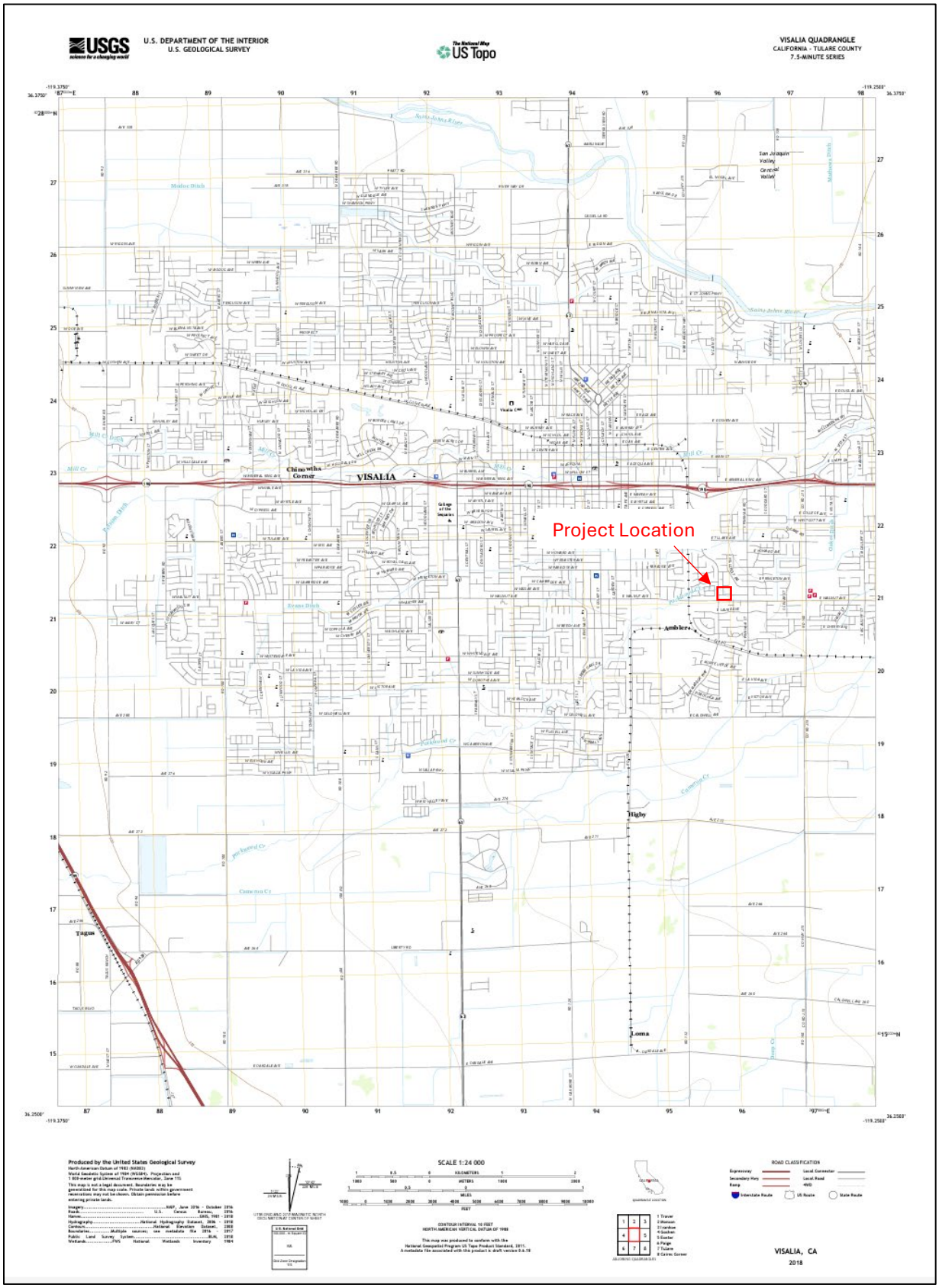
USGS Map Visalia Quadrangle



Aerial Project Location

PROPOSED DEVELOPMENT FOR
THE HUB
VISALIA CALIFORNIA

PARCEL 7 FOR GROCER
+/- 48,523 SF
+/- 1.11 AC

PARCEL 6 FOR RETAIL
+/- 20,007 SF
+/- .45 AC

PARCEL 5 FOR FAST FOOD/ DRIVE THRU
+/- 43,390 SF
+/- .99 AC

PARCEL 4 FOR FOOD W/ DRIVE THRU
+/- 33,078 SF
+/- .76 AC

PARCEL 3 FOR FOOS W/ DRIVE THRU
+/- 32,154 SF
+/- .73 AC

PARCEL 8 FOR RETAIL
+/- 76,785 SF
+/- 1.76 AC

PARCEL 1 FOR RETAIL
+/- 55,563 SF
+/- 1.27 AC

PARCEL 2 FOR COFFEE/ DRIVE THRU
+/- 35,794 SF
+/- .82 AC

S CEDAR STREET

LOVERS LANE

WALNUT AVENUE

RETAIL 2,800 SF

GROCER 18,500 SF

ANCHOR 19,900 SF

RETAIL 9,800 SF

CAR WASH 4,765 SF

FOOD 3,250 SF

FOOD 3,250 SF

COFFEE 2,450 SF

EXISTING BUILDING

OUTDOOR SEATING

BERM

REMOVE 4" OAK

EXISTING TRAIL

6' BLOCK WALL

WROUGHT IRON FENCE

EXIST SIDEWALK

CITY STANDARD BUS TURNOUT

PYLON SIGN

SECTION LINE

CENTERLINE N 89°09'42" E

N 00°03'20" W

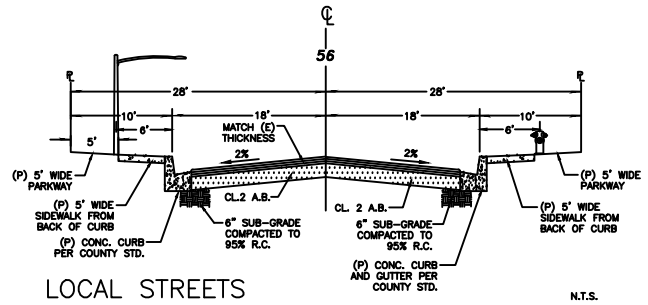
425'-7"

SIGNALIZED INTERSECTION

OWNER
VISALIA RETAIL LP

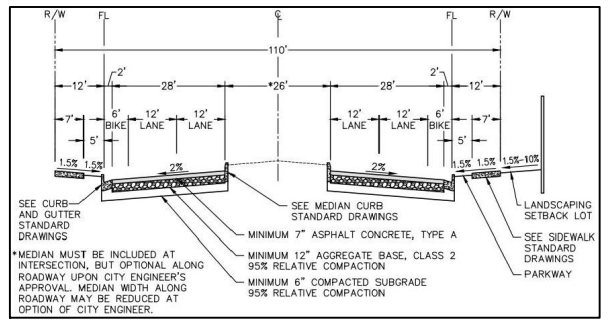
DEVELOPER
N&M CAPITAL, LLC
GREG NUNLEY (559)799-6993
1678 N MOONEY BLVD SUITE J
TULARE, CA 93274

PROJECT INFO
NORTH WEST CORNER OF WALNUT AND LOVERS LANE
APN: 100-370-025
TOTAL AREA: +- 8.31 AC
EXISTING USE: VACANT
ZONING: C-N

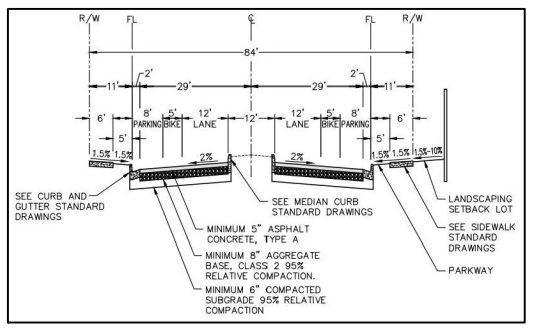


LOCAL STREETS
N.T.S.

STREET "A" ? T.I., R-VALUE: ?, ?" A.C. / ?" A.B.
STREET "B" ? T.I., R-VALUE: ?, ?" A.C. / ?" A.B.
STREET "C" ? T.I., R-VALUE: ?, ?" A.C. / ?" A.B.



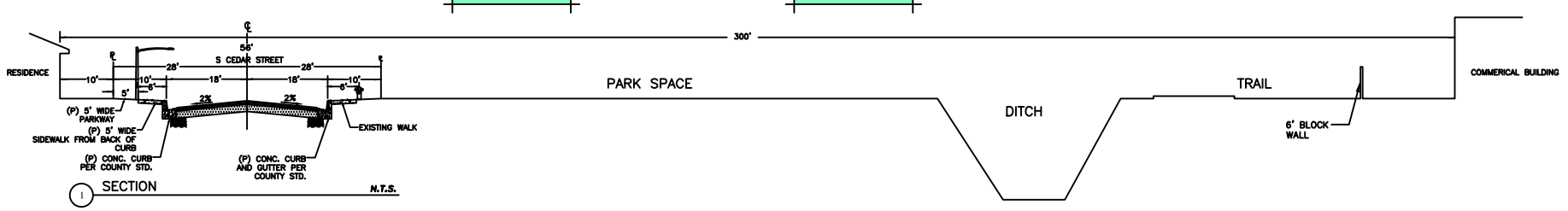
3 LOVERS LANE/ WALNUT AT EAST PL N.T.S.



2 WALNUT AVENUE @ WEST PL N.T.S.

SITE & PARKING INFO

	USE	PARCEL AREA	REQUIRED	PROVIDED
PARCEL 1	RETAIL	55,563 SF	33	61
PARCEL 2	COFFEE	35,794 SF	17	24
PARCEL 3	FOOD	32,154 SF	22	22
PARCEL 4	FOOD	33,078 SF	22	22
PARCEL 5	CARWASH	43,390 SF	5	9
PARCEL 6	RETAIL	20,007 SF	10	14
PARCEL 7	GROCER	48,523 SF	37	56
PARCEL 8	GYM	76,785 SF	40	99



1 SECTION N.T.S.

REVISIONS			
MARK	DATE		
1			
2			
3			
4			

drawn by: BN
DATE: AUGUST 2024
SCALE: 1"=50'-0"

ENGINEERING
A.W.
724 N. BEN MADDOX WAY SUITE A
VISALIA, CA. 93292
(559) 713-6139
awengineering09@gmail.com

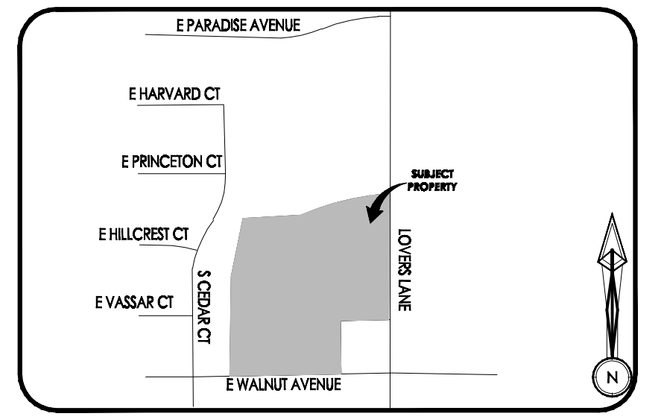
PROPOSED DEVELOPMENT FOR
THE HUB
VISALIA CALIFORNIA

