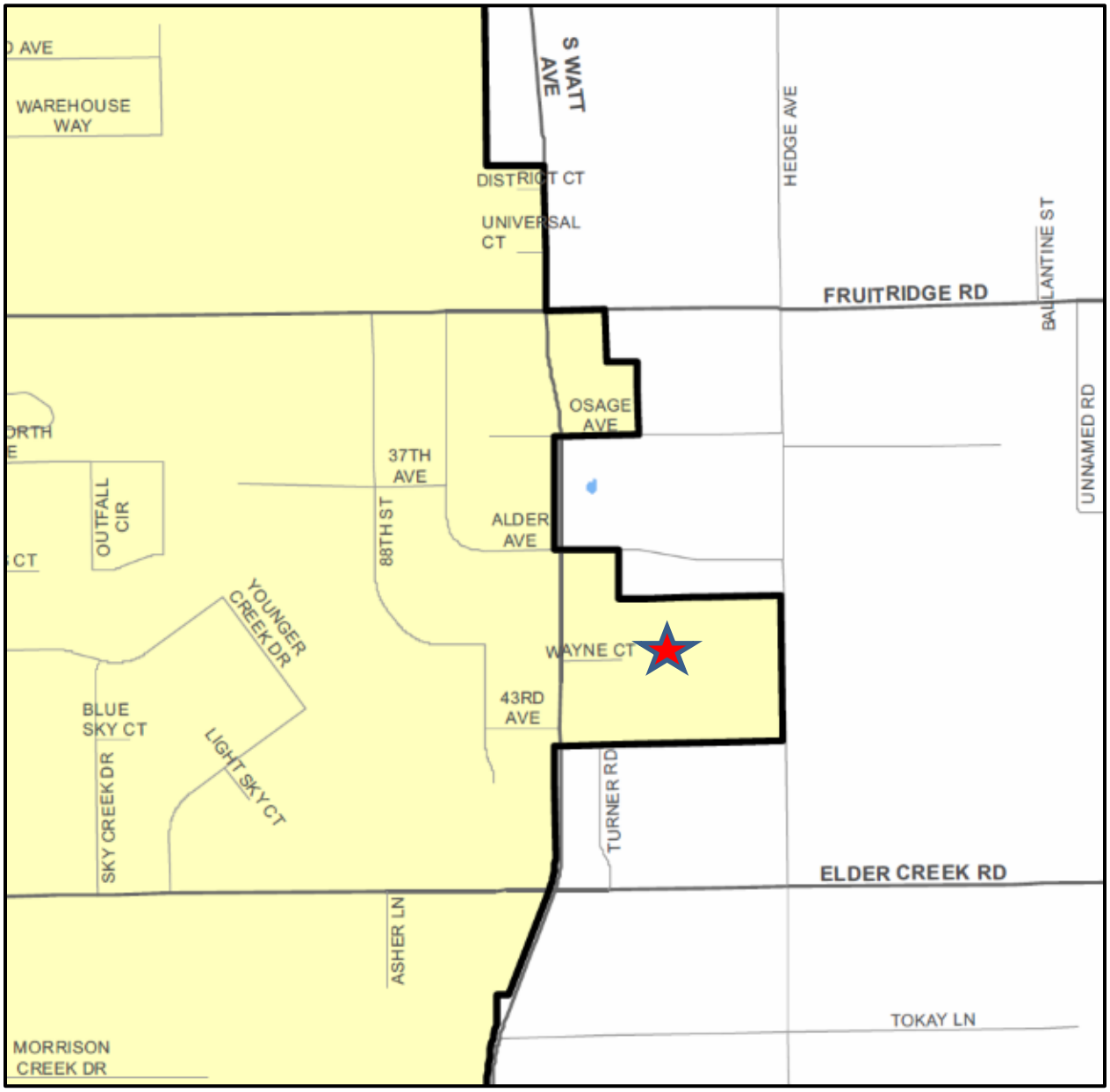


Figure 1
Project Location

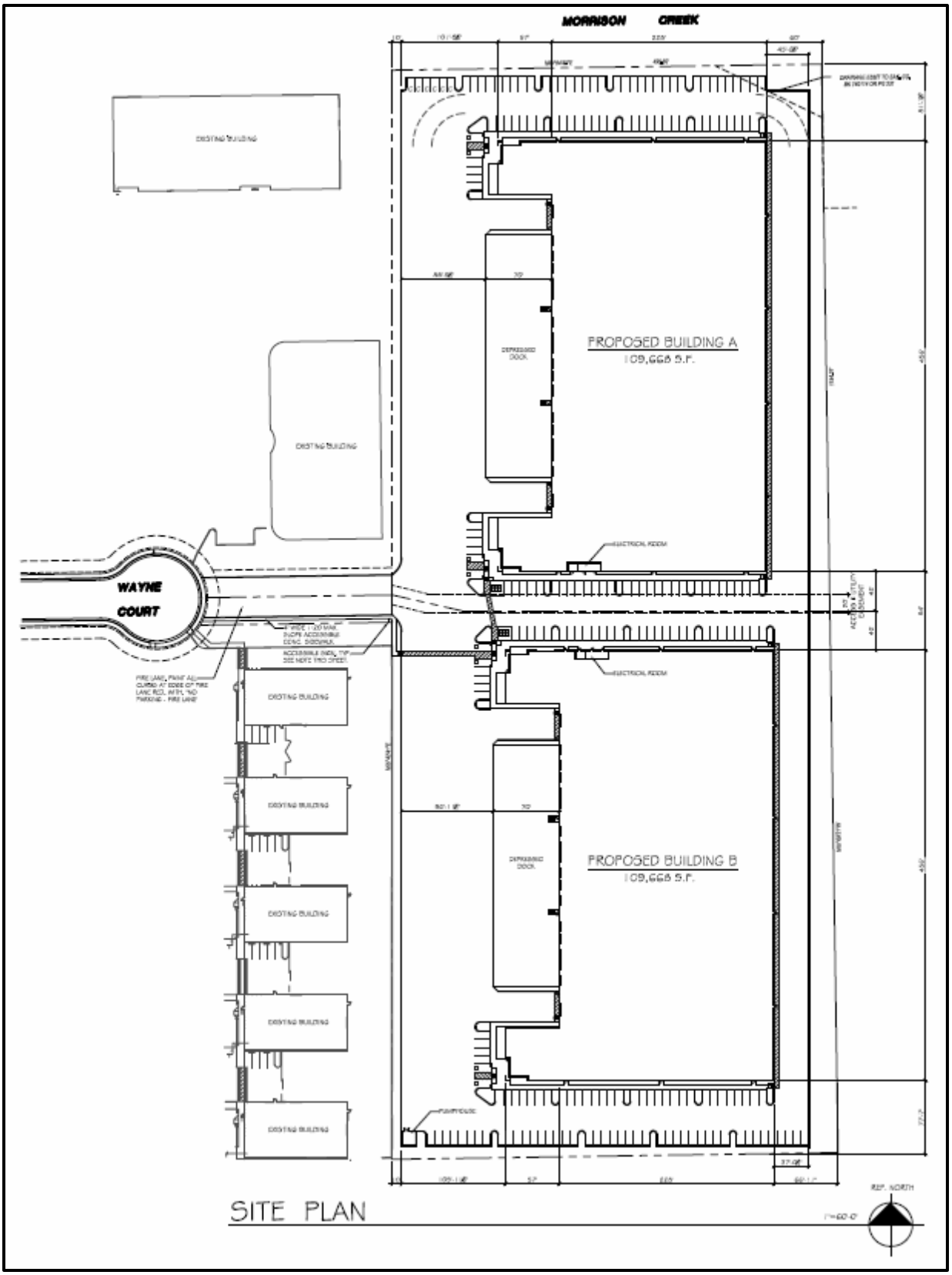


Figure 2
Site Plan

Elder Creek Road is an east-west arterial located about 0.4 miles south of the project site. To the west, Elder Creek Road extends to Stockton Boulevard, where it becomes 47th Avenue. 47th Avenue provides access to SR 99. To the east, Elder Creek Road extends to Excelsior Road. Elder Creek Road has two to four through lanes.

EXISTING PEDESTRIAN SYSTEM

The pedestrian system in the site vicinity consists of sidewalks along Wayne Court and portions of South Watt Avenue. There are sidewalks along both sides and the cul-de-sac of Wayne Court. Sidewalks exist along both sides of South Watt Avenue from about 500 feet north of Wayne Court to about 500 feet south of Wayne Court. Beyond those sidewalks, pedestrians are only accommodated on the arterial shoulders.

EXISTING BICYCLE SYSTEM

Figure 3 illustrates the existing bicycle system in the site vicinity. There are existing bike lanes along both sides of South Watt Avenue in the site vicinity.

TRANSIT SYSTEM

Regional Transit (RT) service in the site vicinity is illustrated in Figure 4.

There is no transit service in the vicinity of the project site. RT's Gold Line Light Rail service is located about 2.5 miles north of the site. Bus Route 61 (Fruitridge) operates along Fruitridge Road and Florin Perkins Road about 1.4 miles northwest of the project site.

STUDY AREA

The following intersections are included in the study area:

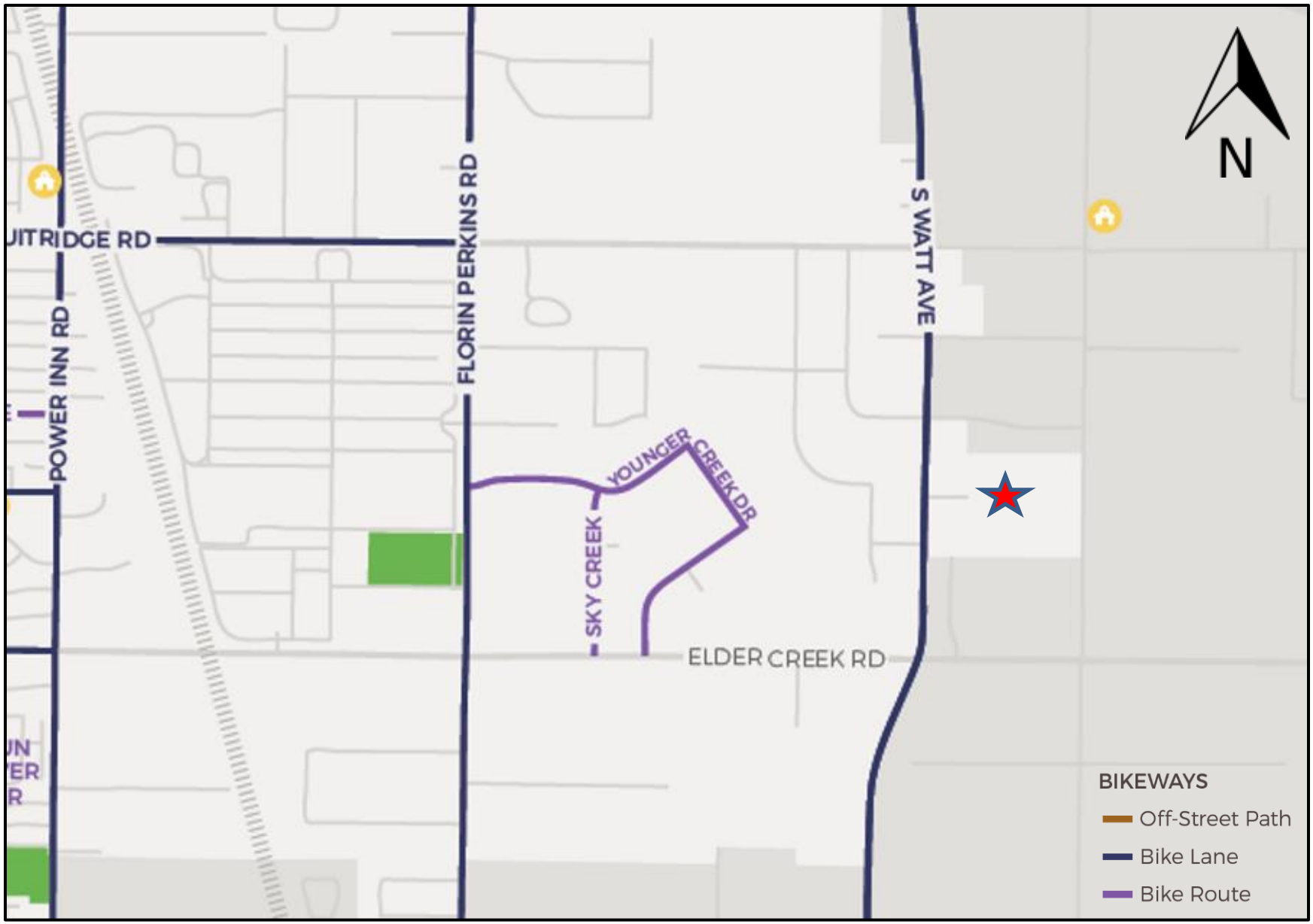
1. South Watt Avenue and Fruitridge Road (signalized)
2. South Watt Avenue and Wayne Court (unsignalized)
3. South Watt Avenue and Elder Creek Road (signalized)

EXISTING INTERSECTION GEOMETRY

Existing intersection geometry (number of approach lanes and traffic control) is illustrated in Figure 5.

EXISTING TRAFFIC VOLUMES

Peak period intersection turning movement counts were conducted for the a.m. weekday peak period (7:00 to 9:00 a.m.) and the p.m. weekday peak period (4:00 to 6:00 p.m.) on Tuesday, October 2, 2018. Figure 5 illustrates the peak hour traffic volumes used in the analysis. Detailed traffic count data is included in the technical appendix.

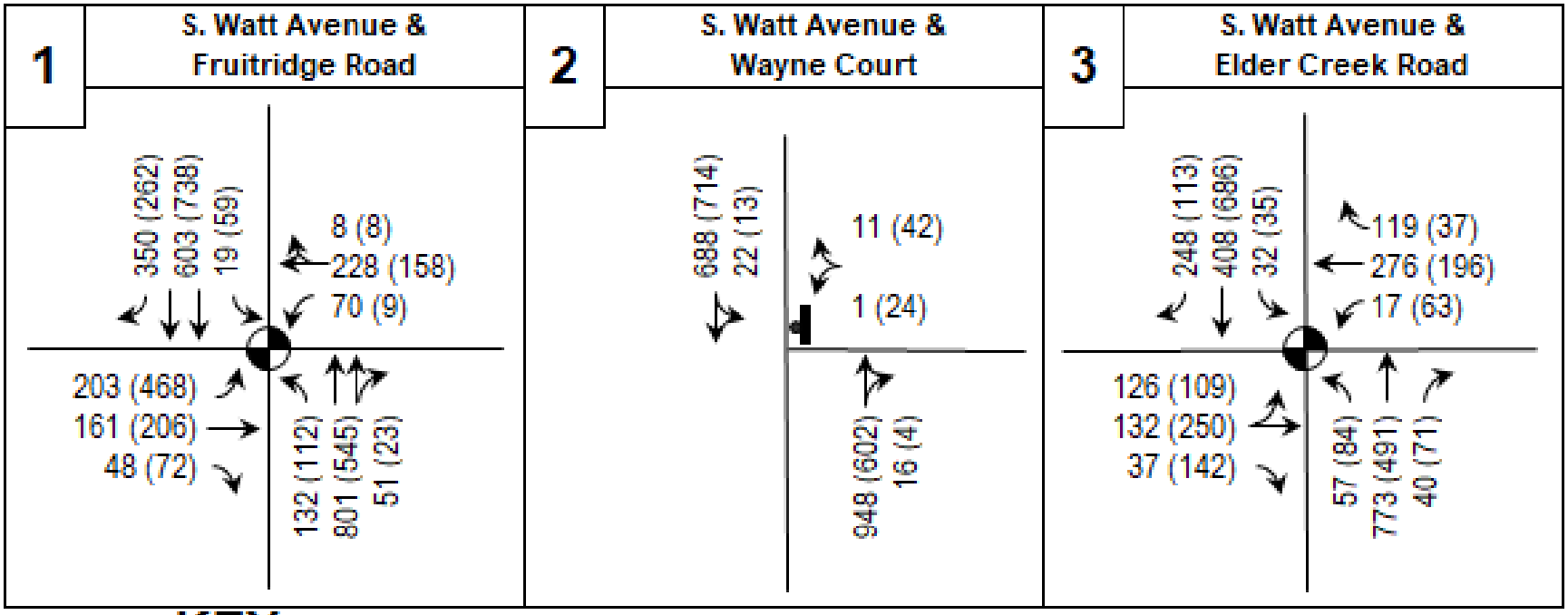


Source: City of Sacramento Bikeway User Map, Released 2016.

Figure 3
Bikeways

DKS

Figure 4
Regional Transit



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Stop sign control

= Roundabout

N-S St. & E-W St. = North-south street / east-west street

DKS

Figure 5
Existing Peak Hour Traffic Volumes and Geometry

REGULATORY SETTING

City of Sacramento

The Mobility Element of the *Sacramento 2035 General Plan* outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following level of service policy has been used in this study, as amended on January 23, 2018:

> **Policy M 1.2.2 Level of Service (LOS) Standard.** The City shall implement a flexible context sensitive Level of Service (LOS) standard, and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure Vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions, including AM and PM peak hour with the following exceptions described below and mapped on Figure M-1:
>
> A. Core Area (Central City Community Plan Area) - LOS F allowed
>
> B. Priority Investment Areas – LOS F allowed
>
> C. LOS E Roadways - LOS E is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.
>
> - 65th Street: Elvas Avenue to 14th Avenue
> - Arden Way: Royal Oaks Drive to I-80 Business
> - Broadway: Stockton Boulevard to 65th Street
> - College Town Drive: Hornet Drive to La Rivera Drive
> - El Camino Avenue: I-80 Business to Howe Avenue
> - Elder Creek Road: Stockton Boulevard to Florin Perkins Road
> - Elder Creek Road: South Watt Avenue to Hedge Avenue
> - Fruitridge Road: Franklin Boulevard to SR 99
> - Fruitridge Road: SR 99 to 44th Street
> - Howe Avenue: El Camino Avenue to Auburn Boulevard
> - Sutterville Road: Riverside Boulevard to Freeport Boulevard
>
> LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of light rail stations.
>
> D. Other LOS F Roadways - LOS F is allowed for the following roadways because expansion of the roadways would cause undesirable impacts or conflict with other community values.

- 47th Avenue: State Route 99 to Stockton Boulevard
- Arcade Boulevard: Marysville Boulevard to Roseville Road
- Carlson Drive: Moddison Avenue to H Street
- Duckhorn Drive: Arena Boulevard to San Juan Road
- El Camino Avenue: Grove Avenue to Del Paso Boulevard
- Elvas Avenue: J Street to Folsom Boulevard
- Elvas Avenue/56th Street: 52nd Street to H Street
- Florin Road: Havenside Drive to Interstate 5
- Florin Road: Freeport Boulevard to Franklin Boulevard
- Florin Road: Interstate 5 to Freeport Boulevard
- Folsom Boulevard: 47th Street to 65th Street
- Folsom Boulevard: Howe Avenue to Jackson Highway
- Folsom Boulevard: US 50 to Howe Avenue
- Freeport Boulevard: Sutterville Road (North) to Sutterville Road (South)
- Freeport Boulevard: 21st Street to Sutterville Road (North)
- Freeport Boulevard: Broadway to 21st Street
- Garden Highway: Truxel Road to Northgate Boulevard
- H Street: Alhambra Boulevard to 45th Street
- H Street 45th: Street to Carlson Drive
- Hornet Drive: US 50 Westbound On-ramp to Folsom Boulevard
- Howe Avenue: US 50 to Fair Oaks Boulevard
- Howe Avenue: US 50 to 14th Avenue
- Raley Boulevard: Bell Avenue to Interstate 80
- San Juan Road: Duckhorn Drive to Truxel Road
- South Watt Avenue: US 50 to Kiefer Boulevard
- West El Camino Avenue: Northgate Boulevard to Grove Avenue

E. If maintaining the above LOS standards would, in the City's judgment be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation, and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

Sacramento County

The Sacramento County General Plan of 2005 – 2030, Amended November 9, 2011, Circulation Element provides goals, policies, and implementation measures to provide greater mobility through a balanced transportation system. The following policy applies to the transportation analysis of facilities in the unincorporated County:

> **Policy CI-9.** Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

LEVEL OF SERVICE ANALYSIS AND METHODOLOGY

Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the study area intersections. Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban setting, roadway capacity is generally governed by intersection characteristics, and intersection delay is used to determine "levels of service." Levels of service (LOS) describe roadway operating conditions. LOS is a qualitative measure of the effect of several factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, delay, and operating costs. LOS are designated A through F from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions.

Intersection 1 (South Watt Avenue and Fruitridge Road) and intersection 3 (South Watt Avenue and Elder Creek Road) are on the City / unincorporated County boundary. In each case, the City LOS policy is equal to or more conservative than the County policy (LOS E within the Urban Service Boundary). Therefore, based upon the City's level of service policy, the following criteria were applied to the study area intersections:

1. South Watt Avenue and Fruitridge Road – LOS D (City Base Standard)
2. South Watt Avenue and Wayne Court – LOS D (City Base Standard)
3. South Watt Avenue and Elder Creek Road – LOS E (Elder Creek Road)

Intersection Analysis

Intersection analyses were conducted using a methodology outlined in the Transportation Research Board's Special Report 209, Highway Capacity Manual 2010 (HCM 2010) (TRB 2010). The methodology utilized is known as "operational analysis." This procedure calculates an average control delay per vehicle at an intersection and assigns a level of service designation based upon the delay. Table 1 presents the level of service criteria for intersections in accordance with the HCM 2010 methodology. In accordance with City of Sacramento policy, at unsignalized intersection, the intersection average delay / LOS is used to determine conformity with City policies.

TABLE 1 INTERSECTION LEVEL OF SERVICE CRITERIA		
Level of Service (LOS)	**Total Delay Per Vehicle (seconds)**	
	Signalized	**Unsignalized**
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50
Source: *Highway Capacity Manual 2010, Transportation Research Board.*		

RESULTS OF EXISTING CONDITION ANALYSIS

Table 2 summarizes the existing a.m. and p.m. peak hour operating conditions at the study area intersections. All the intersections meet the LOS goals.

TABLE 2 EXISTING INTERSECTION OPERATING CONDITIONS				
Intersection	**A.M. Peak Hour**		**P.M. Peak Hour**	
	Delay (Seconds)	**LOS**	**Delay (Seconds)**	**LOS**
1. S. Watt Avenue & Fruitridge Road	47.1	D	48.5	D
2. S. Watt Avenue & Wayne Court	0.3	A	1.3	A
- Southbound Left	*10.6*	*B*	*8.9*	*A*
- Westbound	*21.6*	*C*	*25.1*	*D*
3. S. Watt Avenue & Elder Creek Road	62.3	E	66.1	E
Source: *DKS Associates, 2018.*				

PROJECT TRAVEL CHARACTERISTICS

TRIP GENERATION

Vehicular trip generation estimates of the project are based on data published by the Institute of Transportation Engineers (ITE). Specifically, the following ITE source has been utilized:

- Trip Generation Manual, Tenth Edition.

Vehicular trips have been estimated for the a.m. peak weekday commuter hour, p.m. peak weekday commuter hour, and weekday (daily) time periods.
For conservatism in the analysis, no adjustments have been made for mode choice, as the mode choice in the site environs is predominantly via private automobile. Various manufacturing, industrial, and warehouse uses are permitted in the M-1 zone. Such uses could be accommodated within the proposed project. Several representative permitted land uses are included in the ITE data:

- Code 110 – General Light Industrial
- Code 130 – Industrial Park
- Code 140 – Manufacturing
- Code 150 - Warehousing

Table 3 summarizes trip generation for these land use types. Additional descriptive information on each land use type is included in the technical appendix.

TABLE 3
VEHICULAR TRIP GENERATION ESTIMATES

Use	ITE Code	Size (1,000 square feet)	Vehicle Trips Generated (Trip-Ends)						
			Week-day	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
General Light Industrial	110	219.336	889	70	10	80	8	55	63
Industrial Park	130		1,413	71	17	88	18	70	88
Manufacturing	140		853	105	31	136	46	101	147
Warehousing	150		392	40	12	52	15	39	54

***Source**: DKS Associates, 2018; ITE Trip Generation, Tenth Edition, 2017.*

As the transportation analysis will focus on peak weekday commuter period intersection operations, the manufacturing trip generation estimates (Code 140) have been selected for analysis, as they provide the most conservative (highest) peak hour estimates. Table 4 summarizes the trip generation estimates that have been used in the analyses.

TRIP DISTRIBUTION

The distribution of trips associated with the proposed project was derived from the regional SACSIM travel model, observations of travel patterns near the site, and knowledge of the proposed access locations associated with the site.

TABLE 4 TRIP GENERATION FOR TRAFFIC ANALYSIS									
Use	**ITE Code**	**Size (1,000 square feet)**	**Vehicle Trips Generated (Trip-Ends)**						
			Week-day	**AM Peak Hour**			**PM Peak Hour**		
				Enter	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Manufacturing	140	219.336	853	105	31	136	46	101	147
***Source**: DKS Associates, 2018; ITE Trip Generation, Tenth Edition, 2017.*									

Trip distribution varies by time of day and direction of travel. Figure 6 illustrates the trip distribution.

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, thresholds of significance adopted by the governing jurisdictions in applicable general plans and previous environmental documents, and professional judgement, a significant impact would occur if the proposed project would:

INTERSECTIONS – CITY OF SACRAMENTO

- The traffic generated by the project degrades LOS from an acceptable LOS (without the project) to an unacceptable LOS (with the project),
- The LOS (without project) is unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more.

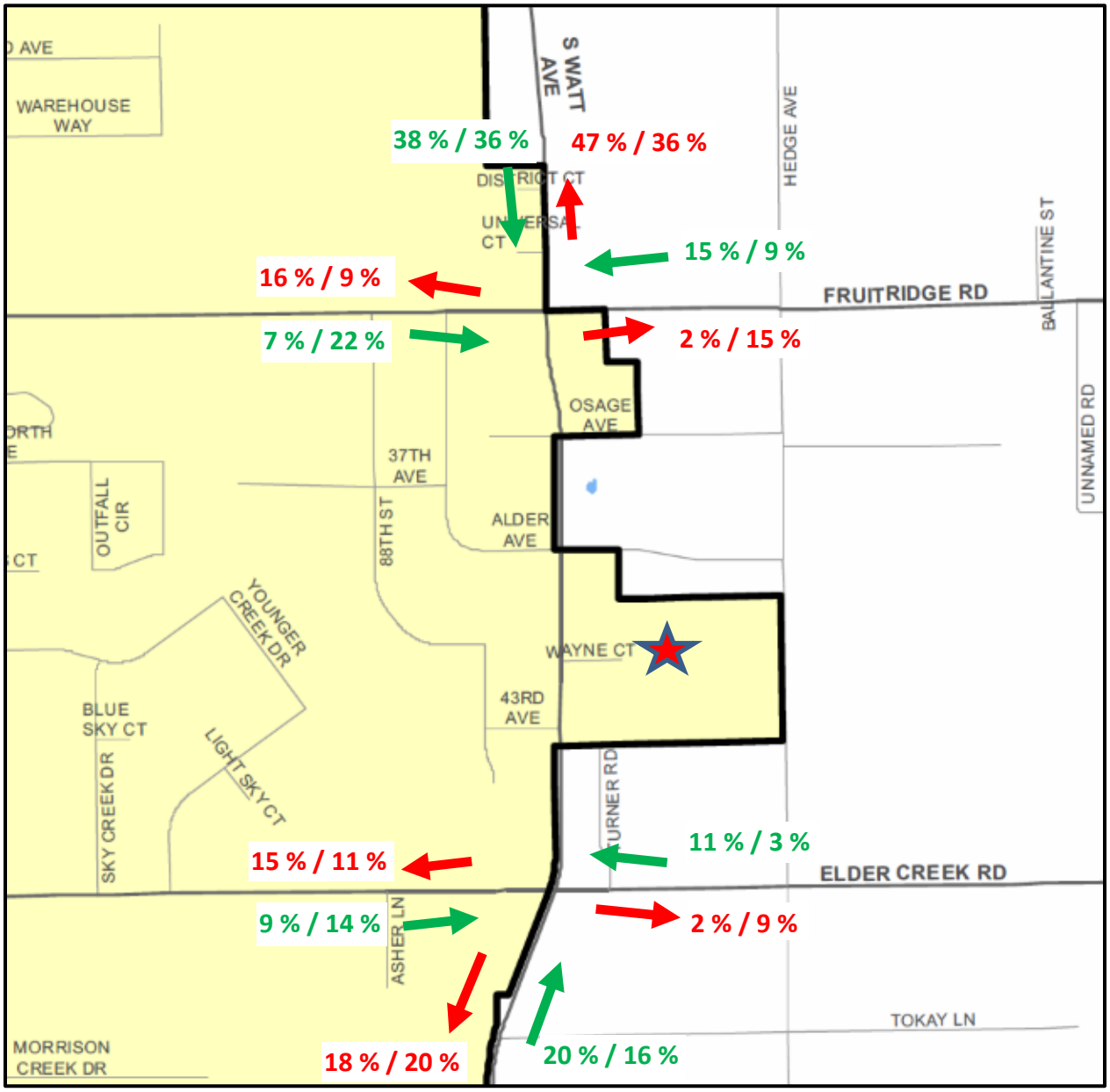
Note: General Plan Mobility Element Policy M 1.2.2 sets forth definitions for what is considered an acceptable LOS. As previously discussed, Policy M 1.2.2 applies to the study area roadway facilities as follows:

- Intersections 1 and 2 - LOS A-D is always to be maintained; provided, LOS E or F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City-initiated project.

- Intersection 3 - LOS A-E is always to be maintained; provided, LOS F may be acceptable if improvements are made to the overall transportation system and/or non-vehicular transportation and transit are promoted as part of the project or a City-initiated project.

INTERSECTIONS – COUNTY OF SACRAMENTO

As noted previously, City of Sacramento thresholds of significance have been utilized in this analysis as they are more conservative than the County thresholds.



Entering - AM % / PM %
Exiting - AM % / PM %

Figure 6
Trip Distribution

TRANSIT

- Adversely affect public transit operations,
- Fail to adequately provide access to transit.

BICYCLE FACILITIES

- Adversely affect existing or planned bicycle facilities,
- Fail to adequately provide for access by bicycle.

PEDESTRIAN CIRCULATION

- Adversely affect existing or planned pedestrian facilities,
- Fail to adequately provide for access by pedestrians.

CONSTRUCTION-RELATED TRAFFIC IMPACTS

- Degrade an intersection or roadway to an unacceptable level,
- Cause inconveniences to motorists due to prolonged road closures, or
- Result in increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

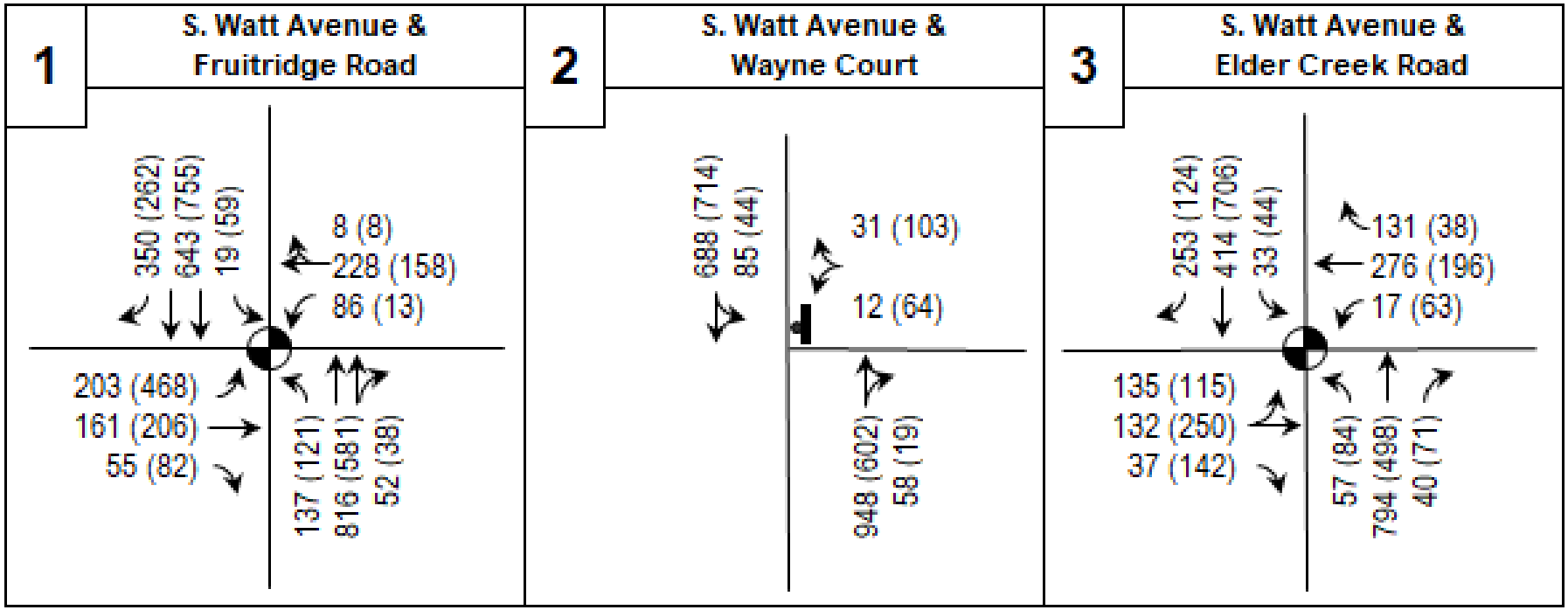
Figure 7 illustrates AM peak hour and PM peak hour traffic volumes associated with the existing plus project scenario. The figure also illustrates the intersection geometry of the existing plus project scenario. Table 5 summarizes the results of the existing plus project peak hour intersection analysis.