SHEET
SITE
JOB NUMBER

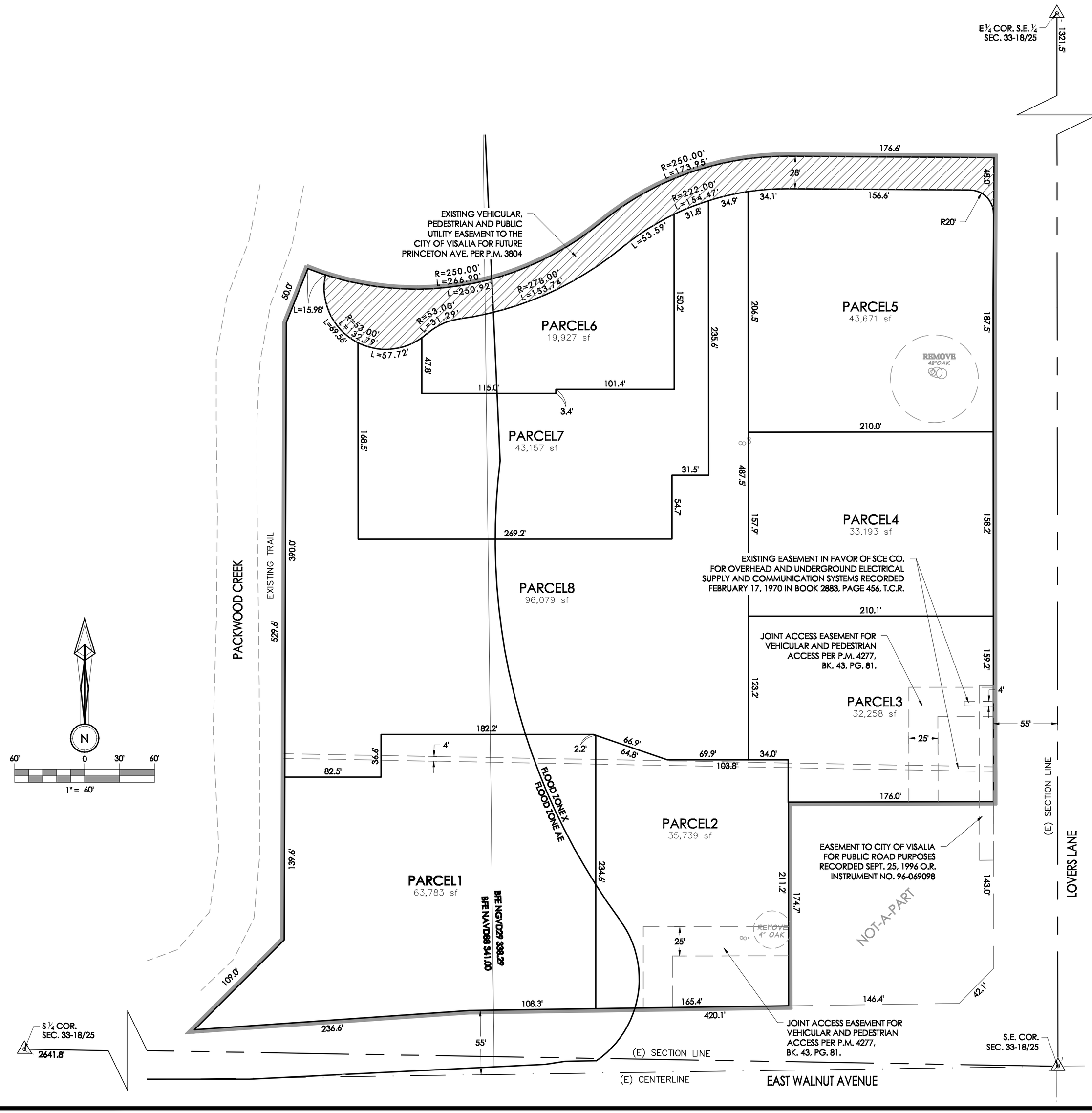
TENTATIVE PARCEL MAP

BEING THE REMAINDER PARCEL OF PARCEL MAP NO. 4277, AS PER RCORD MAP RECORDED IN BOOK 43, PAGE 81 OF PARCL MAPS, TULARE COUNTY RECORDS.

NOVEMBER 2024



VICINITY MAP NTS
CITY OF VISALIA COUNTY OF TULARE



OWNER:

VISALIA RETAIL L.P.,
A CALIFORNIA LIMITED PARTNERSHIP

A.P.N.: 100-370-025

APPLICANT:

N & M TULARE, LLC
1878 N. MOONEY BLVD.
TULARE, CA. 93274

559-786-0808

AUTHORIZED AGENT:

AW ENGINEERING
810 W. ACEQUIA AVE.
VISALIA, CA. 93291

(559) 713-6139

SITE DATA

EXISTING ZONING DESIGNATION: C-N

PROPOSED ZONING DESIGNATION: SAME

EXISTING USE: VACANT

PROPOSED USE: COMMERCIAL LOTS

TOTAL AREA: ±8.87 AC

FLOOD ZONE: ZONE X-PANEL NO.06107C0934E, EFF. 6-16-2009

ELECTRICITY: SOUTHERN CALIFORNIA EDISON

WATER: CAL WATER

SEWER: CITY OF VISALIA

REFUSE: CITY OF VISALIA

TELEPHONE: AT&T

GAS: SOUTHERN CA. GAS CO.

CATV:

STORM WATER: CITY OF VISALIA

NOTES:

BOUNDARY LINES SHOWN HEREON IS CALCULATED FROM RECORD AND ARE APPROXIMATE IN NATURE.

APPLICANT'S CERTIFICATE

I HEREBY APPLY FOR APPROVAL OF DIVISION OF REAL PROPERTY SHOWN ON THIS TENTATIVE PARCEL MAP AND CERTIFY THAT I AM THE LEGAL OWNER OF SAID PROPERTY AND THE INFORMATIONSHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME: _____ DATE: _____

Borum Land Surveying Inc.
www.borumlandsurveying.com
1445 W. Grand Ave. Ste. C
Grover Beach, Ca 93433

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

MEMORANDUM

To: N&M Capital LLC

From: Robert Vander Weele

Date: December 13, 2024

Subject: Construction and Operation Phase Air Quality and Greenhouse Gas Emissions Estimates for the Proposed Hub Development Project, Tulare County, California

Padre Associates, Inc. (Padre) has prepared this Memorandum to document the results of the criteria pollutant and greenhouse gas (GHG) estimates for the construction and operational phases of the Proposed Hub Development Project (Project).

Emissions Estimate Methods and Assumptions

Emissions modeling was conducted to estimate the criteria pollutant and GHG emissions for the construction and operational phases of the Project. The emissions were estimated using the most recent emission factors and load factors obtained from the California Emissions Estimator Model® (CalEEMod) User's Guide, Emission Factors (EMFAC) model, the South Coast Air Quality Management District (SCAQMD) and U.S. Environmental Protection Agency (U.S. EPA) AP 42, Fifth Edition, Volume I Chapter 13: Miscellaneous Sources.

Construction Emissions Estimate Results Summary

Criteria pollutant emissions for Project construction activities were estimated to be below the San Joaquin Valley Air Pollution Control District's (SJVAPCD) significance thresholds (refer to Table 1 below). Diesel particulate matter (DPM) from the use of onsite diesel fired equipment was estimated to be less than 0.006 tons per year (refer to Table 2 below). Emissions estimate tables are provided as an attachment.

Table 1. Estimated Construction Criteria Pollutant Emissions

Phase	Units	NO_x	ROG	PM_{10}*	$PM_{2.5}$*	CO	SO_2
Construction	Tons/year	0.663	0.063	2.42	0.593	2.35	0.007
SJVAPCD Significance Threshold (tons/year)		**10**	**10**	**15**	**15**	**100**	**27**
Exceed Thresholds?		**No**	**No**	**No**	**No**	**No**	**No**

Notes: * -PM_{10} and $PM_{2.5}$ emissions include emissions from exhaust and fugitive dust.

Table 2. Estimated Construction Particulate and DPM Emissions

Phase	Units	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$
Construction	Tons/year	0.009	2.41	2.42	0.009	0.584	0.593
DPM Emissions from Onsite Equipment, tons year 1*						0.0054	

Notes: * - Mobile emissions emitted at offsite locations are not included in this DPM total.
Suffixes E = Exhaust, D= Dust and T = Total.

GHG construction emissions for the Project were estimated to be approximately 607 metric tons of carbon dioxide equivalent per year ($MTCO_2E$/year) (refer to Table 3 below).

Table 3. Estimated Construction Related Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E$/year
Total	**Tons**	**0.043**	**0.097**	**654**	**607**

Construction Phase – Information and Assumptions

- All construction equipment type, horsepower, EPA Tier, hourly use and daily use were provided by N&M Capital LLC (N&M) or estimated by Padre.
- Equipment, supplies, fueling, personnel, import and export vehicle trips were provided by N&M or estimated by Padre.
- Site grading, loading/dumping and import/export volumes were provided by N&M.

Detailed source information is provided in the attachments.

Operational Emissions Estimate Results Summary

Criteria pollutant emissions for the Project operational activities were estimated to be below the SJVAPCD significance thresholds (refer to Table 4 below). Mobile emissions were estimated to be the primary source of criteria pollutant emissions. The primary source of PM_{10} and $PM_{2.5}$ emissions were from fugitive dust from vehicles traveling on paved roads.

Table 4. Estimated Operational Criteria Pollutant Emissions

Phase	Units	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2
Operations Phase without Customer Vehicle Emissions	Tons/year	0.087	0.157	0.002	0.003	7.75	0.0004
Operations Phase Customer Vehicle Emissions	Tons/year	1.07	0.150	8.84	2.25	11.3	0.066
Total Operations Emissions	**Tons/Year**	**1.15**	**0.307**	**8.84**	**2.26**	**19.1**	**0.066**
SJVAPCD Significance Threshold (tons/year)		**10**	**10**	**15**	**15**	**100**	**27**
Exceed Thresholds?		**No**	**No**	**No**	**No**	**No**	**No**

Total GHG operational phase plus amortized construction phase emissions for the Project were estimated to be approximately 6,440 $MTCO_2E$/year (refer to Table 5 below). Mobile emissions were estimated to be the primary source of GHG emissions.

Table 5. Estimated Operational Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E$/year
Operations Phase without Customer Vehicle* Emissions	Tons/year	0.001	3.06	123	189
Operations Phase Customer Vehicle Emissions	Tons/year	0.410	0.029	6,756	6,231
Total Operations Emissions	**Tons**	**0.410**	**3.09**	**6,879**	**6,420**
Total Operational Phase Plus Amortized Construction Phase Emissions MTCO2E/year*					**6,440**

Notes: * - Construction GHG emissions were amortized over 30 years.

Operational Phase – Information and Assumptions

- Operations are assumed 7 days per week.
- Customer vehicle emissions were calculated based on estimated new daily traffic provided by C2 Consult Corp (C2) of Denver, Colorado. The new daily traffic was estimated by C2 using the ITE Trip Generation Manual data sets (C2, 2024) (refer to attachments for email reference).
- Daily new trips were assumed to be from the Visalia area at 15-mile round trips.

Detailed source information is provided in the attachments.

Attachments: Air Quality and GHG Model Output and Daily Vehicle Estimate Email

Air Quality and Greenhouse Gas Emissions Model Output

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS **Model Run:** December 12, 2024
TABLE 1: CONSTRUCTION EMISSIONS SUMMARY

Source	Days	Peak Day Emissions, lbs/day													Project Emissions, tons												$MTCO_2e$
		NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	
Grading	19	5.34	0.751	0.151	24.3	24.4	0.149	5.16	5.31	29.1	0.095	0.613	1.841	9,319	0.041	0.007	0.001	0.177	0.178	0.001	0.037	0.038	0.276	0.001	0.003	0.017	73.0	67.5
Utilities	173	4.45	0.410	0.084	13.4	13.5	0.082	3.24	3.32	17.3	0.054	0.402	0.777	5,361	0.268	0.034	0.004	0.521	0.526	0.004	0.120	0.125	1.488	0.003	0.006	0.067	279.7	256.9
Vertical Construction	176	5.85	0.155	0.089	30.8	30.9	0.086	7.71	7.79	4.28	0.065	0.965	0.088	6,744	0.293	0.012	0.003	1.516	1.518	0.002	0.377	0.380	0.365	0.002	0.030	0.008	246	231
Flatwork and Paving	4	9.29	2.97	0.175	30.74	30.91	0.171	7.56	7.73	26.8	0.110	1.079	1.343	11,160	0.018	0.006	0.000	0.060	0.061	0.000	0.015	0.015	0.054	0.000	0.002	0.003	22	21
Interior Finishing	33	2.95	0.215	0.041	9.77	9.81	0.040	2.449	2.488	9.01	0.028	0.234	0.108	2,784	0.032	0.003	0.0003	0.100	0.100	0.000	0.025	0.025	0.118	0.0002	0.001	0.001	23.5	21.6
Exterior Finishing	12	2.50	0.236	0.039	9.77	9.81	0.038	2.449	2.487	8.35	0.027	0.233	0.098	2,692	0.011	0.001	0.0002	0.040	0.040	0.0002	0.010	0.010	0.050	0.0001	0.001	0.001	10.6	9.8
Peak Day Emissions, lb/day		***9.29***	***2.97***	***0.175***	***30.8***	***30.9***	***0.17***	***7.71***	***7.79***	***29.1***	***0.110***	***1.079***	***1.84***	***11,160***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Project Total Emissions, tons															***0.663***	***0.063***	***0.009***	***2.41***	***2.42***	***0.009***	***0.584***	***0.593***	***2.35***	***0.007***	***0.043***	***0.097***	***654***	***607***
SJVAPCD Significance Thresholds															***10***	***10***	*--*	*--*	***15***	*--*	*--*	***15***	***100***	***27***	*--*	*--*	*--*	*--*
Threshold exceeded?															***No***	***No***	*--*	*--*	***No***	*--*	*--*	***No***	***No***	***No***	*--*	*--*	*--*	*--*
DPM Emissions From Onsite Equipment, tons																	***0.0054***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
GHG - $MTCO_2e$ conversions																									***273***	***27.9***	***1***	*--*
Approximate Total $MTCO_2e$, tons/yr																									***607***			

Notes:
- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

SJVAPCD - San Joaquin Valley Air Pollution Control District
$MTCO_2e$ - Metric Tons of Carbon Dioxide Equivalent
NO_x - Oxides of Nitrogen
ROG - Reactive Organic Gases
$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
DPM - Diesel Particulate Matter
CO - Carbon Monoxide
SO_2 - Sulfur Dioxide
N_2O - Nitrous Oxide
CH_4 - Methane
CO_2 - Carbon Dioxide
* - Includes emissions from onroad vehicles operating offsite.