IMPACTS AND MITIGATION MEASURES

Impact 1: The proposed project could cause potentially significant impacts to study area intersections under the existing plus project scenario. Based on the analysis below and with the implementation of mitigation, the impact is less than significant.

As summarized in Table 5, the project would increase traffic volumes and average delay at the study area intersections. The study area intersections would continue to operate at acceptable levels of service, and not result in LOS impacts.

At intersection 2, the increase in traffic volumes would result in LOS F conditions during the a.m. and p.m. peak hours for the stop-sign controlled Wayne Court approach. Long delays can result in motorists accepting inadequate gaps in traffic and unsafe movements, which is a safety concern.



KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Stop sign control

= Roundabout

N-S St. & E-W St. = North-south street / east-west street

DKS

Figure 7
Existing Plus Project Peak Hour Traffic Volumes and Geometry

TABLE 5
EXISTING PLUS PROJECT INTERSECTION OPERATING CONDITIONS

Intersection	Existing				Existing Plus Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. S. Watt Avenue & Fruitridge Road	47.1	D	48.5	D	49.0	D	49.8	D
2. S. Watt Avenue & Wayne Court	0.3	A	1.3	A	1.8	A	8.2	A
- Southbound Left	*10.6*	*B*	*8.9*	*A*	*11.6*	*B*	*9.1*	*A*
- Westbound	*21.6*	*C*	*25.1*	*D*	*52.4*	*F*	*73.8*	*F*
3. S. Watt Avenue & Elder Creek Road	62.3	E	66.1	E	64.9	E	69.0	E

Source: *DKS Associates, 2018.*

The increase in southbound left turn traffic exacerbates delays for southbound through traffic and can result in motorists utilizing the shoulder and bike lane to bypass stopped left turn traffic.

Mitigation Measure 1

At intersection 2, the applicant shall install a traffic signal. A southbound left turn lane shall be provided, with a storage length of 275 feet. The intersection meets warrants for a traffic signal and a southbound left turn lane. With this mitigation, the intersection will operate at LOS B during the a.m. and p.m. peak hours.

With mitigation, the intersection will have the following lane configuration:

- Northbound approach – one through / right turn lane (same as existing)
- Southbound approach – one through lane, one left turn lane
- Westbound approach – one left turn / right turn lane (same as existing)

Impact 2: The proposed project could cause potentially significant impacts to transit. Based on the analysis below, the impact is less than significant.

The project would not disrupt transit operations. Although transit service is not provided in the site vicinity, it is infeasible for this project to provide transit service.

Mitigation Measure 2

None required.

Impact 3: The proposed project could cause potentially significant impacts to pedestrian facilities. Based on the analysis below, the impact is less than significant.

The project would not disrupt pedestrian facilities. The project would maintain sidewalks along the Wayne Court.

Mitigation Measure 3

None required.

Impact 4: The proposed project could cause potentially significant impacts to bicycle facilities. Based on the analysis below, the impact is less than significant.

The project would not affect any existing and would not preclude any planned bicycle facilities.

Mitigation Measure 4

None required.

Impact 5: The proposed project could cause potentially significant impacts due to construction-related activities. Based on the analysis below and with implementation of mitigation, the impact is less than significant.

The applicant will be required to provide a construction traffic control plan per City Code 12.20.030 to the satisfaction of the City Traffic Engineer.

Mitigation Measure 5

None required.

VEHICLE MILES TRAVELED (VMT)

Travel forecasting for the project VMT analysis was conducted with the use of SACOG's SACSIM travel model. The model was used to calculate regional VMT for the existing and existing plus project scenarios.

As shown in Table 5, the project is estimated to decrease daily VMT by 22,851 compared to the existing scenario.

TABLE 5
ESTIMATED PROJECT VMT

Roadway Type	Regional Daily Vehicle Miles Travelled		
	Existing	Existing Plus Project	Project Difference
Freeways and Rural Roads	33,562,582	33,541,539	-21,043
Urban Streets	24,617,912	24,616,104	-1,808
Total	58,180,495	58,157,643	-22,851

Source: *DKS Associates, 2018.*

ON-SITE OPERATIONS REVIEW AND QUEUING

Figure 2 illustrates the project site plan. The site plan was reviewed for conformity with accepted traffic engineering principles as well as queueing effects.

DRIVEWAY LOCATION

The proposed driveway is at the end of the Wayne Court cul-de-sac. This location is acceptable, as it does not interfere with cul-de-sac operations or the other adjacent driveways.

ENTRY GATES

The site plan does not depict any entry gates or other security controls. If such devices are desired, the existing cul-de-sac would provide a turn-around area in accordance with City policies. The gate should be located no less than 50 feet east of the existing cul-de-sac sidewalk.

PEDESTRIAN ACCESS

A sidewalk is shown on one side of the entrance driveway. It is desirable to have sidewalks on both sides of the driveway to avoid pedestrians crossing the driveway and / or walking in the driveway.

BICYCLE ACCESS

Bicycle access is adequate via Wayne Court and the proposed driveway. On-site bicycle parking should be provided in accordance with City guidelines.

ACCESS AND UTILITY EASEMENT

The site plan depicts an access and utility easement extending to the undeveloped property to the east. It should be noted that this easement passes through a proposed parking aisle and is unsuitable as a major access point to the parcel to the east.

Based upon discussions with City staff and a review of the General Plan, vehicular access through this property to parcels to the east and / or Hedge Avenue is not planned by the City

Draft Transportation Analysis Appendices
24 Wayne Court
Prepared for
City of Sacramento

November 14, 2018

DKS

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Intersection Traffic Counts

Prepared by National Data & Surveying Services

S Watt Ave & Fruitridge Rd

Peak Hour Turning Movement Count

ID: 18-07351-001
City: Sacramento

Day: Tuesday
Date: 10/02/2018

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

S Watt Ave – SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing (NB)
AM	350	603	17	2	981
NOON	0	0	0	0	0
PM	262	738	52	7	998
Peds/Bikes	0	0	0	0	

Fruitridge Rd – EASTBOUND

	AM	NOON	PM	
Departing (WB)	738	0	548	
U-Turn	33	0	30	0
Left	170	0	438	0
Thru	161	0	206	0
Right	48	0	72	0

Fruitridge Rd – WESTBOUND

		PM	NOON	AM
Right	0	8	0	8
Thru	0	158	0	228
Left	0	9	0	69
U-Turn	0	0	0	1
Departing (EB)		281	0	230

S Watt Ave – NORTHBOUND

	Departing (SB)	U-Turn	Left	Thru	Right
Peds/Bikes		0	0	0	0
PM	833	14	98	545	23
NOON	0	0	0	0	0
AM	725	5	127	801	51

CONTROL

0

	AM	NOON	PM
TEV	2674	0	2660
PHF	0.97		0.94

Total Vehicles (AM)

Approach	Left	Thru	Right
Southbound	17	603	350
Eastbound	170	161	48
Westbound	69	228	8
Northbound	127	801	51

Total Vehicles (Noon)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	52	738	262
Eastbound	438	206	72
Westbound	9	158	8
Northbound	98	545	23

Bikes (AM)

Approach	Left	Thru	Right
Southbound	0	0	1
Eastbound	1	0	0
Westbound	0	0	0
Northbound	0	1	0

Bikes (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

Approach	Left	Thru	Right
Southbound	0	1	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	1	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (west half)	0	0	1
North (east half)	0	0	0
West (north half)	0	0	0
West (south half)	0	0	0
East (north half)	0	0	0
East (south half)	0	0	1
South (west half)	1	0	0
South (east half)	1	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

Prepared by National Data & Surveying Services

S Watt Ave & Wayne Ct

Peak Hour Turning Movement Count

ID: 18-07351-002
City: Sacramento

Day: Tuesday
Date: 10/02/2018

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

S Watt Ave – SOUTHBOUND

	Right	Through	Left	U-Turn	Out (departing)
AM	0	688	22	0	959
NOON	0	0	0	0	0
PM	0	714	13	0	644
	0	0	0	0	

Wayne Ct – EASTBOUND

	AM	NOON	PM	
Out (departing)	0	0	0	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0

Wayne Ct – WESTBOUND

		PM	NOON	AM
Right	0	42	0	11
Through	0	0	0	0
Left	0	24	0	1
U-Turn	0	0	0	0
Out (departing)		17	0	38

CONTROL

0

	AM	NOON	PM
TEV	1686	0	1399
PHF	0.96		0.95

S Watt Ave – NORTHBOUND

	Out (departing)	U-Turn	Left	Through	Right
		0	0	0	0
PM	738	0	0	602	4
NOON	0	0	0	0	0
AM	689	0	0	948	16

Total Vehicles (AM)

Approach	U-Turn	Left	Through	Right
Southbound	0	22	688	0
Eastbound		0	0	0
Westbound		1	0	11
Northbound	0	0	948	16

Total Vehicles (Noon)

All movements: N/A

Total Vehicles (PM)

Approach	U-Turn	Left	Through	Right
Southbound	0	13	714	0
Eastbound		0	0	0
Westbound		24	0	42
Northbound	0	0	602	4

Bikes (AM)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	1	0

Bikes (NOON)

All movements: N/A

Bikes (PM)

Approach	Left	Through	Right
Southbound	0	1	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	1	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
West leg	0	0	0
East leg	0	0	0
Diagonal (NW)	0	0	0
Diagonal (NE)	0	0	0
Diagonal (SW)	0	0	0
Diagonal (SE)	0	0	0

Prepared by National Data & Surveying Services

S Watt Ave & Elder Creek Rd

Peak Hour Turning Movement Count

ID: 18-07351-003
City: Sacramento

Day: Tuesday
Date: 10/02/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

S Watt Ave — SOUTHBOUND

AM	248	408	32	0	1018	AM
NOON	0	0	0	0	0	NOON
PM	113	686	35	0	637	PM

EASTBOUND (Elder Creek Rd)

AM	NOON	PM	
581	0	392	⇦
0	0	0	↶ 0
126	0	109	↱ 0
132	0	250	→ 0
37	0	142	↴ 0
AM	NOON	PM	

WESTBOUND (Elder Creek Rd)

PM	NOON	AM	
37	0	119	0 ↰
196	0	276	0 ←
63	0	17	0 ↰
0	0	0	0 ↶
356	0	204	⇨
PM	NOON	AM	

CONTROL

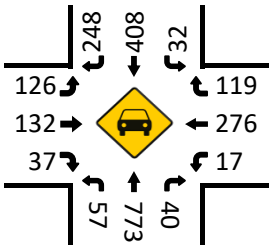
0

TEV	2265	0	2277
	AM	NOON	PM
PHF	0.96		0.99

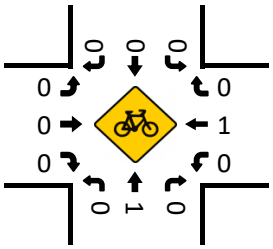
NORTHBOUND — S Watt Ave

PM	892	1	83	491	71	PM
NOON	0	0	0	0	0	NOON
AM	462	0	57	773	40	AM

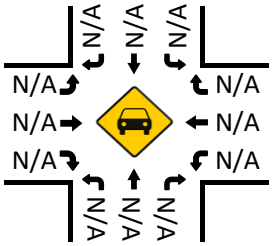
Total Vehicles (AM)



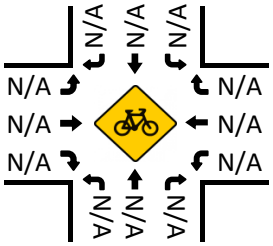
Bikes (AM)



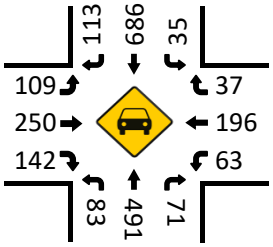
Total Vehicles (Noon)



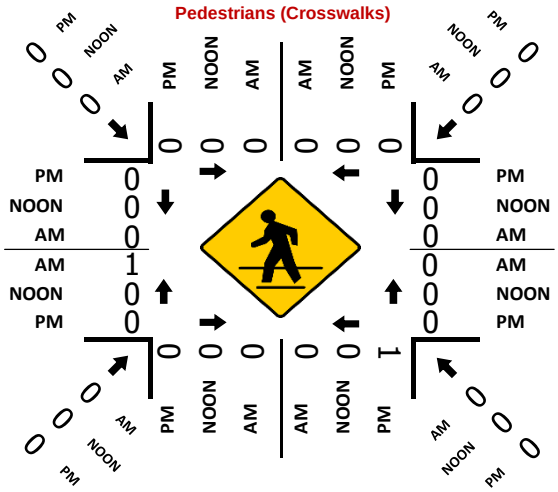
Bikes (NOON)



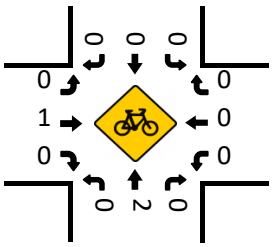
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Trip Generation Memorandum

DKS Associates
TRANSPORTATION SOLUTIONS

MEMORANDUM

TO:	Aelita Milatzo	
FROM:	Vic Maslanka	
DATE:	September 25, 2018	
SUBJECT:	24 Wayne Court	P 17042-020
	Vehicular Trip Generation Estimates	

This memorandum summarizes the results of the vehicular trip generation analysis of the proposed development at 24 Wayne Court in the City of Sacramento.

Project Description

The 6.22-acre project site is located at 24 Wayne Court. The site currently is vacant. The project proposes two tilt-up warehouses, each of which will be 109,668 square feet. The total development size is 219,336 square feet.

The project site is located within an industrial (M-1) zone. Surrounding parcels consist of industrial and commercial uses.

Trip Generation Estimation

Vehicular trip generation estimates of the project are based upon information published by the Institute of Transportation Engineers (ITE). Specifically, the following source has been utilized:

- Trip Generation, Tenth Edition.

For conservatism in the analysis, no adjustments have been made for mode choice, as the mode choice in the site environs is predominantly via private automobile. Various manufacturing, industrial, and warehouse uses are permitted in the M-1 zone. Such uses could be accommodated within the proposed project. Several representative permitted land uses are included in the ITE data:

- Code 110 – General Light Industrial
- Code 130 – Industrial Park
- Code 140 – Manufacturing
- Code 150 - Warehousing

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Sacramento, CA 95826-3225

916 368-2000
916 368-1020 fax
www.dksassociates.com

Table 1 summarizes trip generation for these land use types. Additional descriptive information on each land use type is included in the technical appendix.

As the transportation analysis will focus on peak weekday commuter period intersection operations, the manufacturing trip generation estimates (Code 140) have been selected for analysis, as they provide the most conservative (highest) peak hour estimates. Table 2 summarizes the recommended trip generation estimates.

TABLE 1
VEHICULAR TRIP GENERATION ESTIMATES

Use	ITE Code	Size (1,000 square feet)	Vehicle Trips Generated (Trip-Ends)						
			Week-day	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
General Light Industrial	110	219.336	889	70	10	80	8	55	63
Industrial Park	130		1,413	71	17	88	18	70	88
Manufacturing	140		853	105	31	136	46	101	147
Warehousing	150		392	40	12	52	15	39	54

***Source**: DKS Associates, 2018; ITE Trip Generation, Tenth Edition, 2017.*

TABLE 2
RECOMMENDED TRIP GENERATION FOR TRAFFIC ANALYSIS

Use	ITE Code	Size (1,000 square feet)	Vehicle Trips Generated (Trip-Ends)						
			Week-day	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Manufacturing	140	219.336	853	105	31	136	46	101	147

***Source**: DKS Associates, 2018; ITE Trip Generation, Tenth Edition, 2017.*

DKS Associates
TRANSPORTATION SOLUTIONS

TECHNICAL APPENDIX

Land Use: 110
General Light Industrial

Description

A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. Typical light industrial activities include printing, material testing, and assembly of data processing equipment. Industrial park (Land Use 130) and manufacturing (Land Use 140) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 30 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:30 and 8:30 a.m. and 4:30 and 5:30 p.m., respectively.

The sites were surveyed in the 1980s, the 2000s, and the 2010s in Colorado, Connecticut, Indiana, New Jersey, New York, Oregon, Pennsylvania, and Texas.

Source Numbers

106, 157, 174, 177, 179, 184, 191, 251, 253, 286, 300, 611, 874, 875, 912

General Light Industrial
(110)

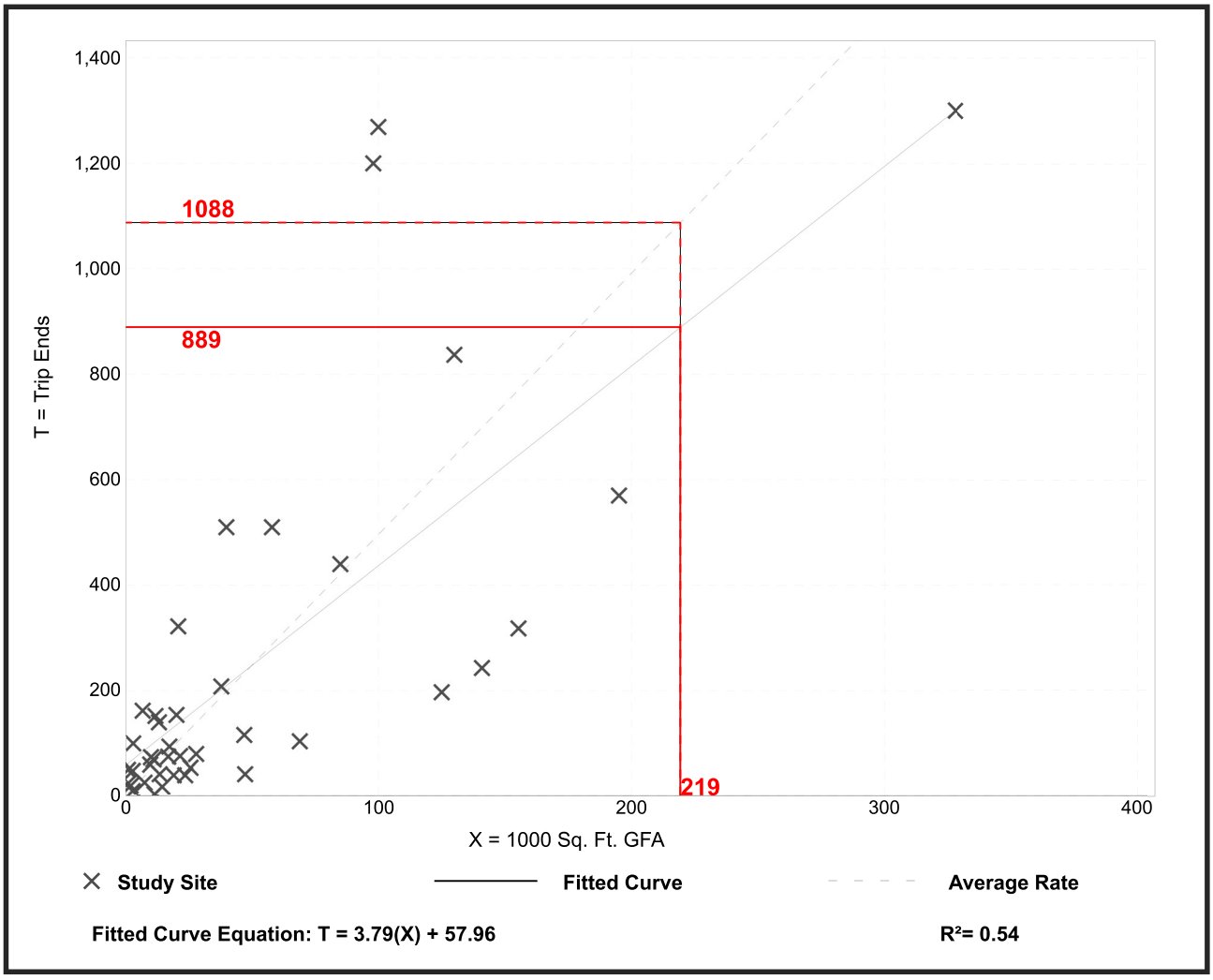
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 40
Avg. 1000 Sq. Ft. GFA: 49
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.96	0.34 - 43.86	4.20

Data Plot and Equation



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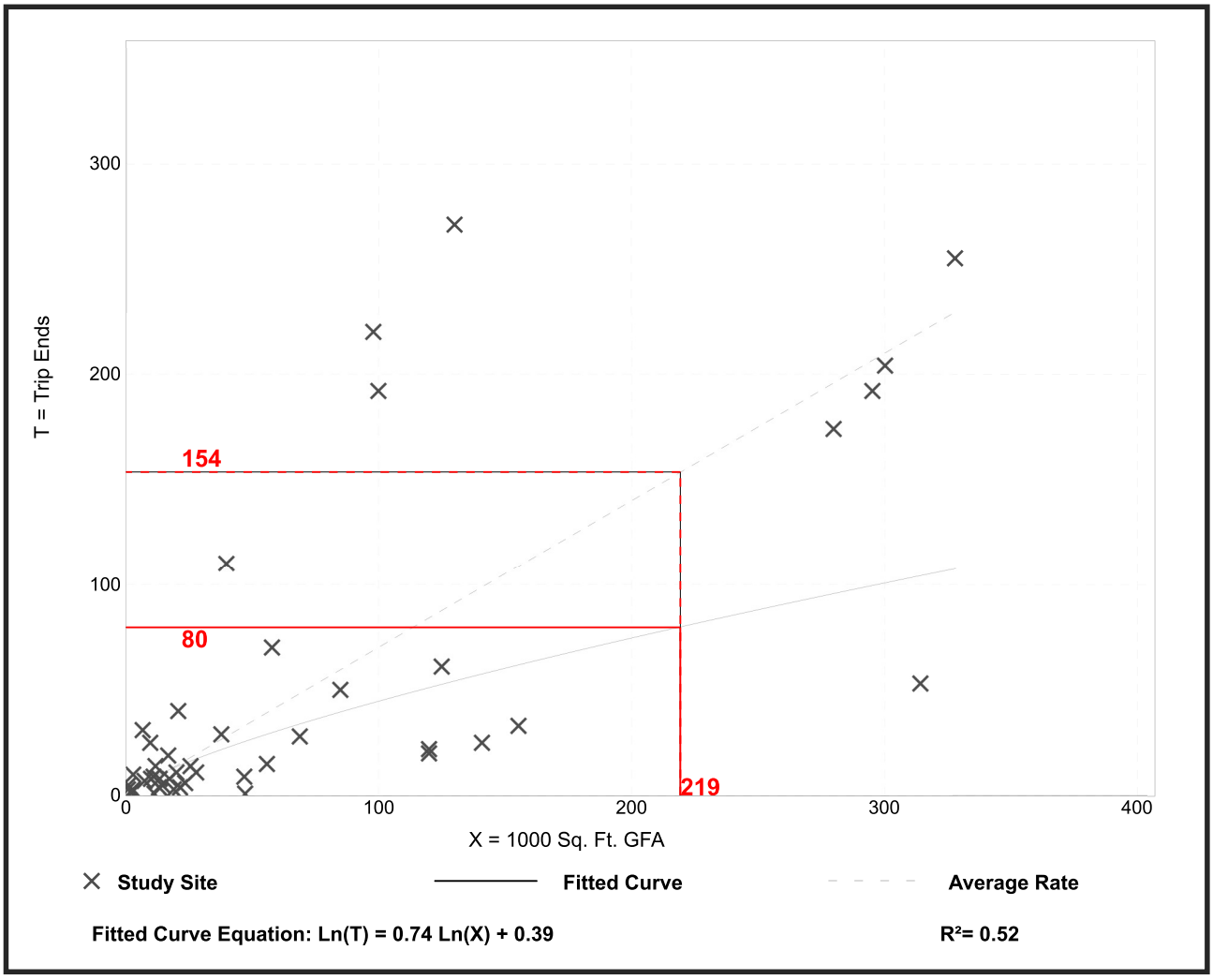
General Light Industrial
(110)

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: 45
Avg. 1000 Sq. Ft. GFA: 73
Directional Distribution: 88% entering, 12% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.70	0.02 - 4.46	0.65

Data Plot and Equation



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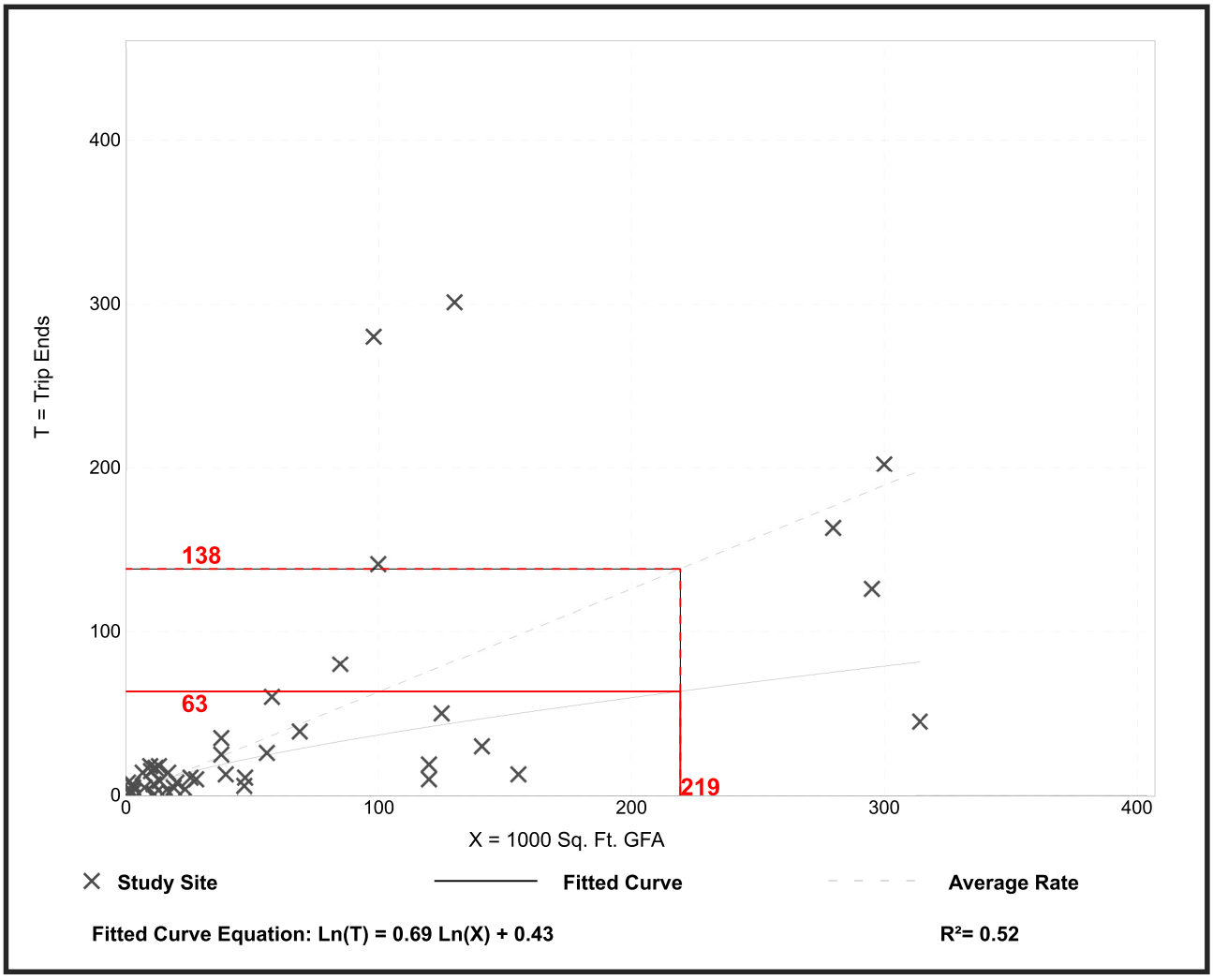
General Light Industrial
(110)

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: 44
Avg. 1000 Sq. Ft. GFA: 67
Directional Distribution: 13% entering, 87% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.63	0.07 - 7.02	0.68

Data Plot and Equation



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Land Use: 130
Industrial Park

Description

An industrial park contains a number of industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities—some with a large number of small businesses and others with one or two dominant industries. General light industrial (Land Use 110) and manufacturing (Land Use 140) are related uses.

Additional Data

The sites were surveyed in the 1980s, the 2000s, and the 2010s in California, Georgia, New Jersey, New York, Ontario (CAN), and Pennsylvania.

Source Numbers

106, 162, 184, 251, 277, 422, 706, 747, 753, 937

Industrial Park
(130)

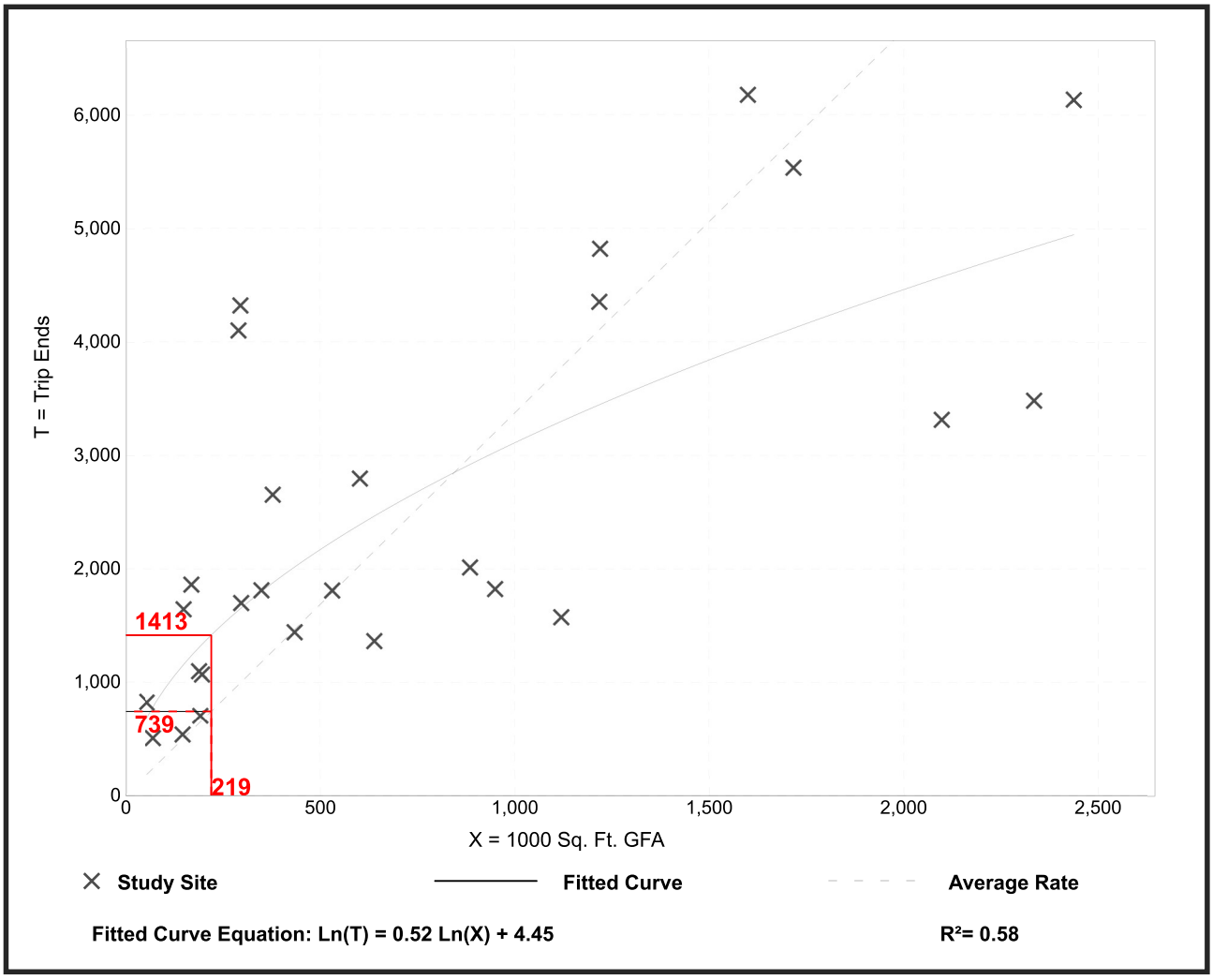
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 27
Avg. 1000 Sq. Ft. GFA: 762
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.37	1.41 - 14.98	2.60