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Grading

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	4	19	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.106	0.024	0.003	0.003	1.509	0.002	0.002	0.0620	191	0.001	0.000	0.000	0.000	0.014	0.000	0.000	0.001	1.82
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	8	19	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.282	0.065	0.009	0.009	4.013	0.005	0.005	0.1681	519	0.003	0.001	0.000	0.000	0.038	0.000	0.000	0.002	4.93
Lift-1	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	6	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.003	0.001	0.000	0.000	0.025	0.000	0.000	0.002	5.31
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	8	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.010	0.002	0.000	0.000	0.084	0.000	0.000	0.006	18.01
Scraper-2	475	48	1	8	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.010	0.002	0.000	0.000	0.084	0.000	0.000	0.006	18.01
Water Truck-1	400	38	1	4	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.003	0.001	0.000	0.000	0.028	0.000	0.000	0.002	6.05
														Total	**3.137**	**0.72**	**0.10**	**0.097**	**28.783**	**0.060**	**0.051**	**1.840**	**5698**	**0.030**	**0.007**	**0.001**	**0.001**	**0.273**	**0.001**	**0.000**	**0.017**	**54.13**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	19	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.559
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	19	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.027	0.006	0.003	0.003	0.056	0.002	0.027	0.000	173	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.640
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	3	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.648	0.006	0.015	0.015	0.034	0.010	0.159	0.000	1007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.007
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.336
Heavy Duty Trucks - T7TC (offsite)	1	1	12	50	15	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.295	0.012	0.031	0.029	0.068	0.019	0.317	0.001	2014	0.010	0.000	0.000	0.000	0.001	0.000	0.002	0.000	15.107
														Total	**2.20**	**0.03**	**0.05**	**0.05**	**0.31**	**0.034**	**0.562**	**0.002**	**3621**	**0.011**	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	**0.003**	**0.000**	**18.86**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	19	5.1564	1.2895	1.136774	0.284273857	0.010799	0.002701
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	19	5.1573	1.2898	3.410906	0.853026465	0.032404	0.008104
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	3	5.1971	1.3037	0.171864	0.043112716	0.000258	0.000065
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	5.2221	1.3125	0.575637	0.144674521	0.000576	0.000145
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	2	5.2221	1.3125	3.453822	0.868047129	0.003454	0.000868
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	5.2221	1.3125	0.575637	0.144674521	0.001151	0.000289
Heavy Duty Trucks - T7TC (offsite)	1	1	12	50	15	5.2221	1.3125	6.907645	1.736094258	0.051807	0.013021
							Total	**16.232285**	**4.073903**	**0.100449**	**0.025192**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximatley 50-miles.

Round trips for fuel deliveries from Visiala area (approximatley 15-miles).

Round trips for LDA and LDT2 is estimated from within within approximatley 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 3: Utilities

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	173	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.014	0.003	0.0004	0.0004	0.196	0.000	0.000	0.008	24.84
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	4	173	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.010	0.002	0.0003	0.0003	0.135	0.000	0.000	0.001	20.81
Compressor-2	100	48	1	4	173	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.010	0.002	0.0003	0.0003	0.135	0.000	0.000	0.001	20.81
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	4	173	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.139	0.032	0.004	0.004	1.984	0.003	0.002	0.0820	253	0.012	0.003	0.0004	0.0004	0.172	0.000	0.000	0.007	21.91
Generator-1	25	74	1	8	173	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.078	0.003	0.0002	0.0002	0.116	0.000	0.000	0.002	16.04
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	173	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.031	0.001	0.0001	0.0001	0.042	0.000	0.000	0.002	6.01
Lift-2	50	20	1	6	173	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.031	0.001	0.0001	0.0001	0.042	0.000	0.000	0.002	6.01
Loader-1	250	36	1	6	173	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.027	0.006	0.0008	0.0008	0.227	0.001	0.000	0.016	48.38
Loader-2	250	36	1	4	173	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.206	0.048	0.006	0.006	1.746	0.004	0.003	0.1206	373	0.018	0.004	0.0005	0.0005	0.151	0.000	0.000	0.010	32.25
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	4	173	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.030	0.007	0.001	0.001	0.255	0.001	0.000	0.018	55.10
														Total	**3.005**	**0.39**	**0.047**	**0.047**	**17.010**	**0.031**	**0.025**	**0.775**	**2915**	**0.260**	**0.034**	**0.004**	**0.004**	**1.471**	**0.003**	**0.002**	**0.067**	**252.16**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	173	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.001	0.000	0.000	0.000	0.012	0.000	0.000	0.000	5.091
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	173	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.027	0.006	0.003	0.003	0.056	0.002	0.027	0.000	173	0.002	0.001	0.000	0.000	0.005	0.000	0.002	0.000	14.929
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	6	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.504
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	31	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.001	5.203
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.057	0.016	0.264	0.000	1679	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.679
														Total	**1.44**	**0.02**	**0.04**	**0.04**	**0.27**	**0.023**	**0.377**	**0.001**	**2446**	**0.008**	**0.001**	**0.000**	**0.000**	**0.017**	**0.000**	**0.004**	**0.000**	**27.53**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	173	5.1564	1.2895	1.136774	0.284273857	0.098331	0.024590
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	173	5.1573	1.2898	3.410906	0.853026465	0.295043	0.073787
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	5.1971	1.3037	0.171864	0.043112716	0.000687	0.000172
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	6	5.2221	1.3125	0.575637	0.144674521	0.001727	0.000434
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	31	5.2221	1.3125	1.151274	0.289349043	0.017845	0.004485
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	5.2221	1.3125	5.756371	1.446745215	0.005756	0.001447
							Total	**12.202825**	**3.061182**	**0.419390**	**0.104915**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximatley 50-miles.

Round trips for fuel deliveries from Visiala area (approximatley 15-miles).

Round trips for LDA and LDT2 is estimated from within within approximatley 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 4: Vertical Construction

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.0	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Generator-1	25	74	1	8	176	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.079	0.003	0.0002	0.0002	0.118	0.000	0.000	0.002	16.317
Generator-2	25	74	1	8	176	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.079	0.003	0.0002	0.0002	0.118	0.000	0.000	0.002	16.317
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Lift-1	50	20	1	6	176	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.032	0.001	0.0001	0.0001	0.043	0.000	0.000	0.002	6.117
Lift-2	50	20	1	6	176	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.509	0.032	0.001	0.0001	0.0001	0.043	0.000	0.000	0.002	6.12
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
														Total	**2.519**	**0.11**	**0.007**	**0.007**	**3.654**	**0.006**	**0.004**	**0.085**	**510**	**0.222**	**0.010**	**0.001**	**0.001**	**0.322**	**0.001**	**0.000**	**0.008**	**44.87**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	5	50	176	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.018	0.003	0.001	0.000	0.347	0.001	0.002	0.001	147	0.002	0.000	0.000	0.000	0.031	0.000	0.000	0.000	12.948
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	176	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.045	0.010	0.005	0.005	0.093	0.003	0.045	0.000	288	0.004	0.001	0.000	0.000	0.008	0.000	0.004	0.000	25.312
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	176	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.241	0.004	0.004	0.004	0.024	0.010	0.168	0.000	1068	0.021	0.000	0.000	0.000	0.002	0.001	0.015	0.000	93.950
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.057	0.016	0.264	0.000	1679	0.017	0.000	0.000	0.000	0.001	0.000	0.004	0.000	26.9
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	33	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.06	0.016	0.264	0.000	1679	0.018	0.000	0.000	0.000	0.001	0.000	0.004	0.000	27.696
Heavy Duty Trucks - T7TC (offsite)	1	1	5	30	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.324	0.003	0.008	0.007	0.02	0.005	0.079	0.000	504	0.005	0.000	0.000	0.000	0.000	0.000	0.001	0.000	8.057
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.371
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.324	0.003	0.008	0.007	0.017	0.005	0.079	0.000	504	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.504
														Total	**3.33**	**0.04**	**0.08**	**0.08**	**0.62**	**0.059**	**0.961**	**0.003**	**6234**	**0.071**	**0.002**	**0.002**	**0.002**	**0.043**	**0.002**	**0.030**	**0.000**	**200.82**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	5	50	176	5.1564	1.2895	2.841934	0.710684644	0.250090	0.062540
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	176	5.1573	1.2898	5.684844	1.421710775	0.500266	0.125111
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	176	5.1971	1.3037	5.728786	1.437090524	0.504133	0.126464
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	5.1971	1.3037	0.171864	0.043112716	0.000687	0.000172
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	32	5.2221	1.3125	5.756371	1.446745215	0.092102	0.023148
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	33	5.2221	1.3125	5.756371	1.446745215	0.094980	0.023871
Heavy Duty Trucks - T7TC (offsite)	1	1	5	30	32	5.2221	1.3125	1.726911	0.434023564	0.027631	0.006944
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	32	5.2221	1.3125	1.151274	0.289349043	0.018420	0.004630
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	5.2221	1.3125	1.726911	0.434023564	0.001727	0.000434
							Total	**30.545265**	**7.663485**	**1.490037**	**0.373314**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximatley 50-miles.

Round trips for concrete delevery estimated from Hanford California (approximatley 30-miles).

Round trips for fuel deliveries from Visiala area (approximatley 15-miles).

Round trips for LDA and LDT2 is estimated from within within approximatley 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 5: Flatwork and Paving

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.885	4	--	2.600	--	--	--	--	--	--	--	--	2.301	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Architectural Coating	--	--	0	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.57
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	6	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.296	0.068	0.009	0.009	2.503	0.006	0.005	0.1740	539	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	1.08
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	4	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.37
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	4	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.14
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	8	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.413	0.095	0.013	0.013	3.492	0.008	0.007	0.2413	746	0.001	0.000	0.000	0.000	0.007	0.000	0.000	0.000	1.49
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	2	8	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.385	0.089	0.012	0.012	5.482	0.007	0.006	0.2252	697	0.001	0.000	0.000	0.000	0.011	0.000	0.000	0.000	1.39
Paving Equipment	100	36	1	8	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.165	0.038	0.005	0.005	2.349	0.003	0.003	0.0971	300	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.60
Paving Roller	50	38	2	8	4	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	1.836	0.080	0.005	0.005	2.480	0.003	0.003	0.0536	381	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.76
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	8	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.697	0.161	0.021	0.021	5.898	0.013	0.011	0.4128	1274	0.001	0.000	0.000	0.000	0.012	0.000	0.000	0.001	2.55
														Total	**5.211**	**2.92**	**0.07**	**0.074**	**26.294**	**0.047**	**0.039**	**1.340**	**4479**	**0.010**	**0.006**	**0.000**	**0.000**	**0.053**	**0.000**	**0.000**	**0.003**	**8.96**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	4	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	4	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.460
Passenger Vehicle - LDA (offsite)	1	1	1	50	4	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.004	0.001	0.000	0.000	0.069	0.000	0.000	0.000	29.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	4	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.014	0.003	0.002	0.001	0.028	0.001	0.014	0.000	86	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.173
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	1	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	16	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.727	0.016	0.041	0.039	0.09	0.025	0.423	0.001	2686	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.371
Heavy Duty Trucks - T7TC (offsite)	1	1	2	30	17	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.130	0.001	0.003	0.003	0.01	0.002	0.032	0.000	201	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.712
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.864	0.008	0.020	0.020	0.05	0.013	0.212	0.000	1343	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.686
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.972	0.009	0.023	0.022	0.051	0.014	0.238	0.000	1511	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.511
														Total	**4.08**	**0.05**	**0.10**	**0.10**	**0.52**	**0.063**	**1.040**	**0.003**	**6681**	**0.008**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.002**	**0.000**	**13.03**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	4	5.1564	1.2895	1.136774	0.284273857	0.002274	0.000569
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	4	5.1573	1.2898	4.547875	1.13736862	0.009096	0.002275
Passenger Vehicle - LDA (offsite)	1	1	1	50	4	5.1564	1.2895	0.568387	0.142136929	0.001137	0.000284
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	4	5.1573	1.2898	1.705453	0.426513232	0.003411	0.000853
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	1	5.1971	1.3037	0.171864	0.043112716	0.000086	0.000022
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	16	50	4	5.2221	1.3125	9.210193	2.314792343	0.018420	0.004630
Heavy Duty Trucks - T7TC (offsite)	1	1	2	30	17	5.2221	1.3125	0.690764	0.173609426	0.005871	0.001476
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	4	5.2221	1.3125	4.605096	1.157396172	0.009210	0.002315
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	5.2221	1.3125	0.575637	0.144674521	0.000288	0.000072
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	5.2221	1.3125	5.180734	1.302070693	0.005181	0.001302
							Total	**29.544051**	**7.415298**	**0.057852**	**0.014520**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximatley 50-miles.

Round trips for concrete delevery estimated from Hanford California (approximatley 30-miles).

Round trips for fuel deliveries from Visiala area (approximatley 15-miles).

Round trips for LDA and LDT2 is estimated from within within approximatley 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 6: Interior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	21.0	33	--	50.0	--	--	--	--	--	--	--	--	0.0231	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	33	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.004	0.001	0.000	0.000	0.052	0.000	0.000	0.000	7.94
Compressor-2	100	48	1	8	17	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.002	0.000	0.000	0.000	0.027	0.000	0.000	0.000	4.09
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	33	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.015	0.001	0.000	0.000	0.022	0.000	0.000	0.000	3.06
Generator-2	25	74	1	4	17	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.449	0.020	0.001	0.001	0.669	0.001	0.001	0.0101	92.7	0.004	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.79
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	33	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.006	0.000	0.000	0.000	0.008	0.000	0.000	0.000	1.15
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**2.149**	**0.20**	**0.02**	**0.019**	**8.761**	**0.014**	**0.010**	**0.107**	**1310**	**0.030**	**0.003**	**0.000**	**0.000**	**0.114**	**0.000**	**0.000**	**0.001**	**17.02**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	33	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.971
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	33	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	3.797
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.432	0.004	0.010	0.010	0.023	0.006	0.106	0.000	671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.671
														Total	**0.80**	**0.02**	**0.02**	**0.02**	**0.25**	**0.014**	**0.224**	**0.001**	**1475**	**0.002**	**0.000**	**0.0001**	**0.0001**	**0.004**	**0.000**	**0.001**	**0.0000**	**6.46**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	33	5.1564	1.2895	1.136774	0.284273857	0.018757	0.004691
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	33	5.1573	1.2898	4.547875	1.13736862	0.075040	0.018767
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	5.1971	1.3037	0.057288	0.014370905	0.000057	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	5.2221	1.3125	0.575637	0.144674521	0.000576	0.000145
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	5.2221	1.3125	2.302548	0.578698086	0.002303	0.000579
							Total	**9.771396**	**2.448735**	**0.099610**	**0.024918**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximatley 50-miles.

Round trips for fuel deliveries from Visiala area (approximatley 15-miles).

Round trips for LDA and LDT2 is estimated from within within approximatley 50-miles.

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 7: Exterior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	57.8	12	--	50.0	--	--	--	--	--	--	--	--	0.0637	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	22.000	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	12	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.019	0.000	0.000	0.000	2.89
Compressor-2	100	48	1	8	12	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.019	0.000	0.000	0.000	2.89
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	12	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.005	0.000	0.000	0.000	0.008	0.000	0.000	0.000	1.11
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	12	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.42
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**1.700**	**0.22**	**0.02**	**0.017**	**8.092**	**0.013**	**0.009**	**0.097**	**1217**	**0.010**	**0.001**	**0.000**	**0.000**	**0.049**	**0.000**	**0.000**	**0.001**	**7.30**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	12	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.353
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	12	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.381
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.432	0.004	0.010	0.010	0.023	0.006	0.106	0.000	671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.671
														Total	**0.80**	**0.02**	**0.02**	**0.02**	**0.25**	**0.014**	**0.224**	**0.001**	**1475**	**0.001**	**0.0001**	**0.0000**	**0.0000**	**0.001**	**0.0000**	**0.000**	**0.00000**	**3.34**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	12	5.1564	1.2895	1.136774	0.284273857	0.006821	0.001706
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	12	5.1573	1.2898	4.547875	1.13736862	0.027287	0.006824
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	5.1971	1.3037	0.057288	0.014370905	0.000057	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	5.2221	1.3125	0.575637	0.144674521	0.000288	0.000072
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	5.2221	1.3125	2.302548	0.578698086	0.002303	0.000579
							Total	**9.771396**	**2.448735**	**0.039634**	**0.009919**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximatley 50-miles.

Round trips for fuel deliveries from Visiala area (approximatley 15-miles).

Round trips for LDA and LDT2 is estimated from within within approximatley 50-miles.

* Architectural Coating in liters per day

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TABLE 8: Construction - Fugitive Dust Emissions - Phase 1

Construction

Activity	Source	Source Units	Number of Days	Emission Factor	Emission Factor, Units	Peak Day Emissions (lbs/day)		Total Emissions (tons)	
						PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading									
Site Grading	2.0	acres/day	19	1.1	lbs PM10/day/acre	2.1725	0.1975	0.0206	0.0031
Truck Loading & Dumping	231	tons/day	19	1.72E-04	lbs/ton	0.0397	0.0060	0.0004	0.0001
Vehicle Miles Off-Road	5.0	vehicle-miles/day	19	1.17	lbs/vehicle-mile	5.8276	0.8825	0.0554	0.0084
					Max/Total	**8.040**	**1.086**	**0.076**	**0.0116**
Utilities									
Site Grading	0.01	acres/day	173	1.1	lbs PM10/day/acre	0.0110	0.0010	0.0010	0.0001
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	1.0	vehicle-miles/day	173	1.17	lbs/vehicle-mile	1.1655	0.1765	0.1008	0.0153
					Max/Total	**1.177**	**0.177**	**0.102**	**0.0154**
Vertical Construction									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.25	vehicle-miles/day	176	1.17	lbs/vehicle-mile	0.2914	0.0441	0.0256	0.0039
					Max/Total	**0.291**	**0.044**	**0.026**	**0.0039**
Flatwork and Paving									
Site Grading	0.50	acres/day	4	1.1	lbs PM10/day/acre	0.5500	0.0500	0.0011	0.0002
Truck Loading & Dumping (Grading Phase)	2,038	tons/day	4	1.72E-04	lbs/ton	0.3506	0.05309	0.000701	0.000106
Vehicle Miles Off-Road	0.25	vehicle-miles/day	4	1.17	lbs/vehicle-mile	0.2914	0.0441	0.0006	0.0001
					Max/Total	**1.192**	**0.147**	**0.002**	**0.0004**
Interior Finishing									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	1.17	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.000**	**0.0000**
Exterior Improvements									
Site Grading	0.0	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	1.17	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.0000**	**0.0000**

Fugitive Dust Emissions: Inputs for the Table

Emission factors based on following inputs		
Mean number of rain days per year	*0*	*worst case*
Silt content of soil, fill storage pile, %	*1.5*	*SCAQMD default value*
Roadway inputs (paved and unpaved, as per URBEMIS)		
Roads mean vehicle weight, tons	*20.61*	*based on project description, HHDT + LDT and vehicles weight (average of full and empty)*
unpaved dirt road silt content, %	*8.4*	*AP-42 construction sites*
Truck Loading inputs		
k, particle size multiplier, default=0.35 fpr pm10	*0.35*	
U, mean wind speed, mph range 1.3-15	*8.15*	
M, moisture content, default=12%	*12*	
PM2.5/PM10	*0.15*	
Site grading emissions from CalEEMod for grading	*0.091*	*ratio of PM2.5/PM10 CalEEMod*
Demolition materials, tons/yds3	*1.000*	*estimated for concrete debris*

Fill materials, tons/yds3	*1.000*	*estimated for soils*
Mitigation: demolition area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: grading/dist area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: dumping soil moisture (fraction reduction)	*0.00*	*0.69 for minimum 12% soil moisture (SCAQMD)*
Mitigation: storage piles (fraction reduction)	*0.00*	*0.90 for watering by hand and covering (SCAQMD)*
Mitigation: roads (fraction reduction)	*0.55*	*0.55 for watering 3X per day (SCAQMD), 0.80 for soil binders applied monthly (AP-42)*

Notes:

PM2.5/PM10 ratio as per AP-42 k factor for PM10 and PM2.5
Demolition dust calculations as per EPA AP-42 11.19 and 13.2.4
Truck loading dumping cut/fill based on CalEEMod
Storage pile emissions based on SCAQMD Handbook (URBEMIS does not address emissions from storage piles)
Paved and unpaved road dust emissions based on AP-42 2006 (unpaved) Chapt 13. EPA AP-42 2006 is the same as URBEMS and CalEEMod
One month assumes 22 days of activity, as per URBEMIS

THE HUB DEVELOPMENT PROJECT
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TABLE 9: Emission Factors and Assumptions

Onsite Construction				Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)								
	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	EF = lb/acre	--	--	--	2.60	--	--	--	--	--	--	--	--	2.6000	--	--	--	--	--	--	--
Architectural Coating	EF = g/L	--	--	--	50	--	--	--	--	--	--	--	--	0.1102	--	--	--	--	--	--	--
Backhoe	4	125	37	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	469	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0349
Crane	4	250	29	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0427
Compressor-1	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Compressor-2	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Dozer	4	200	43	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	474	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0450
Excavator	4	160	38	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	472	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0415
Generator-1	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Generator-2	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Grader	4	150	41	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.155	478	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0549
Lift-1	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Lift-2	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Loader-1	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Loader-2	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Paving Machine	4	100	42	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0367
Paving Equipment	4	100	36	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0432
Paving Roller	4	50	38	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.080	568	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00018	1.2529
Scraper-1	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Scraper-2	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Water Truck-1	4	400	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.154	475	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0477

Offsite Trasporation			Emission Factors (g/mile)									Emission Factors (lb/mile)								
Source	Tier	Region	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.9793	0.0090	0.0232	0.0222	0.0518	0.0144	0.2399	0.0004	1523	0.0022	0.0000	0.0001	0.0000	0.0001	0.00003	0.00053	0.00000	3.3571

Offsite Dust - Mobile Sources			Emission Factors (g/mile)		Emission Factors (lb/mile)	
Source	Tier	Region	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	5.1564	1.2895	0.011368	0.002843
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	5.1573	1.2898	0.011370	0.002843
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	5.1971	1.3037	0.011458	0.002874
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	5.2221	1.3125	0.011513	0.002894

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D 2020.*
- CO_2 and CH_4 emission factors for construction equipment were obtained from *CalEEMod Appendix D 2020.*
- Vehicle emissions factors obtained from EMFAC-2021

THE HUB DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

TABLE 1: OPERATIONAL EMISSIONS SUMMARY

Model Run: December 12, 2024

Source	Peak Day Emissions (lbs/day)													Annual Emissions (tons/yr)												
	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	$MTCO_2e$
Operational Phase Without New Vehicle Trip Emissions*	2.56	5.99	0.03	0.000	0.030	0.035	0.000	0.035	298	0.012	0.059	23.6	1,092	0.087	0.157	0.0024	0.000	0.002	0.003	0.000	0.003	7.75	0.0004	0.001	3.06	123	189
Operational Phase New Vehicle Trip Emissions	7.5	0.85	0.29	50	50	0.272	12.5	12.8	62	0.404	2.961	0.161	41,566	1.07	0.150	0.047	8.79	8.84	0.045	2.21	2.25	11.3	0.066	0.410	0.029	6,756	6,231
Total Operational Phase Emissions	**10.1**	**6.84**	**0.318**	**49.7**	**50.0**	**0.308**	**12.51**	**12.8**	**360**	**0.416**	**3.02**	**23.8**	**42,658**	**1.15**	**0.307**	**0.050**	**8.79**	**8.84**	**0.047**	**2.21**	**2.26**	**19.1**	**0.066**	**0.410**	**3.09**	**6,879**	**6,420**
SJVAPCD Operational Significance Thresholds	--	--	--	--	--	--	--	--	--	--	--	--	--	***10***	***10***	--	--	***15***	--	--	***15***	***100***	***27***	--	--	--	--
Threshold exceeded?	--	--	--	--	--	--	--	--	--	--	--	--	--	***No***	***No***	--	--	***No***	--	--	***No***	***No***	***No***	--	--	--	--
																							GHG - MTCO$_2$E conversions	***273***	***28***	***1***	--
																							Total Operational Phase MTCO$_2$E/yr	***6,420***			
																							Amortized Construction Phase Emissions	***20.2***			
																							Total Operational Phase + Amortized Construction Phase Emissions MTCO$_2$E/yr	***6,440***			

Notes:

- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

$MTCO_2E$ - Metric Tons of Carbon Dioxide Equivalent

SJVAPCD - San Joaquin Valley Air Pollution Control District

NO_x - Oxides of Nitrogen

ROG - Reactive Organic Gases

$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

DPM - Diesel Particulate Matter

CO - Carbon Monoxide

SO_2 - Sulfur Dioxide

N_2O - Nitrous Oxide

CH_4 - Methane

CO_2 - Carbon Dioxide

* - Includes vehicle emissions from facilities operation such as deliveries andmaintenance

Assumptions:

Operations assumed 7 days per week.

THE HUB DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Operations

Landscaping Equipment Sources

Source	BHP	Load Factor	Number	Hours/ Day	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	25	38	3	8	52	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	623.788	1.138	2.647	0.004	0.005	153.3	0.006	0.003	0.013	313.5	0.030	0.069	0.000	0.000	3.987	0.00014	0.0001	0.0003	8.1522
Trimmer	5	91	2	8	52	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	808.574	0.297	1.067	0.012	0.016	48.9	0.002	0.001	0.005	129.8	0.008	0.028	0.000	0.000	1.270	0.00005	0.0000	0.0001	3.3741
Leaf Blower	5	94	2	8	52	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658.309	0.446	1.017	0.001	0.002	42.7	0.002	0.001	0.005	109.1	0.012	0.026	0.000	0.000	1.111	0.00004	0.0000	0.0001	2.8376
Other Landscape Equipment	5	58	4	8	52	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658.309	0.551	1.253	0.002	0.002	52.7	0.002	0.001	0.006	134.7	0.014	0.033	0.000	0.000	1.371	0.00005	0.0000	0.0001	3.5017
														Total	**2.43**	**5.98**	**0.019**	**0.025**	**298**	**0.011**	**0.006**	**0.029**	**687**	**0.063**	**0.156**	**0.0005**	**0.001**	**7.739**	**0.0003**	**0.0002**	**0.001**	**17.9**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2848	15	365	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	3.050	0.531	0.089	0.082	59.367	0.249	0.374	0.1465	25144.2	0.557	0.097	0.016	0.015	10.835	0.045	0.068	0.027	4589
Light-Duty Truck - LDT2 (offsite)	1	1	949	15	365	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	1.284	0.276	0.144	0.137	2.643	0.078	1.291	0.0128	8192.7	0.234	0.050	0.026	0.025	0.482	0.014	0.236	0.002	1495
Passenger Vehicle - EV LDA (offsite)	1	1	29	15	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Light-Duty Truck - EV LDT2 (offsite)	1	1	10	15	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Med-Heavy Duty - T6 Utility (offsite)	1	1	32	25	52	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	968.5	0.386	0.006	0.007	0.007	0.038	0.016	0.269	0.0003	1708.2	0.010	0.000	0.000	0.000	0.001	0.000	0.007	0.000	44.41
Heavy Duty Trucks - T7TC (offsite)	1	1	8	25	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
Heavy Duty Trucks - T7TC (offsite)	1	1	15	50	260	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	1.038	0.012	0.018	0.017	0.062	0.023	0.385	0.0006	2445.3	0.135	0.002	0.002	0.002	0.008	0.003	0.050	0.000	317.88
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.022	0.000	0.000	0.000	0.001	0.000	0.008	0.000	50.86
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.069	0.001	0.001	0.001	0.004	0.002	0.026	0.0000	163.0	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.000	4.24
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	312	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.554	0.006	0.010	0.009	0.033	0.012	0.205	0.0003	1304.1	0.086	0.001	0.002	0.001	0.005	0.002	0.032	0.000	203.45
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
														Total	**7.5**	**0.85**	**0.288**	**0.272**	**62**	**0.404**	**2.96**	**0.161**	**41,566**	**1.07**	**0.150**	**0.047**	**0.045**	**11.3**	**0.066**	**0.410**	**0.029**	**6,756**