Data Plot and Equation



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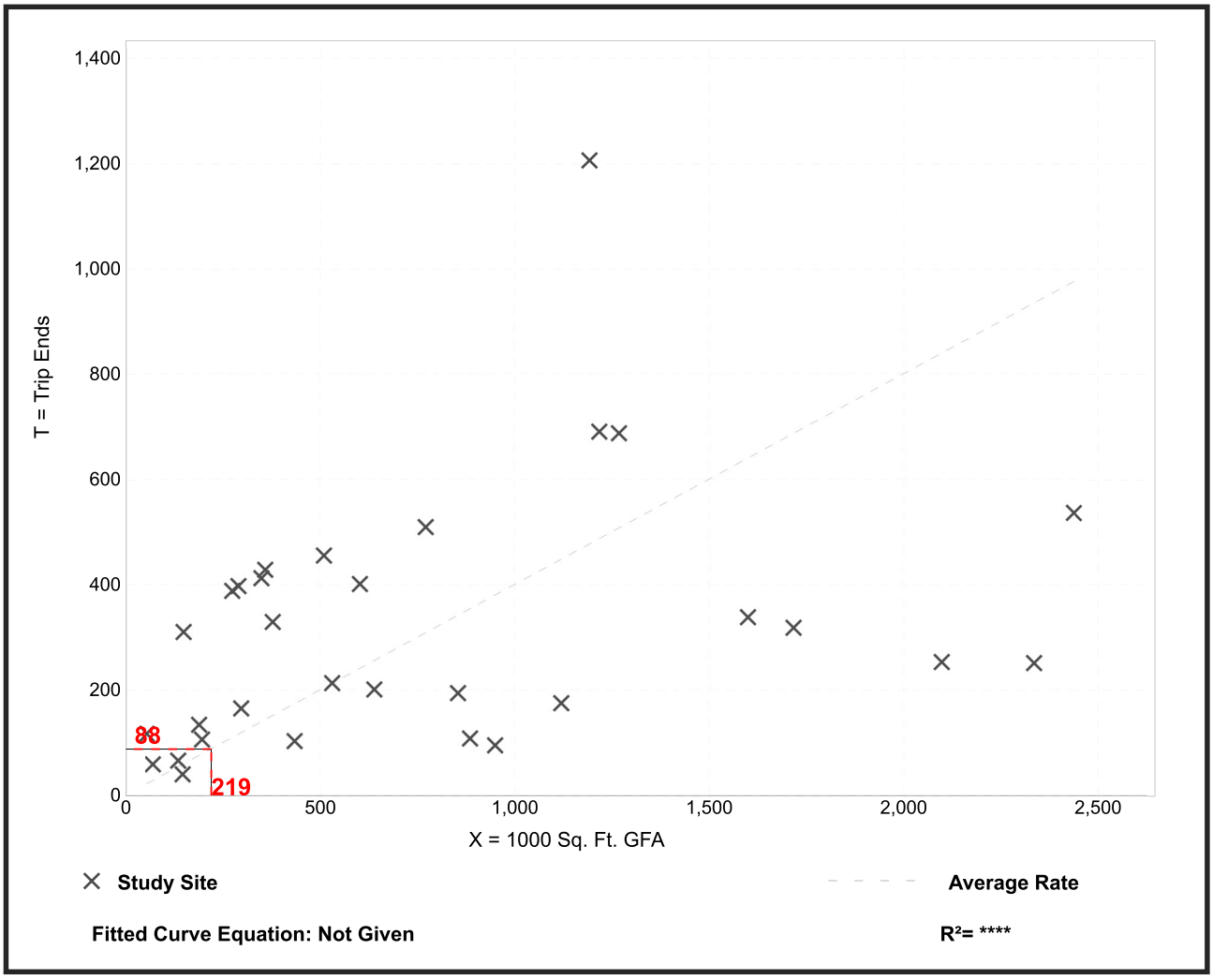
Industrial Park
(130)

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: 31
Avg. 1000 Sq. Ft. GFA: 776
Directional Distribution: 81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.10 - 2.13	0.37

Data Plot and Equation



Trip Generation Manual, 10th Edition ● Institute of Transportation Engineers

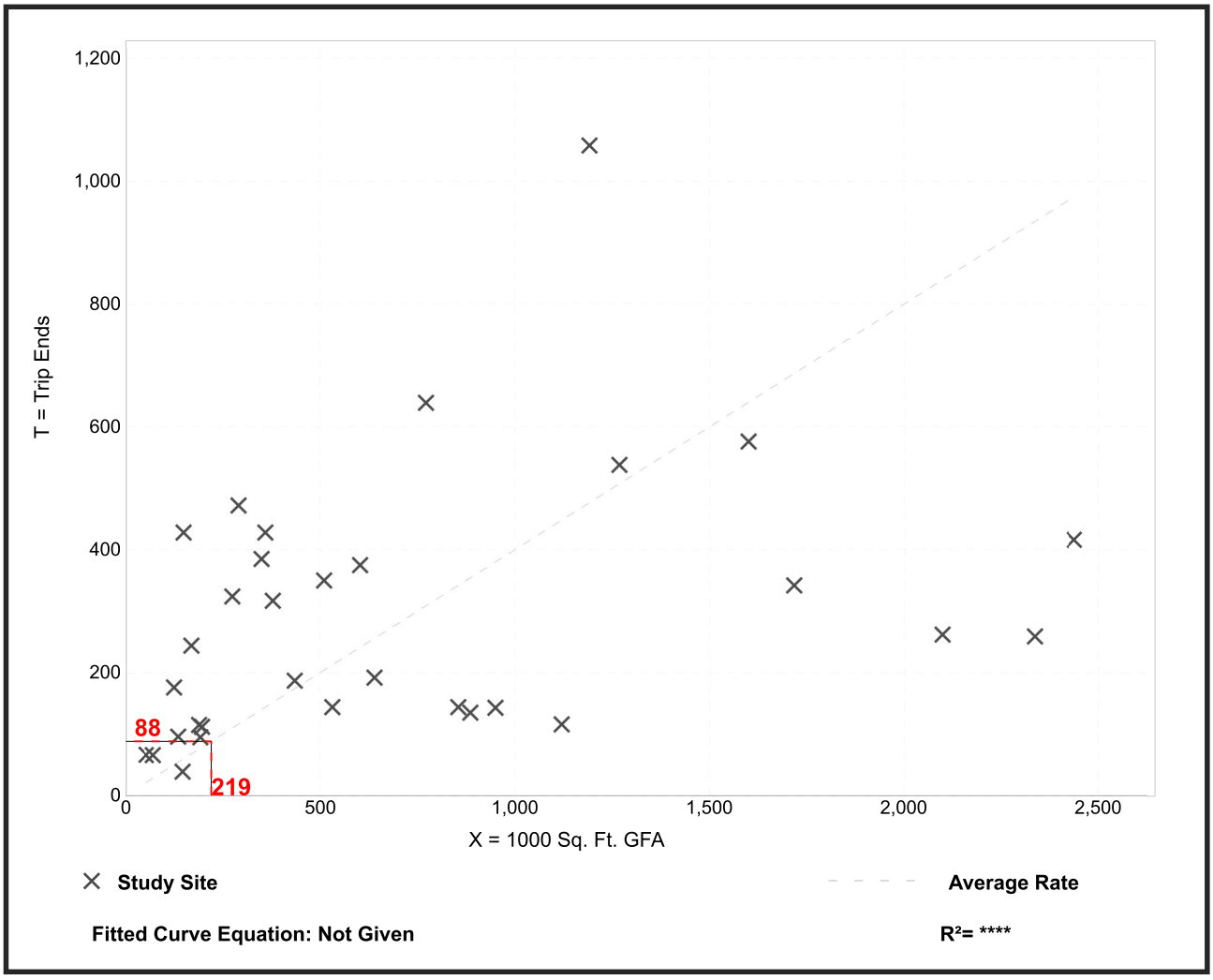
Industrial Park
(130)

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: 32
Avg. 1000 Sq. Ft. GFA: 720
Directional Distribution: 21% entering, 79% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.10 - 2.85	0.41

Data Plot and Equation



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Land Use: 140
Manufacturing

Description

A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, manufacturing facilities generally also have office, warehouse, research, and associated functions. General light industrial (Land Use 110) and industrial park (Land Use 130) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 17 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 6:30 and 7:30 a.m. and 3:00 and 4:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Minnesota, New Jersey, New York, Oregon, Pennsylvania, South Dakota, Texas, Vermont, and Washington.

Source Numbers

177, 184, 241, 357, 384, 418, 443, 583, 598, 611, 728, 747, 875, 940, 969

Manufacturing
(140)

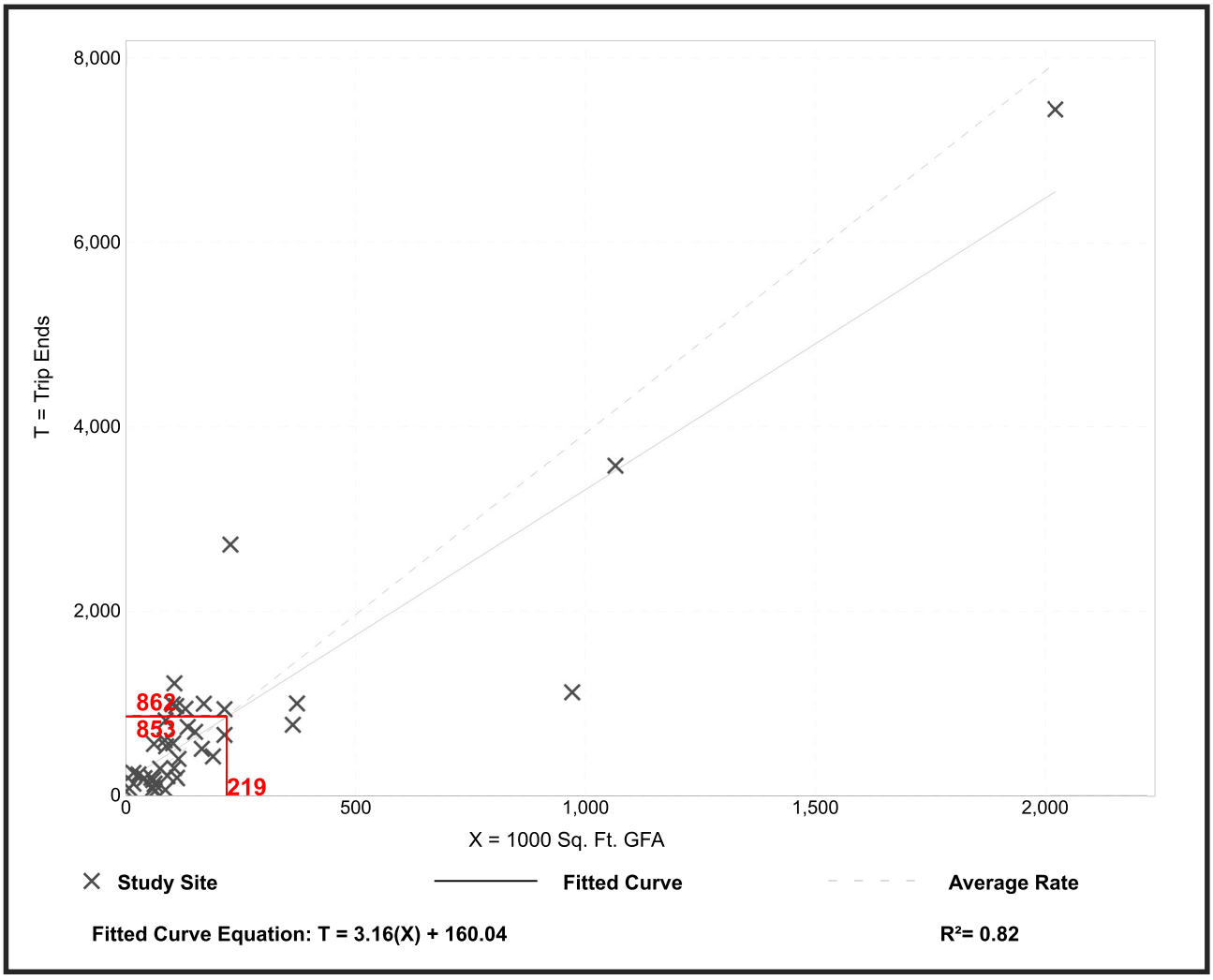
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 39
Avg. 1000 Sq. Ft. GFA: 209
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.93	0.83 - 49.50	2.62

Data Plot and Equation



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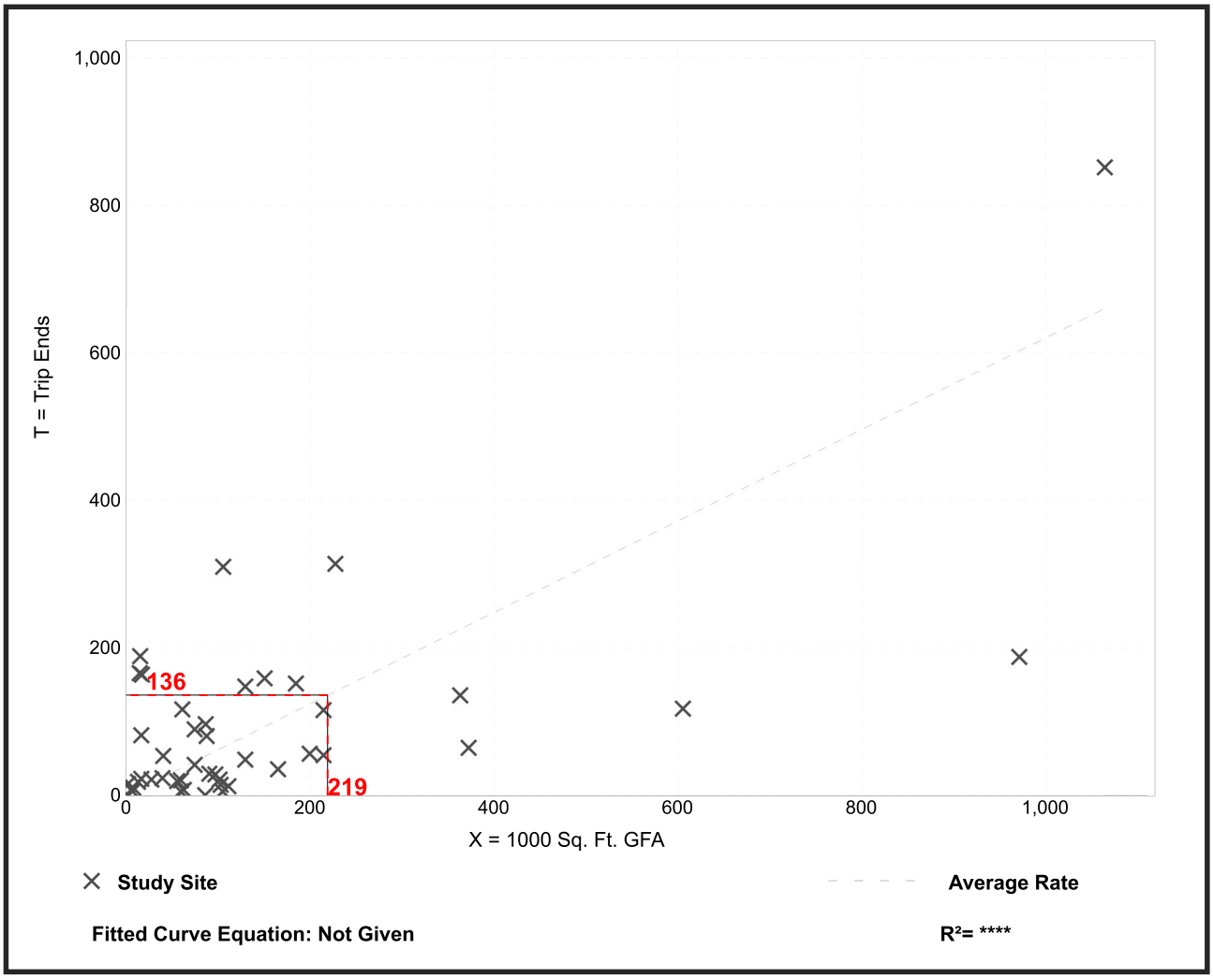
Manufacturing
(140)

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: 45
Avg. 1000 Sq. Ft. GFA: 149
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.62	0.01 - 11.93	1.03

Data Plot and Equation



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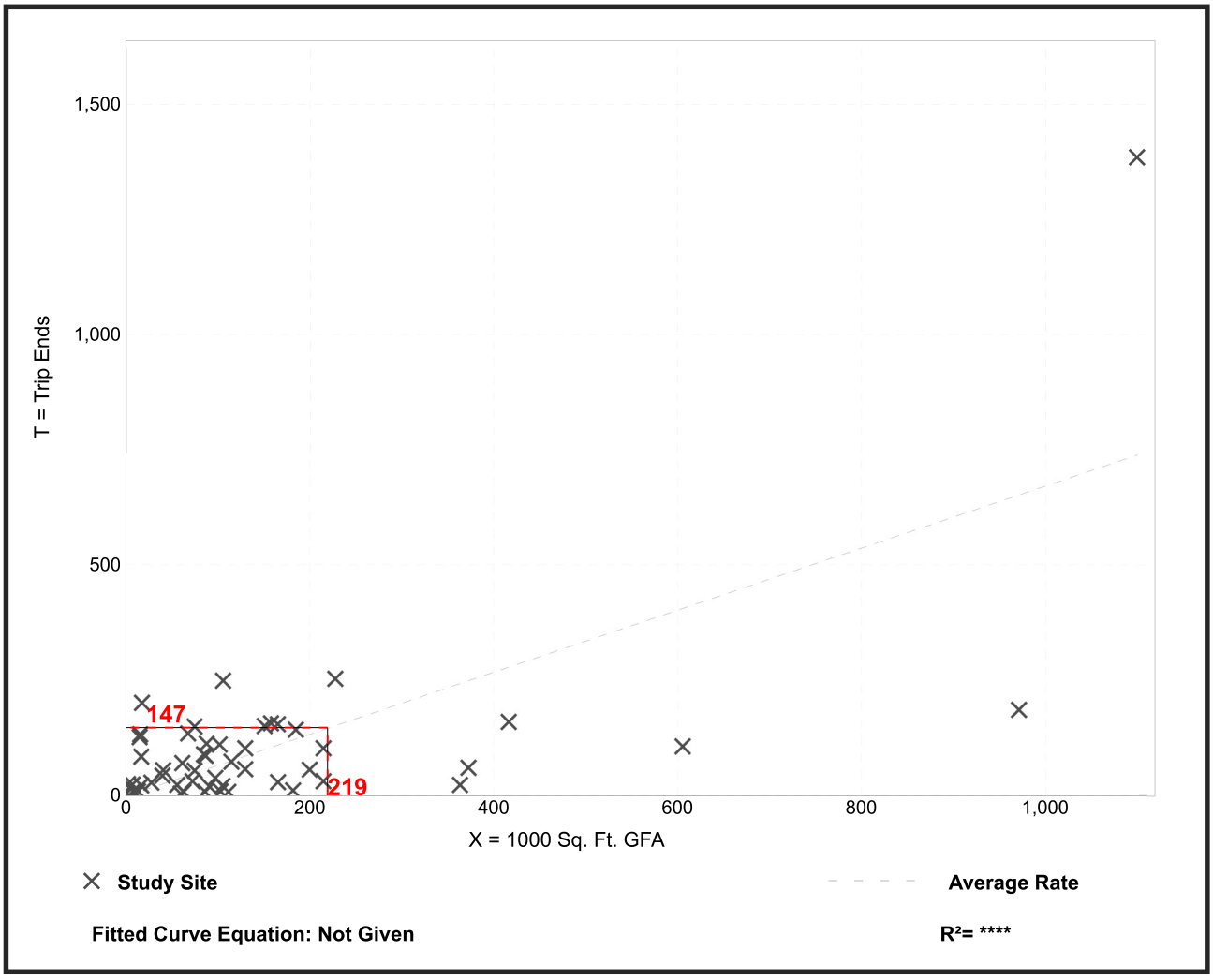
Manufacturing
(140)

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: 52
Avg. 1000 Sq. Ft. GFA: 152
Directional Distribution: 31% entering, 69% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.67	0.07 - 11.37	0.94

Data Plot and Equation



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Land Use: 150
Warehousing

Description

A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas. High-cube transload and short-term storage warehouse (Land Use 154), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 13 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:30 a.m. and 12:30 p.m. and 3:00 and 4:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, and Texas.