On-Road Sources - Within Development Only

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2848	15	365	0.3706	0.0930	34.905463	8.760740408	6.370247	1.598835
Light-Duty Truck - LDT2 (offsite)	1	1	949	15	365	0.3715	0.0933	11.662944	2.929973151	2.128487	0.534720
Passenger Vehicle - EV LDA (offsite)	1	1	29	15	365	0.3691	0.0925	0.351164	0.087996731	0.064088	0.016059
Light-Duty Truck - EV LDT2 (offsite)	1	1	10	15	365	0.3691	0.0925	0.117054	0.029331854	0.021362	0.005353
Med-Heavy Duty - T6 Utility (offsite)	1	1	32	25	52	0.4113	0.1073	0.725476	0.189199539	0.018862	0.004919
Heavy Duty Trucks - T7TC (offsite)	1	1	8	25	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
Heavy Duty Trucks - T7TC (offsite)	1	1	15	50	260	0.4366	0.1161	0.721880	0.191985745	0.093844	0.024958
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.4366	0.1161	0.192501	0.051196199	0.015015	0.003993
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	52	0.4366	0.1161	0.048125	0.01279905	0.001251	0.000333
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	312	0.4366	0.1161	0.385003	0.102392398	0.060060	0.015973
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
							Total	**50**	**12.5**	**8.8**	**2.21**

Land Use Sources

Electricity Use (Land Use)

Source	Units	Electricity Use kWh/sf/yr	Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
			N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Car Wash	4,765	10,330	0.000004	0.000033	0.3486	0.00011	0.00093	9.86688	0.00002	0.00017	1.80
Coffee w/drive thru	2,450	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Food w/drive-thru	3,250	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Food w/drive-thru	3,250	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Grocery	18,500	11,825	0.000004	0.000033	0.3486	0.00013	0.00107	11.29448	0.00002	0.00020	2.06
Health club	19,900	51,217	0.000004	0.000033	0.3486	0.00056	0.00463	48.92072	0.00010	0.00085	8.93
Office	9,800	20,929	0.000004	0.000033	0.3486	0.00023	0.00189	19.99109	0.00004	0.00035	3.65
Parking Lot	2,800	876	0.000004	0.000033	0.3486	0.00001	0.00008	0.83673	0.00000	0.00001	0.15
Retail	2,800	10,351	0.000004	0.000033	0.3486	0.00011	0.00094	9.88652	0.00002	0.00017	1.80
Total						**0.002**	**0.020**	**216**	**0.0005**	**0.004**	**39.4**

Land Use Sources

Natural Gas Use (Land Use)

Source	Units	Natural Gas Use kBTU/sf/yr	Emission Factors, g/kBTU									Peak Day Emissions (lb/day)									Total Emissions (tons)								
			NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Car Wash	4,765	41,459	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0105	0.0006	0.0008	0.0008	0.0045	0.0001	0.0000	0.0012	13.3	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	2.42
Coffee w/drive thru	2,450	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Food w/drive-thru	3,250	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Food w/drive-thru	3,250	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Grocery	18,500	41,014	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0104	0.0006	0.0008	0.0008	0.0044	0.0001	0.0000	0.0012	13.1	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	2.40
Health club	19,900	30,238	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0076	0.0004	0.0006	0.0006	0.0032	0.0000	0.0000	0.0009	9.69	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.77
Office	9,800	28,869	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0073	0.0004	0.0006	0.0006	0.0031	0.0000	0.0000	0.0008	9.25	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.69
Parking Lot	2,800	0.000	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Retail	2,800	9,689	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0024	0.0001	0.0002	0.0002	0.0010	0.0000	0.0000	0.0003	3.11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.567
												Total	**0.130**	**0.008**	**0.011**	**0.011**	**0.056**	**0.001**	**0.0003**	**0.015**	**166**	**0.024**	**0.001**	**0.002**	**0.002**	**0.010**	**0.000**	**0.000**	**0.003**	**30.2**

Land Use Sources

Electricity Use (Water Use)		Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
Source	**Water Use/Year**	**N_2O**	**CH_4**	**CO_2**	**N_2O**	**CH_4**	**CO_2**	**N_2O**	**CH_4**	**CO_2**
Car Wash	2,600,000	0.000004	0.000033	0.3486	0.000000	0.000001	0.00978	0.0000000	0.0000002	0.00179
Coffee w/drive thru	743,658	0.000004	0.000033	0.3486	0.000000	0.000000	0.00280	0.0000000	0.0000000	0.00051
Food w/drive-thru	986,485	0.000004	0.000033	0.3486	0.000000	0.000000	0.00371	0.0000000	0.0000001	0.00068
Food w/drive-thru	986,485	0.000004	0.000033	0.3486	0.000000	0.000000	0.00371	0.0000000	0.0000001	0.00068
Grocery	2,280,462	0.000004	0.000033	0.3486	0.000000	0.000001	0.00858	0.0000000	0.0000001	0.00157
Health club	1,176,949	0.000004	0.000033	0.3486	0.000000	0.000000	0.00443	0.0000000	0.0000001	0.00081
Landscaping	902,480	0.000004	0.000033	0.3486	0.000000	0.000000	0.00340	0.0000000	0.0000001	0.00062
Office	1,741,791	0.000004	0.000033	0.3486	0.000000	0.000001	0.00655	0.0000000	0.0000001	0.00120
Parking Lot	0	0.000004	0.000033	0.3486	0.000000	0.000000	0.00000	0.0000000	0.0000000	0.00000
Retail	207,403	0.000004	0.000033	0.3486	0.000000	0.000000	0.00078	0.0000000	0.0000000	0.00014
Total					**0.000001**	**0.000004**	**0.0437**	**0.0000001**	**0.000001**	**0.008**

Wastewater Treatment		Emission Factor (lb/gal)			Emissions (pound/day)			Emissions (tons/year)		
Source	**Wastewater Generated (gallons/yr)**	**N_2O**	**CH_4**	**CO_2**	**N_2O**	**CH_4**	**CO_2**	**N_2O**	**CH_4**	**CO_2**
Car Wash	2,600,000	0.0000017	0.0008020	0.0007800	0.0121	5.7129	5.5562	0.00001	0.00286	0.00278
Coffee w/drive thru	743,658	0.0000017	0.0008020	0.0007800	0.0035	1.6340	1.5892	0.00000	0.00082	0.00079
Food w/drive-thru	986,485	0.0000017	0.0008020	0.0007800	0.0046	2.1676	2.1081	0.00000	0.00108	0.00105
Food w/drive-thru	986,485	0.0000017	0.0008020	0.0007800	0.0046	2.1676	2.1081	0.00000	0.00108	0.00105
Grocery	2,280,462	0.0000017	0.0008020	0.0007800	0.0106	5.0108	4.8733	0.00001	0.00251	0.00244
Health club	1,176,949	0.0000017	0.0008020	0.0007800	0.0055	2.5861	2.5151	0.00000	0.00129	0.00126
Landscaping	0	0.0000017	0.0008020	0.0007800	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000
Office	1,741,791	0.0000017	0.0008020	0.0007800	0.0081	3.8272	3.7222	0.00000	0.00191	0.00186
Parking Lot	0	0.0000017	0.0008020	0.0007800	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000
Retail	207,403	0.0000017	0.0008020	0.0007800	0.0010	0.4557	0.4432	0.00000	0.00023	0.00022
Total					**0.0501**	**23.6**	**22.9**	**0.0000**	**0.012**	**0.011**

Solid Waste		Emission Factor (tons/ton)		Emissions (pound/day)		Emissions (tons/year)	
Source	**Solid Waste Generated (tons/yr)**	**CH_4**	**CO_2**	**CH_4**	**CO_2**	**CH_4**	**CO_2**
Car Wash	18.2	0.00844	0.09846	0.0005	0.0054	0.1536	1.79
Coffee w/drive thru	28.2	0.00844	0.09846	0.0007	0.0084	0.2381	2.78
Food w/drive-thru	37.4	0.00844	0.09846	0.0010	0.0111	0.3159	3.69
Food w/drive-thru	37.4	0.00844	0.09846	0.0010	0.0111	0.3159	3.69
Grocery	104.3	0.00844	0.09846	0.0027	0.0310	0.8804	10.27
Health club	113.4	0.00844	0.09846	0.0029	0.0337	0.9571	11.17
Office	9.1	0.00844	0.09846	0.0002	0.0027	0.0769	0.90
Parking Lot	0.000	0.00844	0.09846	0.0000	0.0000	0.0000	0.000
Retail	12.0	0.00844	0.09846	0.0003	0.0036	0.1016	1.19
			Total	**0.01**	**0.107**	**3.04**	**35.5**

Notes:

- Square footage and number of units provided by client
- Daily trips for LDA and LDT2 were estimated from peak AM and PM traffic data obtained from the Draft Traffic Evaluation and Vehicle Miles Traveled Assessment for the Hub Project (C2 Consult Corp, 2024).
- Round trips for medium and heavey duty trucks were esitimated.
- Assumes 1% of LDA and LDT2 will be electric vehicles.
- Assumes 15 mile round trips for LDA and LDT2.
- Assumes 25 to 50 mile round trips for medium and heavey duty trucks.

THE HUB DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

TABLE 3: Operational Emission Factors and Assumptions

Onsite Maintenance

Source	Tier	Operational Horsepower	Load Factor	Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)							
				NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	--	25	38	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	624	0.0050	0.0116	0.0000	0.0000	0.6725	0.00002	0.00001	0.00006	1.3752
Trimmer	--	5	91	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	809	0.0041	0.0147	0.0002	0.0002	0.6712	0.00003	0.00002	0.00007	1.7826
Leaf Blower	--	5	94	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513
Other Landscape Equipment	--	5	58	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513

Offsite

Source	Tier	Region	Emission Factors (g/mile)									Emission Factors (lb/mile)								
			NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000000	0.00000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0000
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	261	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000000	0.00000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0000
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1479	0.0014	0.0000	0.0000	0.0000	0.0001	0.00003	0.00051	0.00000	3.2604

Offsite Dust - Mobile Sources

Source	Tier	Region	Emission Factors (g/mile)		Emission Factors (lb/mile)	
			PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.3706	0.0930	0.000817	0.000205
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.3691	0.0925	0.000814	0.000204
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.3715	0.0933	0.000819	0.000206
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.3691	0.0925	0.000814	0.000204
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.4113	0.1073	0.000907	0.000237
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.4366	0.1161	0.000963	0.000256

Offsite

Source	Energy Consumption (kWh/mile)
Passenger Vehicle - EV LDA (offsite)	0.40674
Light-Duty Truck - EV LDT2 (offsite)	0.40674

Recycling and Composting

Recycling and Composting Program	Percentage of Waste Recycled or Composted
	0

Electricity and Natrual Gas Use by Land Use

Source	kWhr/Unit/Year	kBtu/Unit/Year
	Electricity	Natural Gas
Car Wash	10,330	41,459
Coffee w/drive thru	40,154	121,851
Food w/drive-thru	40,154	121,851
Food w/drive-thru	40,154	121,851
Grocery	11,825	41,014
Health club	51,217	30,238
Office	20,929	28,869
Parking Lot	876	0.000
Retail	10,351	9,689

Electricity Emission Factors

Source	Electricity Source	Emission Factors (lb/kWhr)		
		N_2O	CH_4	CO_2
Electricity Usage	Southern California Edison	0.000004	0.00003	0.3486

Natural Gas Emissions Facotors

Source	Electricity Source	Emission Factors, g/kBTU									Emission Factors (lb/kBTU)								
		NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Natural Gas Residential	California Gas Company	0.041802	0.002446	0.003380	0.003380	0.017788	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977
Natural Gas Commercial	California Gas Company	0.044470	0.002446	0.003380	0.003380	0.037355	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977

Water Energy-Intensity

Source	kWh/Gal
Project Site	0.00394

Solid Waste Disposal Rate

Source	Region	Rate (Tons/Year)
Car Wash	Statewide	18
Coffee w/drive thru	Statewide	28
Food w/drive-thru	Statewide	37
Food w/drive-thru	Statewide	37
Grocery	Statewide	104
Health club	Statewide	113
Office	Statewide	9
Parking Lot	Statewide	0
Retail	Statewide	12

Solid Waste Emissions Factors

Landfill Type	CH_4 (tons/ton)	CO_2 (tons/ton)
No Landfill Gas Collection	0.0084	0.0985

Water Use Rates				Water Use		
Source	**Units or Square Feet**	**Indoor Water Use (gal/unit or Square Feet per yr)**	**Outdoor Water Use (gal/unit or gal/Square Feet per yr)**	**Total Indoor Water Use (gal)**	**Total Outdoor Water Use (gal)**	**Total Water Use (gal)**
Car Wash	4,765	546	0.000	2,600,000	0.000	2,600,000
Coffee w/drive thru	2,450	304	0.000	743,658	0.000	743,658
Food w/drive-thru	3,250	304	0.000	986,485	0.000	986,485
Food w/drive-thru	3,250	304	0.000	986,485	0.000	986,485
Grocery	18,500	123	0.000	2,280,462	0.000	2,280,462
Health club	19,900	59.1	0.000	1,176,949	0.000	1,176,949
Landscaping	85,378	0.000	10.6	0.00	902,480	902,480
Office	9,800	178	0.000	1,741,791	0.000	1,741,791
Parking Lot	2,800	0.000	0.000	0.000	0.000	0.000
Retail	2,800	74.1	0.000	207,403	0.000	207,403
			Total	**10,723,231**	**902,480**	**11,625,711**

Wastewater Treatment	Emission Factor (lb/gal)		
Source	**N_2O**	**CH_4**	**CO_2**
Wastewater Treatment	0.0000017	0.000802	0.00078

Climate Zone	4

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020 and CalEEMod, Appendix G, 2022.
- Electricity and Natural Gas Emission Factors were obtained from CalEEMod, Appendix G 2022.
- Electricity Use by Land Use obtained from CalEEMod, Appendix G 2022.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D- 20164.*
- CO_2 and CH_4 emission factors for equipment were obtained from *CalEEMod Appendix G 2022.*
- CO_2 and CH_4 emission were obtained from *CalEEMod Appendix G 2022.*
- Vehicle emissions factors obtained from EMFAC-2021
- Solid waste and waste water emission factors and waste disposal rates obtained from CalEEMod Appendix G 2022
- Water use rates and wastewater treatment rates obtained from CalEEMod Appendix G 2022
- Waste disposal rates obtained from CalEEMod Appendix G 2022

Daily Vehicle Estimate Email

From: Charley Clouse
To: Andrew Mangano
Cc: Robert Vander Weele; Darlene Mata; Greg Nunley
Subject: Re: Construction and Operational Emissions Estimates - The Hub Development
Date: Thursday, December 12, 2024 11:54:51 AM

Afternoon, One and all,
Looking at the Hub in focus for the AQ assessment, the calculation/estimate for daily trips can be derived from the ITE Trip Generation Manual. Using the Shopping Plaza land use, the estimate for daily trips would be 6,394. Again, this would be total trips at the driveways, not new trips. ITE suggests up to 40% of these trips would be pass-by trips coming from the existing traffic. Applying that factor would result in approximately 3,836 new trips added as a result of the Hub Project.

I would caution use of these numbers for AQ analysis as they represent a different application of the ITE Trip Generation data sets. That said, I believe this represents reasonable estimates of daily trips.

Let me know if you have any questions or need any additional information.
Charley

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

MEMORANDUM

To: N&M Capital LLC

From: Robert Vander Weele

Date: December 18, 2024

Subject: Construction and Operation Phase Air Quality and Greenhouse Gas Emissions Estimates for the Proposed Hub Development Project, Tulare County, California

Padre Associates, Inc. (Padre) has prepared this Memorandum to document the results of the criteria pollutant and greenhouse gas (GHG) estimates for the construction and operational phases of the Proposed Hub Development Project (Project). Padre understands that Project construction activities are anticipated to take approximately four years.

Emissions Estimate Methods and Assumptions

Emissions modeling was conducted to estimate the criteria pollutant and GHG emissions for the construction and operational phases of the Project. The emissions were estimated using the most recent emission factors and load factors obtained from the California Emissions Estimator Model® (CalEEMod) User's Guide, Emission Factors (EMFAC) model, the South Coast Air Quality Management District (SCAQMD) and U.S. Environmental Protection Agency (U.S. EPA) AP 42, Fifth Edition, Volume I Chapter 13: Miscellaneous Sources.

Construction Emissions Estimate Results Summary

Criteria pollutant emissions for Project construction activities were estimated to be below the San Joaquin Valley Air Pollution Control District's (SJVAPCD) significance thresholds for each year of construction (refer to Table 1 below). Diesel particulate matter (DPM) from the use of onsite diesel fired equipment was estimated to be approximately 0.00154 tons per year for each year of construction (refer to Table 2 below). Emissions estimate tables are provided as an attachment.

Table 1. Estimated Construction Criteria Pollutant Emissions

Phase	Units	NO_x	ROG	PM_{10}*	$PM_{2.5}$*	CO	SO_2
Year -1	Tons/year	0.166	0.016	0.606	0.148	0.588	0.002
Year -2	Tons/year	0.166	0.016	0.606	0.148	0.588	0.002
Year -3	Tons/year	0.166	0.016	0.606	0.148	0.588	0.002
Year -4	Tons/year	0.166	0.016	0.606	0.148	0.588	0.002
Total Project	**Tons**	**0.663**	**0.063**	**2.42**	**0.593**	**2.35**	**0.007**
SJVAPCD Threshold (tons/year)		**10**	**10**	**15**	**15**	**100**	**27**
Exceed Thresholds?		**No**	**No**	**No**	**No**	**No**	**No**

Notes: * -PM10 and PM2.5 emissions include emissions from exhaust and fugitive dust.
Total emissions numbers may not add up due to rounding

Table 2. Estimated Construction Particulate and DPM Emissions

Phase	Units	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$
Year -1	Tons/year	0.002	0.603	0.606	0.002	0.146	0.148
Year -2	Tons/year	0.002	0.603	0.606	0.002	0.146	0.148
Year -3	Tons/year	0.002	0.603	0.606	0.002	0.146	0.148
Year -4	Tons/year	0.002	0.603	0.606	0.002	0.146	0.148
Total Project	**Tons**	**0.009**	**2.41**	**2.42**	**0.009**	**0.584**	**0.593**
DPM Emissions from Onsite Equipment, tons/year for year 1*						0.00154	
DPM Emissions from Onsite Equipment, tons/year for year 2*						0.00154	
DPM Emissions from Onsite Equipment, tons/year for year 3*						0.00154	
DPM Emissions from Onsite Equipment, tons/year for year 4*						0.00154	
DPM Emissions from Onsite Equipment, tons*						**0.00614**	

Notes: * - Mobile emissions emitted at offsite locations are not included in this DPM total.
Suffixes E = Exhaust, D= Dust and T = Total.
Total emissions numbers may not add up due to rounding.

GHG construction emissions for the Project were estimated to be approximately 607 metric tons of carbon dioxide equivalent per year ($MTCO_2E$/year) (refer to Table 3 below).

Table 3. Estimated Construction Related Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E$/year
Year -1	Tons/year	0.011	0.024	164	152
Year -2	Tons/year	0.011	0.024	164	152
Year -3	Tons/year	0.011	0.024	164	152
Year -4	Tons/year	0.011	0.024	164	152
Total Project	**Tons**	**0.043**	**0.097**	**654**	**607**

Notes: Total emissions numbers may not add up due to rounding.

Construction Phase – Information and Assumptions

- All construction equipment type, horsepower, EPA Tier, hourly use and daily use were provided by N&M Capital LLC (N&M) or estimated by Padre.
- Equipment, supplies, fueling, personnel, import and export vehicle trips were provided by N&M or estimated by Padre.
- Site grading, loading/dumping and import/export volumes were provided by N&M.

Detailed source information is provided in the attachments.

Operational Emissions Estimate Results Summary

Criteria pollutant emissions for the Project operational activities were estimated to be below the SJVAPCD significance thresholds (refer to Table 4 below). Mobile emissions were estimated to be the primary source of criteria pollutant emissions. The primary source of PM_{10} and $PM_{2.5}$ emissions were from fugitive dust from vehicles traveling on paved roads.

Table 4. Estimated Operational Criteria Pollutant Emissions

Phase	Units	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2
Operations Phase without Customer Vehicle Emissions	Tons/year	0.087	0.157	0.002	0.003	7.75	0.0004
Operations Phase Customer Vehicle Emissions	Tons/year	1.07	0.150	8.84	2.25	11.3	0.066
Total Operations Emissions	**Tons/Year**	**1.15**	**0.307**	**8.84**	**2.26**	**19.1**	**0.066**
SJVAPCD Significance Threshold (tons/year)		**10**	**10**	**15**	**15**	**100**	**27**
Exceed Thresholds?		**No**	**No**	**No**	**No**	**No**	**No**
DPM Emissions from Onsite Diesel Exhaust, tons/year					**0.0018**		

Notes: Total emissions numbers may not add up due to rounding.

Total GHG operational phase plus amortized construction phase emissions for the Project were estimated to be approximately 6,440 $MTCO_2E$/year (refer to Table 5 below). Mobile emissions were estimated to be the primary source of GHG emissions.

Table 5. Estimated Operational Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E$/year
Operations Phase without Customer Vehicle* Emissions	Tons/year	0.001	3.06	123	189
Operations Phase Customer Vehicle Emissions	Tons/year	0.410	0.029	6,756	6,231
Total Operations Emissions	**Tons**	**0.410**	**3.09**	**6,879**	**6,420**
Total Operational Phase Plus Amortized Construction Phase Emissions MTCO2E/year*					**6,440**

Notes: * - Construction GHG emissions were amortized over 30 years.
Notes: Total emissions numbers may not add up due to rounding.

Operational Phase – Information and Assumptions

- Operations are assumed 7 days per week.
- Customer vehicle emissions were calculated based on estimated new daily traffic provided by C2 Consult Corp (C2) of Denver, Colorado. The new daily traffic was estimated by C2 using the ITE Trip Generation Manual data sets (C2, 2024) (refer to attachments for email reference).
- Daily new trips were assumed to be from the Visalia area at 15-mile round trips.

Detailed source information is provided in the attachments.

Health Risk Prioritization Screening

Using the revised Project emissions, Padre completed a health risk prioritization screening of the Project's construction and operational phase DPM emissions using the SJVAPCD's Prioritization Calculator. The Prioritization Calculator utilizes toxic profiles based on Assembly Bill (AB) 2588 Hotspots Air Toxic Profiles and project emissions to calculate a prioritization score between 0 and 100 for cancer risk, acute toxicity risk, and chronic toxicity risk. In accordance with the Air Toxics Hot Spots Program, Facility Prioritization Guidelines (CAPCOA 1990) and APR- 1906 Framework for Performing Health Risk Assessments (SJVAPCD 2015) a facility or project with a prioritization score between 0 and less than 10 would not be required to perform a Health Risk Assessments (HRA) and would have a less than significant impact.

The nearest sensitive receptors to the Project Site consist of single-family residential homes adjacent properties within 0 to 100 meters to the west and south of the Project Site. The prioritization screening evaluated the impacts to receptors for the estimated onsite Project DPM emissions associated with the construction phase and DPM emissions associated with the operational phase (refer to Tables 2 and 4 above). The results of the prioritization screening indicate that the Project's maximum prioritization score for the yearly construction phase was 7.11 and for the yearly operational phase is 8.55. In years 2 and 3 of construction the emissions of the construction phase and operational phase would be additive. Adding the yearly construction phase score of 7.11 and one third of the operational score of 8.55 the total yearly score for years 2 and 3 would be 9.96, therefore an HRA would not be required by the SJVAPCD. A copy of the prioritization screening calculation is provided in the attachments.