Source Numbers

184, 331, 406, 411, 443, 579, 583, 596, 598, 611, 619, 642, 752, 869, 875, 876, 914, 940

Warehousing
(150)

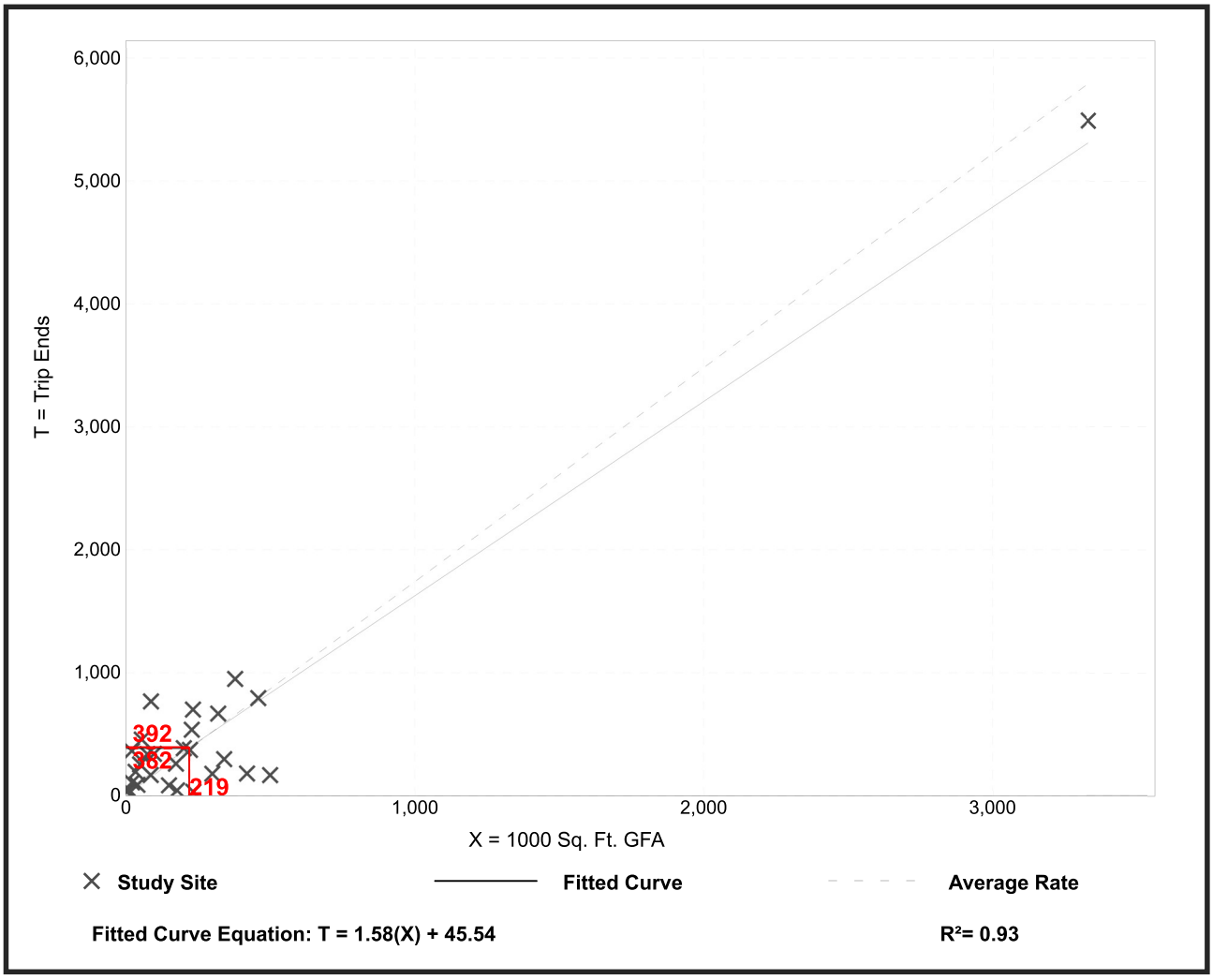
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. 1000 Sq. Ft. GFA: 285
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.74	0.15 - 16.93	1.55

Data Plot and Equation



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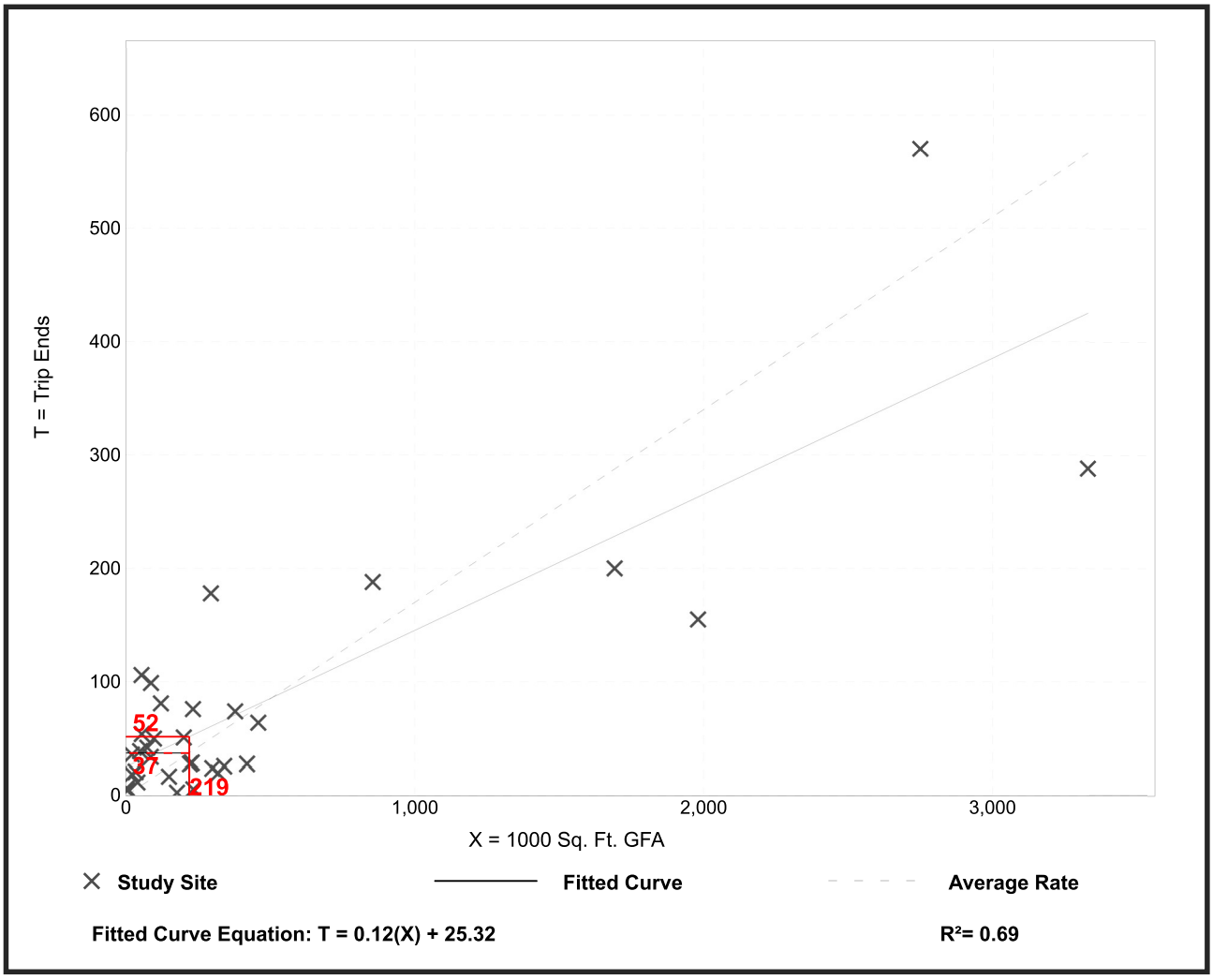
Warehousing
(150)

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: 34
Avg. 1000 Sq. Ft. GFA: 451
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.20

Data Plot and Equation



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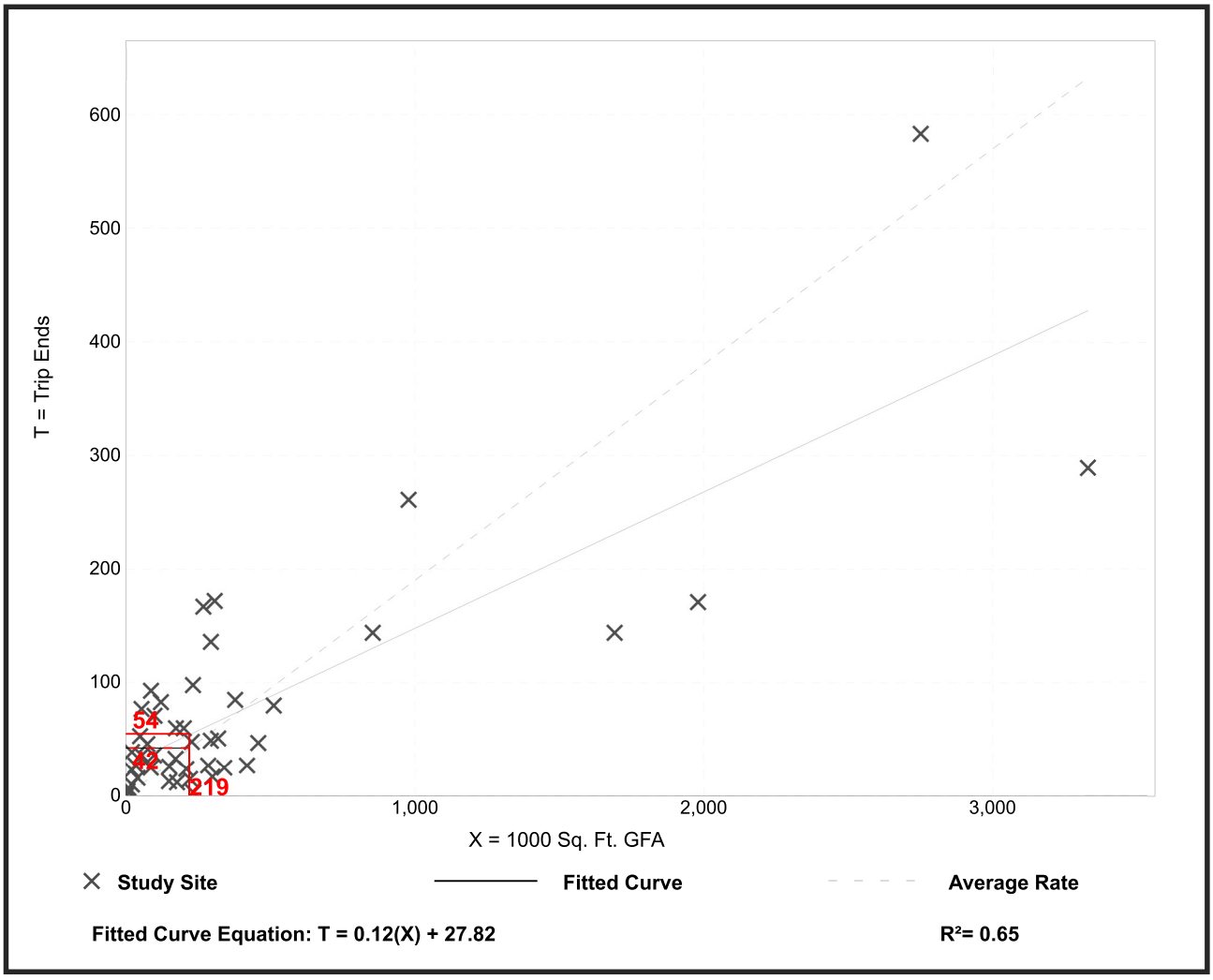
Warehousing
(150)

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: 47
Avg. 1000 Sq. Ft. GFA: 400
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.19	0.01 - 1.80	0.18

Data Plot and Equation



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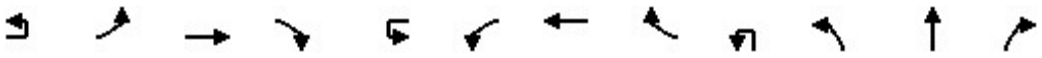
Intersection Analysis

Existing

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	33	170	161	48	1	69	228	8	5	127	801	51
Future Volume (vph)	33	170	161	48	1	69	228	8	5	127	801	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		6.9	6.9			4.5	5.0	
Lane Util. Factor		1.00	1.00	1.00		1.00	1.00			1.00	0.95	
Frt		1.00	1.00	0.85		1.00	0.99			1.00	0.99	
Flt Protected		0.95	1.00	1.00		0.95	1.00			0.95	1.00	
Satd. Flow (prot)		1770	1863	1583		1770	1853			1770	3508	
Flt Permitted		0.95	1.00	1.00		0.95	1.00			0.95	1.00	
Satd. Flow (perm)		1770	1863	1583		1770	1853			1770	3508	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	185	175	52	1	75	248	9	5	138	871	55
RTOR Reduction (vph)	0	0	0	43	0	0	2	0	0	0	4	0
Lane Group Flow (vph)	0	221	175	9	0	76	255	0	0	143	922	0
Turn Type	Split	Split	NA	Perm	Split	Split	NA		Prot	Prot	NA	
Protected Phases	4	4	4		8	8	8		5	5	2	
Permitted Phases				4								
Actuated Green, G (s)		16.1	16.1	16.1		17.5	17.5			4.6	30.1	
Effective Green, g (s)		16.1	16.1	16.1		17.5	17.5			4.6	30.1	
Actuated g/C Ratio		0.18	0.18	0.18		0.20	0.20			0.05	0.34	
Clearance Time (s)		7.0	7.0	7.0		6.9	6.9			4.5	5.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		320	337	286		348	364			91	1186	
v/s Ratio Prot		c0.12	0.09			0.04	c0.14			c0.08	c0.26	
v/s Ratio Perm				0.01								
v/c Ratio		0.69	0.52	0.03		0.22	0.70			1.57	0.78	
Uniform Delay, d1		34.1	33.0	30.0		30.0	33.3			42.2	26.4	
Progression Factor		1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2		6.3	1.4	0.0		0.3	6.0			303.3	3.3	
Delay (s)		40.4	34.3	30.1		30.3	39.3			345.5	29.7	
Level of Service		D	C	C		C	D			F	C	
Approach Delay (s)			36.8				37.3				72.0	
Approach LOS			D				D				E	

Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	2	17	603	350
Future Volume (vph)	2	17	603	350
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		5.3	5.0	5.0
Lane Util. Factor		1.00	0.95	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		1770	3539	1583
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	18	655	380
RTOR Reduction (vph)	0	0	0	263
Lane Group Flow (vph)	0	20	655	117
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		1.1	27.4	27.4
Effective Green, g (s)		1.1	27.4	27.4
Actuated g/C Ratio		0.01	0.31	0.31
Clearance Time (s)		5.3	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		21	1089	487
v/s Ratio Prot		0.01	0.19	
v/s Ratio Perm				0.07
v/c Ratio		0.95	0.60	0.24
Uniform Delay, d1		43.9	26.2	23.0
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		173.4	0.9	0.3
Delay (s)		217.4	27.1	23.3
Level of Service		F	C	C
Approach Delay (s)			29.3	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	948	16	22	688
Future Vol, veh/h	1	11	948	16	22	688
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	12	1030	17	24	748

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1835	1039	0	0	1048	0
Stage 1	1039	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	83	280	-	-	664	-
Stage 1	341	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	280	-	-	664	-
Mov Cap-2 Maneuver	78	-	-	-	-	-
Stage 1	341	-	-	-	-	-
Stage 2	416	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	230	664	-
HCM Lane V/C Ratio	-	-	0.057	0.036	-
HCM Control Delay (s)	-	-	21.6	10.6	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	132	37	17	276	119	57	773	40	32	408	248
Future Volume (veh/h)	126	132	37	17	276	119	57	773	40	32	408	248
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	137	143	40	18	300	129	62	840	43	35	443	270
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	156	266	285	299	254	78	945	803	45	916	779
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16	0.04	0.51	0.51	0.03	0.49	0.49
Sat Flow, veh/h	890	929	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	280	0	40	18	300	129	62	840	43	35	443	270
Grp Sat Flow(s),veh/h/ln	1818	0	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	26.4	0.0	3.8	1.5	28.0	13.0	6.0	70.6	2.4	3.4	27.6	18.2
Cycle Q Clear(g_c), s	26.4	0.0	3.8	1.5	28.0	13.0	6.0	70.6	2.4	3.4	27.6	18.2
Prop In Lane	0.49		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	0	266	285	299	254	78	945	803	45	916	779
V/C Ratio(X)	0.92	0.00	0.15	0.06	1.00	0.51	0.79	0.89	0.05	0.78	0.48	0.35
Avail Cap(c_a), veh/h	363	0	316	285	299	254	134	945	803	47	916	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.3	0.0	61.9	62.0	73.2	66.9	82.5	38.6	21.8	84.5	29.5	27.1
Incr Delay (d2), s/veh	24.8	0.0	0.3	0.1	52.7	1.6	16.3	12.3	0.1	54.6	1.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	0.0	1.7	0.7	18.8	5.8	3.3	39.4	1.1	2.4	14.6	8.2
LnGrp Delay(d),s/veh	96.1	0.0	62.1	62.1	125.9	68.5	98.9	50.9	21.9	139.1	31.4	28.4
LnGrp LOS	F		E	E	F	E	F	D	C	F	C	C
Approach Vol, veh/h		320			447			945			748	
Approach Delay, s/veh		91.9			106.8			52.7			35.3	
Approach LOS		F			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	93.4		36.1	12.5	90.7		35.0
Change Period (Y+Rc), s	* 5.4	5.0		6.8	* 4.8	5.0		7.0
Max Green Setting (Gmax), s	* 4.6	88.4		34.8	* 13	80.4		28.0
Max Q Clear Time (g_c+I1), s	5.4	72.6		28.4	8.0	29.6		30.0
Green Ext Time (p_c), s	0.0	9.2		0.9	0.0	15.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	62.3
HCM 2010 LOS	E

Notes

Intersection Analysis

Existing

PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	30	438	206	72	9	158	8	14	98	545	23	7
Future Volume (vph)	30	438	206	72	9	158	8	14	98	545	23	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0	6.9	6.9			4.5	5.0		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00			1.00	0.95		
Frt		1.00	1.00	0.85	1.00	0.99			1.00	0.99		
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		1770	1863	1583	1770	1849			1770	3518		
Flt Permitted		0.95	1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (perm)		1770	1863	1583	1770	1849			1770	3518		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	476	224	78	10	172	9	15	107	592	25	8
RTOR Reduction (vph)	0	0	0	56	0	2	0	0	0	2	0	0
Lane Group Flow (vph)	0	509	224	22	10	179	0	0	122	615	0	0
Turn Type	Split	Split	NA	Perm	Split	NA		Prot	Prot	NA		Prot
Protected Phases	4	4	4		8	8		5	5	2		1
Permitted Phases				4								
Actuated Green, G (s)		29.1	29.1	29.1	15.2	15.2			8.1	30.0		
Effective Green, g (s)		29.1	29.1	29.1	15.2	15.2			8.1	30.0		
Actuated g/C Ratio		0.28	0.28	0.28	0.15	0.15			0.08	0.29		
Clearance Time (s)		7.0	7.0	7.0	6.9	6.9			4.5	5.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		494	520	442	258	269			137	1013		
v/s Ratio Prot		c0.29	0.12		0.01	c0.10			c0.07	0.17		
v/s Ratio Perm				0.01								
v/c Ratio		1.03	0.43	0.05	0.04	0.67			0.89	0.61		
Uniform Delay, d1		37.5	30.7	27.4	38.2	42.1			47.6	32.0		
Progression Factor		1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2		48.5	0.6	0.0	0.1	6.1			45.7	1.0		
Delay (s)		86.0	31.3	27.4	38.2	48.2			93.2	33.0		
Level of Service		F	C	C	D	D			F	C		
Approach Delay (s)			65.3			47.6				42.9		
Approach LOS			E			D				D		

Intersection Summary			
HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	24.2
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	52	738	262
Future Volume (vph)	52	738	262
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.3	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	57	802	285
RTOR Reduction (vph)	0	0	158
Lane Group Flow (vph)	65	802	127
Turn Type	Prot	NA	Perm
Protected Phases	1	6	
Permitted Phases			6
Actuated Green, G (s)	5.6	28.3	28.3
Effective Green, g (s)	5.6	28.3	28.3
Actuated g/C Ratio	0.05	0.27	0.27
Clearance Time (s)	5.3	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	95	962	430
v/s Ratio Prot	0.04	c0.23	
v/s Ratio Perm			0.08
v/c Ratio	0.68	0.83	0.30
Uniform Delay, d1	48.4	35.7	30.0
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	18.5	6.3	0.4
Delay (s)	66.8	42.0	30.4
Level of Service	E	D	C
Approach Delay (s)		40.5	
Approach LOS		D	

Intersection Summary

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	42	602	4	13	714
Future Vol, veh/h	24	42	602	4	13	714
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	46	654	4	14	776

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1461	657	0	0	659	0
Stage 1	657	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	142	465	-	-	929	-
Stage 1	516	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	138	465	-	-	929	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	429	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	250	929	-
HCM Lane V/C Ratio	-	-	0.287	0.015	-
HCM Control Delay (s)	-	-	25.1	8.9	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	250	142	63	196	37	84	491	71	35	686	113
Future Volume (veh/h)	109	250	142	63	196	37	84	491	71	35	686	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	118	272	154	68	213	40	91	534	77	38	746	123
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	250	309	230	242	206	110	941	800	49	884	751
Arrive On Green	0.20	0.20	0.20	0.13	0.13	0.13	0.06	0.51	0.51	0.03	0.47	0.47
Sat Flow, veh/h	555	1280	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	390	0	154	68	213	40	91	534	77	38	746	123
Grp Sat Flow(s),veh/h/ln	1835	0	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	33.2	0.0	14.8	5.9	19.1	3.8	8.6	33.8	4.3	3.6	59.8	7.5
Cycle Q Clear(g_c), s	33.2	0.0	14.8	5.9	19.1	3.8	8.6	33.8	4.3	3.6	59.8	7.5
Prop In Lane	0.30		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	358	0	309	230	242	206	110	941	800	49	884	751
V/C Ratio(X)	1.09	0.00	0.50	0.30	0.88	0.19	0.83	0.57	0.10	0.78	0.84	0.16
Avail Cap(c_a), veh/h	358	0	309	313	328	279	148	941	800	69	884	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.5	0.0	61.1	67.0	72.7	66.1	78.9	29.2	21.9	82.2	39.2	25.5
Incr Delay (d2), s/veh	73.8	0.0	1.2	0.7	18.3	0.5	23.9	2.5	0.2	29.5	9.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.1	0.0	6.6	2.9	11.1	1.7	5.0	18.0	1.9	2.2	33.0	3.4
LnGrp Delay(d),s/veh	142.3	0.0	62.3	67.7	91.1	66.6	102.8	31.7	22.1	111.8	48.9	26.0
LnGrp LOS	F		E	E	F	E	F	C	C	F	D	C
Approach Vol, veh/h		544			321			702			907	
Approach Delay, s/veh		119.6			83.1			39.9			48.4	
Approach LOS		F			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	91.0		40.0	15.3	85.8		29.1
Change Period (Y+Rc), s	* 5.4	5.0		6.8	* 4.8	5.0		7.0
Max Green Setting (Gmax), s	* 6.6	86.0		33.2	* 14	79.0		30.0
Max Q Clear Time (g_c+I1), s	5.6	35.8		35.2	10.6	61.8		21.1
Green Ext Time (p_c), s	0.0	13.8		0.0	0.1	9.1		1.0

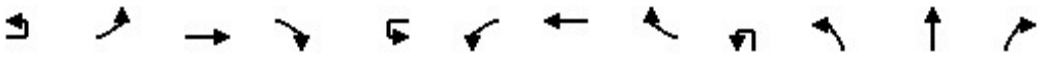
Intersection Summary	
HCM 2010 Ctrl Delay	66.1
HCM 2010 LOS	E

Notes

Intersection Analysis

Existing Plus Project

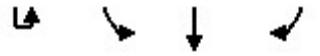
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	33	170	161	55	1	85	228	8	5	132	816	52
Future Volume (vph)	33	170	161	55	1	85	228	8	5	132	816	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0		6.9	6.9			4.5	5.0	
Lane Util. Factor		1.00	1.00	1.00		1.00	1.00			1.00	0.95	
Frt		1.00	1.00	0.85		1.00	0.99			1.00	0.99	
Flt Protected		0.95	1.00	1.00		0.95	1.00			0.95	1.00	
Satd. Flow (prot)		1770	1863	1583		1770	1853			1770	3507	
Flt Permitted		0.95	1.00	1.00		0.95	1.00			0.95	1.00	
Satd. Flow (perm)		1770	1863	1583		1770	1853			1770	3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	185	175	60	1	92	248	9	5	143	887	57
RTOR Reduction (vph)	0	0	0	49	0	0	2	0	0	0	4	0
Lane Group Flow (vph)	0	221	175	11	0	93	255	0	0	148	940	0
Turn Type	Split	Split	NA	Perm	Split	Split	NA		Prot	Prot	NA	
Protected Phases	4	4	4		8	8	8		5	5	2	
Permitted Phases				4								
Actuated Green, G (s)		16.2	16.2	16.2		17.6	17.6			4.6	30.8	
Effective Green, g (s)		16.2	16.2	16.2		17.6	17.6			4.6	30.8	
Actuated g/C Ratio		0.18	0.18	0.18		0.20	0.20			0.05	0.34	
Clearance Time (s)		7.0	7.0	7.0		6.9	6.9			4.5	5.0	
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)		318	335	285		346	362			90	1201	
v/s Ratio Prot		c0.12	0.09			0.05	c0.14			c0.08	c0.27	
v/s Ratio Perm				0.01								
v/c Ratio		0.69	0.52	0.04		0.27	0.71			1.64	0.78	
Uniform Delay, d1		34.5	33.3	30.4		30.7	33.7			42.7	26.5	
Progression Factor		1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2		6.5	1.5	0.1		0.4	6.1			334.3	3.4	
Delay (s)		41.0	34.8	30.5		31.1	39.9			376.9	29.9	
Level of Service		D	C	C		C	D			F	C	
Approach Delay (s)			37.2				37.5				77.0	
Approach LOS			D				D				E	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	24.2
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Volume (vph)	2	17	643	350
Future Volume (vph)	2	17	643	350
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		5.3	5.0	5.0
Lane Util. Factor		1.00	0.95	1.00
Frt		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00
Satd. Flow (prot)		1770	3539	1583
Flt Permitted		0.95	1.00	1.00
Satd. Flow (perm)		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	18	699	380
RTOR Reduction (vph)	0	0	0	256
Lane Group Flow (vph)	0	20	699	124
Turn Type	Prot	Prot	NA	Perm
Protected Phases	1	1	6	
Permitted Phases				6
Actuated Green, G (s)		1.1	28.1	28.1
Effective Green, g (s)		1.1	28.1	28.1
Actuated g/C Ratio		0.01	0.31	0.31
Clearance Time (s)		5.3	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0
Lane Grp Cap (vph)		21	1106	494
v/s Ratio Prot		0.01	0.20	
v/s Ratio Perm				0.08
v/c Ratio		0.95	0.63	0.25
Uniform Delay, d1		44.4	26.5	23.1
Progression Factor		1.00	1.00	1.00
Incremental Delay, d2		173.4	1.2	0.3
Delay (s)		217.8	27.7	23.3
Level of Service		F	C	C
Approach Delay (s)			29.6	
Approach LOS			C	

Intersection Summary

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	31	948	58	85	688
Future Vol, veh/h	12	31	948	58	85	688
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	34	1030	63	92	748

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1995	1062	0	0	1093	0
Stage 1	1062	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	66	272	-	-	638	-
Stage 1	332	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	50	272	-	-	638	-
Mov Cap-2 Maneuver	50	-	-	-	-	-
Stage 1	332	-	-	-	-	-
Stage 2	288	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.4	0	1.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	121	638	-
HCM Lane V/C Ratio	-	-	0.386	0.145	-
HCM Control Delay (s)	-	-	52.4	11.6	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	1.6	0.5	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	132	37	17	276	131	57	794	40	33	414	253
Future Volume (veh/h)	135	132	37	17	276	131	57	794	40	33	414	253
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	147	143	40	18	300	142	62	863	43	36	450	275
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	155	274	283	297	252	78	938	797	46	911	774
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16	0.04	0.50	0.50	0.03	0.49	0.49
Sat Flow, veh/h	921	896	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	290	0	40	18	300	142	62	863	43	36	450	275
Grp Sat Flow(s),veh/h/ln	1817	0	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	27.6	0.0	3.8	1.5	28.0	14.5	6.1	75.3	2.4	3.5	28.6	18.9
Cycle Q Clear(g_c), s	27.6	0.0	3.8	1.5	28.0	14.5	6.1	75.3	2.4	3.5	28.6	18.9
Prop In Lane	0.51		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	0	274	283	297	252	78	938	797	46	911	774
V/C Ratio(X)	0.92	0.00	0.15	0.06	1.01	0.56	0.79	0.92	0.05	0.78	0.49	0.36
Avail Cap(c_a), veh/h	360	0	314	283	297	252	133	938	797	46	911	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.4	0.0	61.6	62.7	73.8	68.1	83.1	40.3	22.2	85.0	30.2	27.7
Incr Delay (d2), s/veh	26.7	0.0	0.2	0.1	54.8	2.8	16.4	15.5	0.1	56.2	1.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.2	0.0	1.7	0.8	18.9	6.6	3.3	42.6	1.1	2.5	15.2	8.5
LnGrp Delay(d),s/veh	98.1	0.0	61.8	62.8	128.6	71.0	99.5	55.8	22.4	141.2	32.1	29.0
LnGrp LOS	F		E	E	F	E	F	E	C	F	C	C
Approach Vol, veh/h		330			460			968			761	
Approach Delay, s/veh		93.7			108.2			57.1			36.2	
Approach LOS		F			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	93.4		37.2	12.5	90.9		35.0
Change Period (Y+Rc), s	* 5.4	5.0		6.8	* 4.8	5.0		7.0
Max Green Setting (Gmax), s	* 4.6	88.4		34.8	* 13	80.4		28.0
Max Q Clear Time (g_c+I1), s	5.5	77.3		29.6	8.1	30.6		30.0
Green Ext Time (p_c), s	0.0	7.3		0.8	0.0	16.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.9
HCM 2010 LOS	E