Attachments: Air Quality and GHG Model Output
Daily Vehicle Estimate Email
Prioritization Screening

Air Quality and Greenhouse Gas Emissions Model Output

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 1: CONSTRUCTION EMISSIONS SUMMARY

Model Run: December 18, 2024

Source	Days	Peak Day Emissions, lbs/day													Project Emissions, tons												$MTCO_2e$
		NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	
Grading	19	5.34	0.751	0.151	24.3	24.4	0.149	5.16	5.31	29.1	0.095	0.613	1.84	9,319	0.041	0.007	0.001	0.177	0.178	0.001	0.037	0.038	0.276	0.001	0.003	0.017	73.0	67.5
Utilities	173	4.45	0.410	0.084	13.4	13.5	0.082	3.24	3.32	17.3	0.054	0.402	0.777	5,361	0.268	0.034	0.004	0.521	0.526	0.004	0.120	0.125	1.488	0.003	0.006	0.067	280	257
Vertical Construction	176	5.85	0.155	0.089	30.8	30.9	0.086	7.71	7.79	4.28	0.065	0.965	0.088	6,744	0.293	0.012	0.003	1.516	1.518	0.002	0.377	0.380	0.365	0.002	0.030	0.008	246	231
Flatwork and Paving	4	9.29	2.97	0.175	30.7	30.9	0.171	7.56	7.73	26.8	0.110	1.08	1.34	11,160	0.018	0.006	0.000	0.060	0.061	0.000	0.015	0.015	0.054	0.000	0.002	0.003	22.0	20.5
Interior Finishing	33	2.95	0.215	0.041	9.77	9.81	0.040	2.45	2.49	9.01	0.028	0.234	0.108	2,784	0.032	0.003	0.0003	0.100	0.100	0.000	0.025	0.025	0.118	0.0002	0.001	0.001	23.5	21.6
Exterior Finishing	12	2.50	0.236	0.039	9.77	9.81	0.038	2.45	2.49	8.35	0.027	0.233	0.098	2,692	0.011	0.001	0.0002	0.040	0.040	0.0002	0.010	0.010	0.050	0.0001	0.001	0.001	10.6	9.8
Peak Day Emissions, lb/day		***9.29***	***2.97***	***0.175***	***30.8***	***30.9***	***0.17***	***7.71***	***7.79***	***29.1***	***0.110***	***1.079***	***1.84***	***11,160***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Project Year -1 Emissions, tons															***0.166***	***0.016***	***0.002***	***0.603***	***0.606***	***0.002***	***0.146***	***0.148***	***0.588***	***0.002***	***0.011***	***0.024***	***164***	***152***
Project Year -2 Emissions, tons															***0.166***	***0.016***	***0.002***	***0.603***	***0.606***	***0.002***	***0.146***	***0.148***	***0.588***	***0.002***	***0.011***	***0.024***	***164***	***152***
Project Year -3 Emissions, tons															***0.166***	***0.016***	***0.002***	***0.603***	***0.606***	***0.002***	***0.146***	***0.148***	***0.588***	***0.002***	***0.011***	***0.024***	***164***	***152***
Project Year -4 Emissions, tons															***0.166***	***0.016***	***0.002***	***0.603***	***0.606***	***0.002***	***0.146***	***0.148***	***0.588***	***0.002***	***0.011***	***0.024***	***164***	***152***
SJVAPCD Significance Thresholds															***10***	***10***	*--*	*--*	***15***	*--*	*--*	***15***	***100***	***27***	*--*	*--*	*--*	*--*
Threshold exceeded?															***No***	***No***	*--*	*--*	***No***	*--*	*--*	***No***	***No***	***No***	*--*	*--*	*--*	*--*
Project Total Emissions, tons															***0.663***	***0.063***	***0.009***	***2.41***	***2.42***	***0.009***	***0.584***	***0.593***	***2.35***	***0.007***	***0.043***	***0.097***	***654***	***607***
Project Year -1 DPM Emissions From Onsite Equipment, tons															***0.00154***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Project Year -2 DPM Emissions From Onsite Equipment, tons															***0.00154***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Project Year -3 DPM Emissions From Onsite Equipment, tons															***0.00154***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Project Year -4 DPM Emissions From Onsite Equipment, tons															***0.00154***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Total DPM Emissions From Onsite Equipment, tons															***0.00614***	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
GHG - $MTCO_2e$ conversions																									***273***	***27.9***	***1***	*--*
Approximate Total $MTCO_2e$, tons/yr																									***607***			

Notes:

- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

SJVAPCD - San Joaquin Valley Air Pollution Control District
$MTCO_2e$ - Metric Tons of Carbon Dioxide Equivalent
NO_x - Oxides of Nitrogen
ROG - Reactive Organic Gases
$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
DPM - Diesel Particulate Matter
CO - Carbon Monoxide
SO_2 - Sulfur Dioxide
N_2O - Nitrous Oxide
CH_4 - Methane
CO_2 - Carbon Dioxide
* - Includes emissions from on road vehicles operating offsite and away from adjacent sensitive receptors.

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Grading

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	4	19	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.106	0.024	0.003	0.003	1.509	0.002	0.002	0.0620	191	0.001	0.000	0.000	0.000	0.014	0.000	0.000	0.001	1.82
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	8	19	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.282	0.065	0.009	0.009	4.013	0.005	0.005	0.1681	519	0.003	0.001	0.000	0.000	0.038	0.000	0.000	0.002	4.93
Lift-1	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	6	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.003	0.001	0.000	0.000	0.025	0.000	0.000	0.002	5.31
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	8	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.010	0.002	0.000	0.000	0.084	0.000	0.000	0.006	18.01
Scraper-2	475	48	1	8	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.010	0.002	0.000	0.000	0.084	0.000	0.000	0.006	18.01
Water Truck-1	400	38	1	4	19	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.003	0.001	0.000	0.000	0.028	0.000	0.000	0.002	6.05
														Total	**3.137**	**0.72**	**0.10**	**0.097**	**28.783**	**0.060**	**0.051**	**1.840**	**5698**	**0.030**	**0.007**	**0.001**	**0.001**	**0.273**	**0.001**	**0.000**	**0.017**	**54.13**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	19	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.559
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	19	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.027	0.006	0.003	0.003	0.056	0.002	0.027	0.000	173	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.640
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	3	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.648	0.006	0.015	0.015	0.034	0.010	0.159	0.000	1007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.007
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.336
Heavy Duty Trucks - T7TC (offsite)	1	1	12	50	15	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.295	0.012	0.031	0.029	0.068	0.019	0.317	0.001	2014	0.010	0.000	0.000	0.000	0.001	0.000	0.002	0.000	15.107
														Total	**2.20**	**0.03**	**0.05**	**0.05**	**0.31**	**0.034**	**0.562**	**0.002**	**3621**	**0.011**	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	**0.003**	**0.000**	**18.86**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	19	5.1564	1.2895	1.136774	0.284273857	0.010799	0.002701
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	19	5.1573	1.2898	3.410906	0.853026465	0.032404	0.008104
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	3	5.1971	1.3037	0.171864	0.043112716	0.000258	0.000065
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	5.2221	1.3125	0.575637	0.144674521	0.000576	0.000145
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	2	5.2221	1.3125	3.453822	0.868047129	0.003454	0.000868
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	5.2221	1.3125	0.575637	0.144674521	0.001151	0.000289
Heavy Duty Trucks - T7TC (offsite)	1	1	12	50	15	5.2221	1.3125	6.907645	1.736094258	0.051807	0.013021
							Total	**16.232285**	**4.073903**	**0.100449**	**0.025192**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximately 50-miles.

Round trips for fuel deliveries from Visalia area (approximately 15-miles).

Round trips for LDA and LDT2 is estimated from within approximately 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 3: Utilities

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	173	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.014	0.003	0.0004	0.0004	0.196	0.000	0.000	0.008	24.84
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	4	173	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.010	0.002	0.0003	0.0003	0.135	0.000	0.000	0.001	20.81
Compressor-2	100	48	1	4	173	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.010	0.002	0.0003	0.0003	0.135	0.000	0.000	0.001	20.81
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	4	173	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.139	0.032	0.004	0.004	1.984	0.003	0.002	0.0820	253	0.012	0.003	0.0004	0.0004	0.172	0.000	0.000	0.007	21.91
Generator-1	25	74	1	8	173	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.078	0.003	0.0002	0.0002	0.116	0.000	0.000	0.002	16.04
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	173	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.031	0.001	0.0001	0.0001	0.042	0.000	0.000	0.002	6.01
Lift-2	50	20	1	6	173	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.031	0.001	0.0001	0.0001	0.042	0.000	0.000	0.002	6.01
Loader-1	250	36	1	6	173	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.027	0.006	0.0008	0.0008	0.227	0.001	0.000	0.016	48.38
Loader-2	250	36	1	4	173	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.206	0.048	0.006	0.006	1.746	0.004	0.003	0.1206	373	0.018	0.004	0.0005	0.0005	0.151	0.000	0.000	0.010	32.25
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	4	173	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.030	0.007	0.001	0.001	0.255	0.001	0.000	0.018	55.10
														Total	**3.005**	**0.39**	**0.047**	**0.047**	**17.010**	**0.031**	**0.025**	**0.775**	**2915**	**0.260**	**0.034**	**0.004**	**0.004**	**1.471**	**0.003**	**0.002**	**0.067**	**252.16**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	173	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.001	0.000	0.000	0.000	0.012	0.000	0.000	0.000	5.091
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	173	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.027	0.006	0.003	0.003	0.056	0.002	0.027	0.000	173	0.002	0.001	0.000	0.000	0.005	0.000	0.002	0.000	14.929
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	6	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.504
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	31	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.001	5.203
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.057	0.016	0.264	0.000	1679	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.679
														Total	**1.44**	**0.02**	**0.04**	**0.04**	**0.27**	**0.023**	**0.377**	**0.001**	**2446**	**0.008**	**0.001**	**0.000**	**0.000**	**0.017**	**0.000**	**0.004**	**0.000**	**27.53**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	173	5.1564	1.2895	1.136774	0.284273857	0.098331	0.024590
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	173	5.1573	1.2898	3.410906	0.853026465	0.295043	0.073787
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	5.1971	1.3037	0.171864	0.043112716	0.000687	0.000172
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	6	5.2221	1.3125	0.575637	0.144674521	0.001727	0.000434
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	31	5.2221	1.3125	1.151274	0.289349043	0.017845	0.004485
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	5.2221	1.3125	5.756371	1.446745215	0.005756	0.001447
							Total	**12.202825**	**3.061182**	**0.419390**	**0.104915**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximately 50-miles.

Round trips for fuel deliveries from Visalia area (approximately 15-miles).

Round trips for LDA and LDT2 is estimated from within approximately 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 4: Vertical Construction

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.0	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Generator-1	25	74	1	8	176	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.079	0.003	0.0002	0.0002	0.118	0.000	0.000	0.002	16.317
Generator-2	25	74	1	8	176	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.079	0.003	0.0002	0.0002	0.118	0.000	0.000	0.002	16.317
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Lift-1	50	20	1	6	176	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.032	0.001	0.0001	0.0001	0.043	0.000	0.000	0.002	6.117
Lift-2	50	20	1	6	176	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.509	0.032	0.001	0.0001	0.0001	0.043	0.000	0.000	0.002	6.12
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
														Total	**2.519**	**0.11**	**0.007**	**0.007**	**3.654**	**0.006**	**0.004**	**0.085**	**510**	**0.222**	**0.010**	**0.001**	**0.001**	**0.322**	**0.001**	**0.000**	**0.008**	**44.87**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	5	50	176	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.018	0.003	0.001	0.000	0.347	0.001	0.002	0.001	147	0.002	0.000	0.000	0.000	0.031	0.000	0.000	0.000	12.948
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	176	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.045	0.010	0.005	0.005	0.093	0.003	0.045	0.000	288	0.004	0.001	0.000	0.000	0.008	0.000	0.004	0.000	25.312
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	176	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.241	0.004	0.004	0.004	0.024	0.010	0.168	0.000	1068	0.021	0.000	0.000	0.000	0.002	0.001	0.015	0.000	93.950
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.057	0.016	0.264	0.000	1679	0.017	0.000	0.000	0.000	0.001	0.000	0.004	0.000	26.9
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	33	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.06	0.016	0.264	0.000	1679	0.018	0.000	0.000	0.000	0.001	0.000	0.004	0.000	27.696
Heavy Duty Trucks - T7TC (offsite)	1	1	5	30	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.324	0.003	0.008	0.007	0.02	0.005	0.079	0.000	504	0.005	0.000	0.000	0.000	0.000	0.000	0.001	0.000	8.057
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.371
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.324	0.003	0.008	0.007	0.017	0.005	0.079	0.000	504	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.504
														Total	**3.33**	**0.04**	**0.08**	**0.08**	**0.62**	**0.059**	**0.961**	**0.003**	**6234**	**0.071**	**0.002**	**0.002**	**0.002**	**0.043**	**0.002**	**0.030**	**0.000**	**200.82**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	5	50	176	5.1564	1.2895	2.841934	0.710684644	0.250090	0.062540
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	176	5.1573	1.2898	5.684844	1.421710775	0.500266	0.125111
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	176	5.1971	1.3037	5.728786	1.437090524	0.504133	0.126464
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	8	5.1971	1.3037	0.171864	0.043112716	0.000687	0.000172
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	32	5.2221	1.3125	5.756371	1.446745215	0.092102	0.023148
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	33	5.2221	1.3125	5.756371	1.446745215	0.094980	0.023871
Heavy Duty Trucks - T7TC (offsite)	1	1	5	30	32	5.2221	1.3125	1.726911	0.434023564	0.027631	0.006944
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	32	5.2221	1.3125	1.151274	0.289349043	0.018420	0.004630
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	5.2221	1.3125	1.726911	0.434023564	0.001727	0.000434
							Total	**30.545265**	**7.663485**	**1.490037**	**0.373314**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximately 50-miles.

Round trips for concrete delivery estimated from Hanford California (approximately 30-miles).

Round trips for fuel deliveries from Visalia area (approximately 15-miles).