Notes

Intersection Analysis

Existing Plus Project

PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	30	438	206	82	13	158	8	14	107	581	38	7
Future Volume (vph)	30	438	206	82	13	158	8	14	107	581	38	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0	7.0	6.9	6.9			4.5	5.0		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00			1.00	0.95		
Frt		1.00	1.00	0.85	1.00	0.99			1.00	0.99		
Flt Protected		0.95	1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (prot)		1770	1863	1583	1770	1849			1770	3507		
Flt Permitted		0.95	1.00	1.00	0.95	1.00			0.95	1.00		
Satd. Flow (perm)		1770	1863	1583	1770	1849			1770	3507		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	476	224	89	14	172	9	15	116	632	41	8
RTOR Reduction (vph)	0	0	0	64	0	2	0	0	0	4	0	0
Lane Group Flow (vph)	0	509	224	25	14	179	0	0	131	669	0	0
Turn Type	Split	Split	NA	Perm	Split	NA		Prot	Prot	NA		Prot
Protected Phases	4	4	4		8	8		5	5	2		1
Permitted Phases				4								
Actuated Green, G (s)		29.0	29.0	29.0	15.2	15.2			8.1	30.4		
Effective Green, g (s)		29.0	29.0	29.0	15.2	15.2			8.1	30.4		
Actuated g/C Ratio		0.28	0.28	0.28	0.15	0.15			0.08	0.29		
Clearance Time (s)		7.0	7.0	7.0	6.9	6.9			4.5	5.0		
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		491	517	439	257	269			137	1021		
v/s Ratio Prot		c0.29	0.12		0.01	c0.10			c0.07	0.19		
v/s Ratio Perm				0.02								
v/c Ratio		1.04	0.43	0.06	0.05	0.67			0.96	0.66		
Uniform Delay, d1		37.7	31.0	27.7	38.4	42.2			48.0	32.4		
Progression Factor		1.00	1.00	1.00	1.00	1.00			1.00	1.00		
Incremental Delay, d2		50.4	0.6	0.1	0.1	6.1			62.9	1.5		
Delay (s)		88.1	31.5	27.7	38.5	48.3			110.9	33.9		
Level of Service		F	C	C	D	D			F	C		
Approach Delay (s)			66.2			47.6				46.5		
Approach LOS			E			D				D		

Intersection Summary			
HCM 2000 Control Delay	49.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	104.4	Sum of lost time (s)	24.2
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	52	755	262
Future Volume (vph)	52	755	262
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.3	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	57	821	285
RTOR Reduction (vph)	0	0	154
Lane Group Flow (vph)	65	821	131
Turn Type	Prot	NA	Perm
Protected Phases	1	6	
Permitted Phases			6
Actuated Green, G (s)	5.6	28.7	28.7
Effective Green, g (s)	5.6	28.7	28.7
Actuated g/C Ratio	0.05	0.27	0.27
Clearance Time (s)	5.3	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	94	972	435
v/s Ratio Prot	0.04	c0.23	
v/s Ratio Perm			0.08
v/c Ratio	0.69	0.84	0.30
Uniform Delay, d1	48.6	35.7	29.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	19.7	6.8	0.4
Delay (s)	68.2	42.6	30.3
Level of Service	E	D	C
Approach Delay (s)		41.0	
Approach LOS		D	

Intersection Summary

Intersection	
Int Delay, s/veh	8.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	103	602	19	44	714
Future Vol, veh/h	64	103	602	19	44	714
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	112	654	21	48	776

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1537	665	0	0	675	0
Stage 1	665	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	128	460	-	-	916	-
Stage 1	511	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	460	-	-	916	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	73.8	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	215	916	-
HCM Lane V/C Ratio	-	-	0.844	0.052	-
HCM Control Delay (s)	-	-	73.8	9.1	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	6.4	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	250	142	63	196	38	84	498	71	44	706	124
Future Volume (veh/h)	115	250	142	63	196	38	84	498	71	44	706	124
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	125	272	154	68	213	41	91	541	77	48	767	135
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	243	306	230	242	205	110	934	794	61	889	756
Arrive On Green	0.19	0.19	0.19	0.13	0.13	0.13	0.06	0.50	0.50	0.03	0.48	0.48
Sat Flow, veh/h	577	1256	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	397	0	154	68	213	41	91	541	77	48	767	135
Grp Sat Flow(s),veh/h/ln	1834	0	1583	1774	1863	1583	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	33.2	0.0	14.9	6.0	19.3	4.0	8.7	35.0	4.4	4.6	62.8	8.4
Cycle Q Clear(g_c), s	33.2	0.0	14.9	6.0	19.3	4.0	8.7	35.0	4.4	4.6	62.8	8.4
Prop In Lane	0.31		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	0	306	230	242	205	110	934	794	61	889	756
V/C Ratio(X)	1.12	0.00	0.50	0.30	0.88	0.20	0.83	0.58	0.10	0.78	0.86	0.18
Avail Cap(c_a), veh/h	355	0	306	310	326	277	147	934	794	68	889	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.2	0.0	61.8	67.6	73.4	66.7	79.6	30.1	22.4	82.2	39.8	25.6
Incr Delay (d2), s/veh	84.0	0.0	1.3	0.7	18.7	0.5	24.4	2.6	0.2	40.0	10.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.0	0.0	6.6	3.0	11.2	1.8	5.0	18.7	2.0	2.9	34.8	3.7
LnGrp Delay(d),s/veh	153.2	0.0	63.1	68.3	92.1	67.2	104.0	32.7	22.7	122.2	50.7	26.1
LnGrp LOS	F		E	E	F	E	F	C	C	F	D	C
Approach Vol, veh/h		551			322			709			950	
Approach Delay, s/veh		128.0			83.9			40.8			50.8	
Approach LOS		F			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	91.0		40.0	15.4	86.9		29.3
Change Period (Y+Rc), s	* 5.4	5.0		6.8	* 4.8	5.0		7.0
Max Green Setting (Gmax), s	* 6.6	86.0		33.2	* 14	79.0		30.0
Max Q Clear Time (g_c+I1), s	6.6	37.0		35.2	10.7	64.8		21.3
Green Ext Time (p_c), s	0.0	14.4		0.0	0.1	8.3		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.0
HCM 2010 LOS	E

Notes

Intersection Analysis

Existing Plus Project

Intersection 2

With Traffic Signal and Southbound Left Turn Lane

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	31	948	58	85	688
Future Volume (vph)	12	31	948	58	85	688
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5		4.5	4.5
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.90		0.99		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1658		1848		1770	1863
Flt Permitted	0.99		1.00		0.95	1.00
Satd. Flow (perm)	1658		1848		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	34	1030	63	92	748
RTOR Reduction (vph)	32	0	2	0	0	0
Lane Group Flow (vph)	15	0	1091	0	92	748
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	4.5		61.2		10.8	76.5
Effective Green, g (s)	4.5		61.2		10.8	76.5
Actuated g/C Ratio	0.05		0.68		0.12	0.85
Clearance Time (s)	4.5		4.5		4.5	4.5
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	82		1256		212	1583
v/s Ratio Prot	c0.01		c0.59		0.05	c0.40
v/s Ratio Perm						
v/c Ratio	0.18		0.87		0.43	0.47
Uniform Delay, d1	41.0		11.3		36.8	1.7
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.1		8.3		1.4	1.0
Delay (s)	42.0		19.6		38.2	2.7
Level of Service	D		B		D	A
Approach Delay (s)	42.0		19.6			6.6
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	1093	92	748
v/c Ratio	0.30	0.84	0.43	0.45
Control Delay	23.5	20.9	42.6	2.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.5	20.9	42.6	2.9
Queue Length 50th (ft)	7	457	49	79
Queue Length 95th (ft)	39	#890	94	158
Internal Link Dist (ft)	446	1274		1968
Turn Bay Length (ft)				
Base Capacity (vph)	360	1294	212	1657
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.84	0.43	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	64	103	602	19	44	714
Future Volume (vph)	64	103	602	19	44	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5		4.5	4.5
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.92		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1676		1855		1770	1863
Flt Permitted	0.98		1.00		0.95	1.00
Satd. Flow (perm)	1676		1855		1770	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	112	654	21	48	776
RTOR Reduction (vph)	71	0	1	0	0	0
Lane Group Flow (vph)	111	0	674	0	48	776
Turn Type	Prot		NA		Prot	NA
Protected Phases	8		2		1	6
Permitted Phases						
Actuated Green, G (s)	11.1		60.4		5.0	69.9
Effective Green, g (s)	11.1		60.4		5.0	69.9
Actuated g/C Ratio	0.12		0.67		0.06	0.78
Clearance Time (s)	4.5		4.5		4.5	4.5
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	206		1244		98	1446
v/s Ratio Prot	c0.07		0.36		0.03	c0.42
v/s Ratio Perm						
v/c Ratio	0.54		0.54		0.49	0.54
Uniform Delay, d1	37.0		7.6		41.3	3.8
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	2.7		1.7		3.8	1.4
Delay (s)	39.7		9.3		45.1	5.3
Level of Service	D		A		D	A
Approach Delay (s)	39.7		9.3			7.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

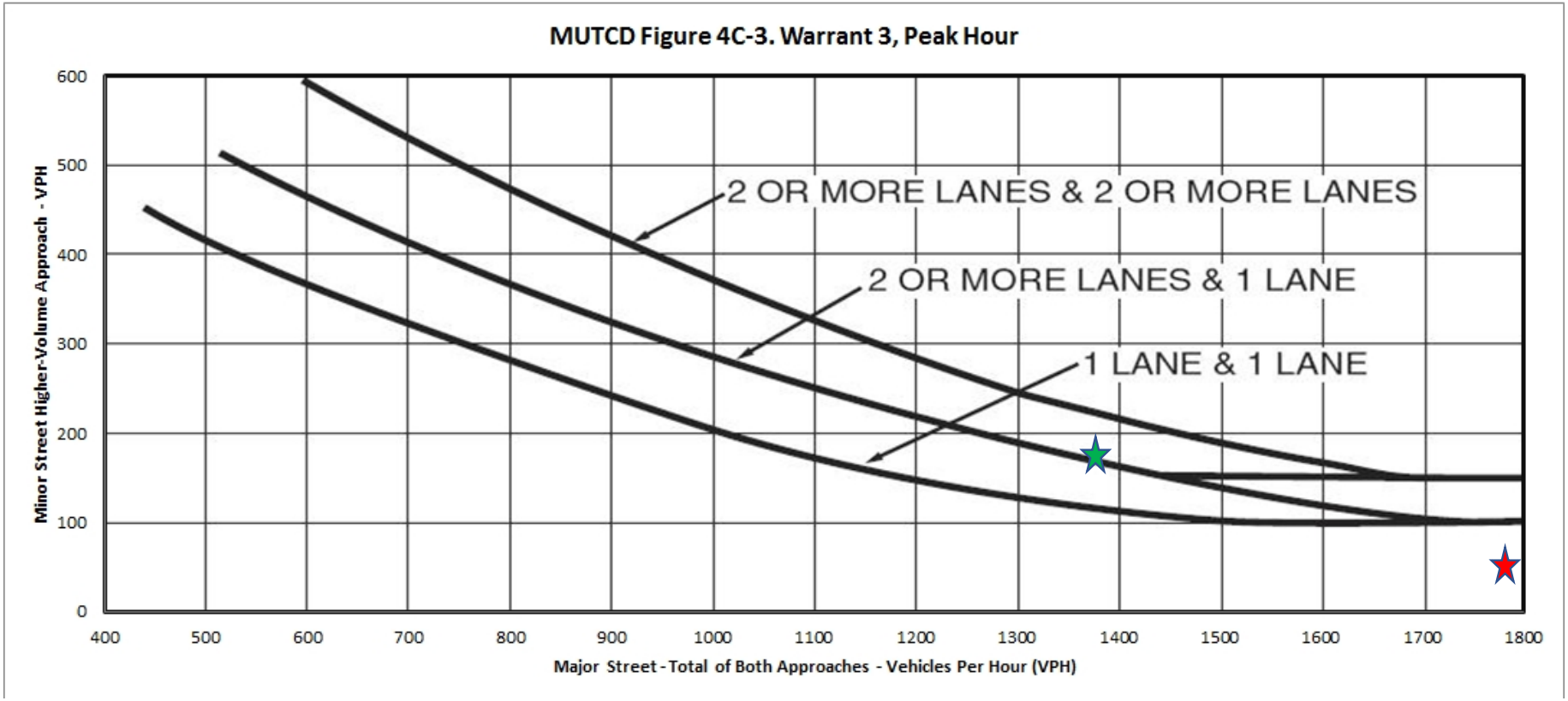
Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	182	675	48	776
v/c Ratio	0.66	0.53	0.33	0.54
Control Delay	31.7	10.9	44.7	6.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.7	10.9	44.7	6.2
Queue Length 50th (ft)	54	193	26	130
Queue Length 95th (ft)	114	355	61	273
Internal Link Dist (ft)	446	1274		1968
Turn Bay Length (ft)				
Base Capacity (vph)	408	1283	151	1447
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.53	0.32	0.54

Intersection Summary

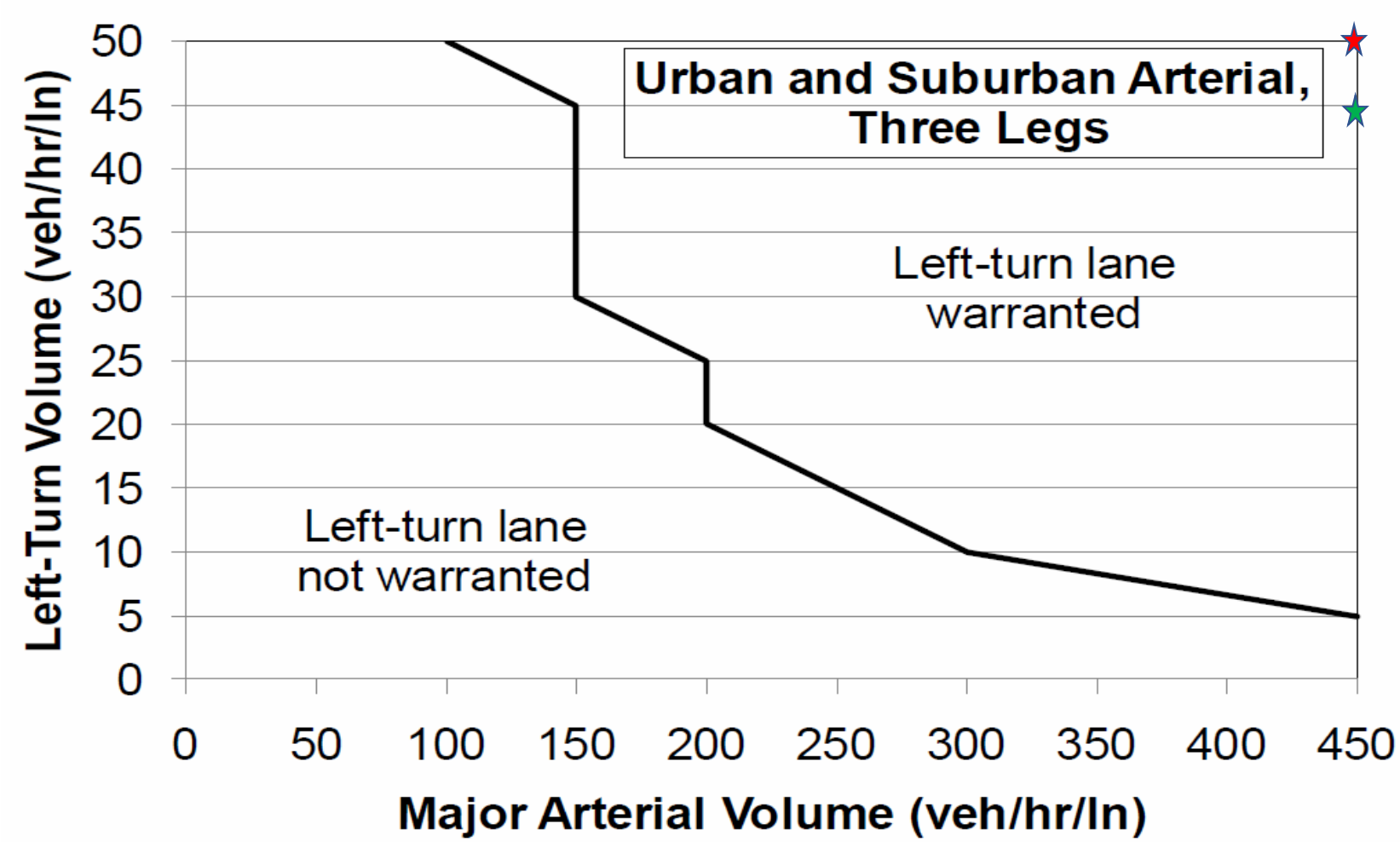
Intersection 2

Traffic Signal and Left Turn Lane Warrants

Intersection Number	2	
Intersection:	South Watt Avenue and Wayne Court	
Scenario:	Existing Plus Project	
Peak Hour:	AM	PM
Major Street Volume (Both Directions):	1,779	1,379
Minor Street Volume (Higher Approach):	43	167
Major Street Lanes:	1	1
Minor Street Lanes:	1	1
Warrant Met?	No	Yes



Intersection Number	2	
Intersection:	South Watt Avenue and Wayne Court	
Scenario:	Existing Plus Project	
Peak Hour:	AM	PM
Major Arterial Volume (Both Directions):	1,779	1,379
Lanes	2	2
Major Arterial Volume (veh/hr/ln):	890	690
Left Turn Volume (veh/hr/ln):	85	44
Warrant Met?	Yes	Yes



Source: NCHRP 193 - Development of Left-Turn Lane Warrants for Unsignalized Intersections