Round trips for LDA and LDT2 is estimated from within approximately 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 5: Flatwork and Paving

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb./day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.885	4	--	2.600	--	--	--	--	--	--	--	--	2.301	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Architectural Coating	--	--	0	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.57
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	6	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.296	0.068	0.009	0.009	2.503	0.006	0.005	0.1740	539	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	1.08
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	4	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.37
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	4	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.14
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	8	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.413	0.095	0.013	0.013	3.492	0.008	0.007	0.2413	746	0.001	0.000	0.000	0.000	0.007	0.000	0.000	0.000	1.49
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	2	8	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.385	0.089	0.012	0.012	5.482	0.007	0.006	0.2252	697	0.001	0.000	0.000	0.000	0.011	0.000	0.000	0.000	1.39
Paving Equipment	100	36	1	8	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.165	0.038	0.005	0.005	2.349	0.003	0.003	0.0971	300	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.60
Paving Roller	50	38	2	8	4	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	1.836	0.080	0.005	0.005	2.480	0.003	0.003	0.0536	381	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.76
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	8	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.697	0.161	0.021	0.021	5.898	0.013	0.011	0.4128	1274	0.001	0.000	0.000	0.000	0.012	0.000	0.000	0.001	2.55
														Total	**5.211**	**2.92**	**0.07**	**0.074**	**26.294**	**0.047**	**0.039**	**1.340**	**4479**	**0.010**	**0.006**	**0.000**	**0.000**	**0.053**	**0.000**	**0.000**	**0.003**	**8.96**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb./day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	4	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	4	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.460
Passenger Vehicle - LDA (offsite)	1	1	1	50	4	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.004	0.001	0.000	0.000	0.069	0.000	0.000	0.000	29.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	4	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.014	0.003	0.002	0.001	0.028	0.001	0.014	0.000	86	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.173
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	1	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.007	0.000	0.000	0.000	0.001	0.000	0.005	0.000	32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	16	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.727	0.016	0.041	0.039	0.09	0.025	0.423	0.001	2686	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.371
Heavy Duty Trucks - T7TC (offsite)	1	1	2	30	17	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.130	0.001	0.003	0.003	0.01	0.002	0.032	0.000	201	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.712
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.864	0.008	0.020	0.020	0.05	0.013	0.212	0.000	1343	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.686
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.972	0.009	0.023	0.022	0.051	0.014	0.238	0.000	1511	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.511
														Total	**4.08**	**0.05**	**0.10**	**0.10**	**0.52**	**0.063**	**1.040**	**0.003**	**6681**	**0.008**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.002**	**0.000**	**13.03**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	4	5.1564	1.2895	1.136774	0.284273857	0.002274	0.000569
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	4	5.1573	1.2898	4.547875	1.13736862	0.009096	0.002275
Passenger Vehicle - LDA (offsite)	1	1	1	50	4	5.1564	1.2895	0.568387	0.142136929	0.001137	0.000284
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	4	5.1573	1.2898	1.705453	0.426513232	0.003411	0.000853
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	15	1	5.1971	1.3037	0.171864	0.043112716	0.000086	0.000022
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	16	50	4	5.2221	1.3125	9.210193	2.314792343	0.018420	0.004630
Heavy Duty Trucks - T7TC (offsite)	1	1	2	30	17	5.2221	1.3125	0.690764	0.173609426	0.005871	0.001476
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	4	5.2221	1.3125	4.605096	1.157396172	0.009210	0.002315
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	5.2221	1.3125	0.575637	0.144674521	0.000288	0.000072
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	5.2221	1.3125	5.180734	1.302070693	0.005181	0.001302
							Total	**29.544051**	**7.415298**	**0.057852**	**0.014520**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximately 50-miles.

Round trips for concrete delivery estimated from Hanford California (approximately 30-miles).

Round trips for fuel deliveries from Visalia area (approximately 15-miles).

Round trips for LDA and LDT2 is estimated from within approximately 50-miles.

* Asphalt in acres per day

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 6: Interior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	21.0	33	--	50.0	--	--	--	--	--	--	--	--	0.0231	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	33	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.004	0.001	0.000	0.000	0.052	0.000	0.000	0.000	7.94
Compressor-2	100	48	1	8	17	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.002	0.000	0.000	0.000	0.027	0.000	0.000	0.000	4.09
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	33	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.015	0.001	0.000	0.000	0.022	0.000	0.000	0.000	3.06
Generator-2	25	74	1	4	17	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.449	0.020	0.001	0.001	0.669	0.001	0.001	0.0101	92.7	0.004	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.79
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	33	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.006	0.000	0.000	0.000	0.008	0.000	0.000	0.000	1.15
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**2.149**	**0.20**	**0.02**	**0.019**	**8.761**	**0.014**	**0.010**	**0.107**	**1310**	**0.030**	**0.003**	**0.000**	**0.000**	**0.114**	**0.000**	**0.000**	**0.001**	**17.02**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	33	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.971
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	33	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	3.797
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.432	0.004	0.010	0.010	0.023	0.006	0.106	0.000	671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.671
														Total	**0.80**	**0.02**	**0.02**	**0.02**	**0.25**	**0.014**	**0.224**	**0.001**	**1475**	**0.002**	**0.000**	**0.0001**	**0.0001**	**0.004**	**0.000**	**0.001**	**0.0000**	**6.46**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	33	5.1564	1.2895	1.136774	0.284273857	0.018757	0.004691
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	33	5.1573	1.2898	4.547875	1.13736862	0.075040	0.018767
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	5.1971	1.3037	0.057288	0.014370905	0.000057	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	5.2221	1.3125	0.575637	0.144674521	0.000576	0.000145
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	5.2221	1.3125	2.302548	0.578698086	0.002303	0.000579
							Total	**9.771396**	**2.448735**	**0.099610**	**0.024918**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximately 50-miles.

Round trips for fuel deliveries from Visalia area (approximately 15-miles).

Round trips for LDA and LDT2 is estimated from within approximately 50-miles.

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 7: Exterior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	57.8	12	--	50.0	--	--	--	--	--	--	--	--	0.0637	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	22.000	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	12	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.019	0.000	0.000	0.000	2.89
Compressor-2	100	48	1	8	12	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.019	0.000	0.000	0.000	2.89
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	12	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.005	0.000	0.000	0.000	0.008	0.000	0.000	0.000	1.11
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	12	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.42
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**1.700**	**0.22**	**0.02**	**0.017**	**8.092**	**0.013**	**0.009**	**0.097**	**1217**	**0.010**	**0.001**	**0.000**	**0.000**	**0.049**	**0.000**	**0.000**	**0.001**	**7.30**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	12	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.353
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	12	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.381
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.432	0.004	0.010	0.010	0.023	0.006	0.106	0.000	671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.671
														Total	**0.80**	**0.02**	**0.02**	**0.02**	**0.25**	**0.014**	**0.224**	**0.001**	**1475**	**0.001**	**0.0001**	**0.0000**	**0.0000**	**0.001**	**0.0000**	**0.000**	**0.00000**	**3.34**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	12	5.1564	1.2895	1.136774	0.284273857	0.006821	0.001706
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	12	5.1573	1.2898	4.547875	1.13736862	0.027287	0.006824
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	5.1971	1.3037	0.057288	0.014370905	0.000057	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	5.2221	1.3125	0.575637	0.144674521	0.000288	0.000072
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	5.2221	1.3125	2.302548	0.578698086	0.002303	0.000579
							Total	**9.771396**	**2.448735**	**0.039634**	**0.009919**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within approximately 50-miles.

Round trips for fuel deliveries from Visalia area (approximately 15-miles).

Round trips for LDA and LDT2 is estimated from within approximately 50-miles.

* Architectural Coating in liters per day

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 8: Construction - Fugitive Dust Emissions - Phase 1

Construction

Activity	Source	Source Units	Number of Days	Emission Factor	Emission Factor, Units	Peak Day Emissions (lbs/day)		Total Emissions (tons)	
						PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading									
Site Grading	2.0	acres/day	19	1.1	lbs PM10/day/acre	2.1725	0.1975	0.0206	0.0031
Truck Loading & Dumping	231	tons/day	19	1.72E-04	lbs/ton	0.0397	0.0060	0.0004	0.0001
Vehicle Miles Off-Road	5.0	vehicle-miles/day	19	1.17	lbs/vehicle-mile	5.8276	0.8825	0.0554	0.0084
					Max/Total	**8.040**	**1.086**	**0.076**	**0.0116**
Utilities									
Site Grading	0.01	acres/day	173	1.1	lbs PM10/day/acre	0.0110	0.0010	0.0010	0.0001
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	1.0	vehicle-miles/day	173	1.17	lbs/vehicle-mile	1.1655	0.1765	0.1008	0.0153
					Max/Total	**1.177**	**0.177**	**0.102**	**0.0154**
Vertical Construction									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.25	vehicle-miles/day	176	1.17	lbs/vehicle-mile	0.2914	0.0441	0.0256	0.0039
					Max/Total	**0.291**	**0.044**	**0.026**	**0.0039**
Flatwork and Paving									
Site Grading	0.50	acres/day	4	1.1	lbs PM10/day/acre	0.5500	0.0500	0.0011	0.0002
Truck Loading & Dumping (Grading Phase)	2,038	tons/day	4	1.72E-04	lbs/ton	0.3506	0.05309	0.000701	0.000106
Vehicle Miles Off-Road	0.25	vehicle-miles/day	4	1.17	lbs/vehicle-mile	0.2914	0.0441	0.0006	0.0001
					Max/Total	**1.192**	**0.147**	**0.002**	**0.0004**
Interior Finishing									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	1.17	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.000**	**0.0000**
Exterior Improvements									
Site Grading	0.0	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	1.17	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.0000**	**0.0000**

Fugitive Dust Emissions: Inputs for the Table

Emission factors based on following inputs		
Mean number of rain days per year	*0*	*worst case*
Silt content of soil, fill storage pile, %	*1.5*	*SCAQMD default value*
Roadway inputs (paved and unpaved, as per URBEMIS)		
Roads mean vehicle weight, tons	*20.61*	*based on project description, HHDT + LDT and vehicles weight (average of full and empty)*
unpaved dirt road silt content, %	*8.4*	*AP-42 construction sites*
Truck Loading inputs		
k, particle size multiplier, default=0.35 fpr pm10	*0.35*	
U, mean wind speed, mph range 1.3-15	*8.15*	
M, moisture content, default=12%	*12*	
PM2.5/PM10	*0.15*	
Site grading emissions from CalEEMod for grading	*0.091*	*ratio of PM2.5/PM10 CalEEMod*
Demolition materials, tons/yds3	*1.000*	*estimated for concrete debris*

Fill materials, tons/yds3	*1.000*	*estimated for soils*
Mitigation: demolition area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: grading/dist area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: dumping soil moisture (fraction reduction)	*0.00*	*0.69 for minimum 12% soil moisture (SCAQMD)*
Mitigation: storage piles (fraction reduction)	*0.00*	*0.90 for watering by hand and covering (SCAQMD)*
Mitigation: roads (fraction reduction)	*0.55*	*0.55 for watering 3X per day (SCAQMD), 0.80 for soil binders applied monthly (AP-42)*

Notes:

PM2.5/PM10 ratio as per AP-42 k factor for PM10 and PM2.5
Demolition dust calculations as per EPA AP-42 11.19 and 13.2.4
Truck loading dumping cut/fill based on CalEEMod
Storage pile emissions based on SCAQMD Handbook (URBEMIS does not address emissions from storage piles)
Paved and unpaved road dust emissions based on AP-42 2006 (unpaved) Chapt 13. EPA AP-42 2006 is the same as URBEMS and CalEEMod
One month assumes 22 days of activity, as per URBEMIS

THE HUB DEVELOPMENT PROJECT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 9: Emission Factors and Assumptions

Onsite Construction				Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)								
	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	EF = lb/acre	--	--	--	2.60	--	--	--	--	--	--	--	--	2.6000	--	--	--	--	--	--	--
Architectural Coating	EF = g/L	--	--	--	50	--	--	--	--	--	--	--	--	0.1102	--	--	--	--	--	--	--
Backhoe	4	125	37	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	469	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0349
Crane	4	250	29	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0427
Compressor-1	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Compressor-2	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Dozer	4	200	43	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	474	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0450
Excavator	4	160	38	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	472	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0415
Generator-1	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Generator-2	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Grader	4	150	41	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.155	478	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0549
Lift-1	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Lift-2	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Loader-1	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Loader-2	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Paving Machine	4	100	42	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0367
Paving Equipment	4	100	36	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0432
Paving Roller	4	50	38	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.080	568	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00018	1.2529
Scraper-1	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Scraper-2	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Water Truck-1	4	400	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.154	475	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0477

Offsite Transportation			Emission Factors (g/mile)									Emission Factors (lb/mile)								
Source	Tier	Region	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.9793	0.0090	0.0232	0.0222	0.0518	0.0144	0.2399	0.0004	1523	0.0022	0.0000	0.0001	0.0000	0.0001	0.00003	0.00053	0.00000	3.3571

Offsite Dust - Mobile Sources			Emission Factors (g/mile)		Emission Factors (lb/mile)	
Source	Tier	Region	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	5.1564	1.2895	0.011368	0.002843
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	5.1573	1.2898	0.011370	0.002843
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	5.1971	1.3037	0.011458	0.002874
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	5.2221	1.3125	0.011513	0.002894

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D 2020.*
- CO_2 and CH_4 emission factors for construction equipment were obtained from *CalEEMod Appendix D 2020.*
- Vehicle emissions factors obtained from EMFAC-2021

THE HUB DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

TABLE 1: OPERATIONAL EMISSIONS SUMMARY

Model Run: December 17, 2024

Source	Peak Day Emissions (lbs/day)													Annual Emissions (tons/yr)												
	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	$MTCO_2e$
Operational Phase Without New Vehicle Trip Emissions*	2.56	5.99	0.03	0.000	0.030	0.035	0.000	0.035	298	0.012	0.059	23.6	1,092	0.087	0.157	0.0024	0.000	0.002	0.003	0.000	0.003	7.75	0.0004	0.001	3.06	123	189
Operational Phase New Vehicle Trip Emissions	7.5	0.85	0.29	50	50	0.272	12.5	12.8	62	0.404	2.961	0.161	41,566	1.07	0.150	0.047	8.79	8.84	0.045	2.21	2.25	11.3	0.066	0.410	0.029	6,756	6,231
Total Operational Phase Emissions	**10.1**	**6.84**	**0.318**	**49.7**	**50.0**	**0.308**	**12.51**	**12.8**	**360**	**0.416**	**3.02**	**23.8**	**42,658**	**1.15**	**0.307**	**0.050**	**8.79**	**8.84**	**0.047**	**2.21**	**2.26**	**19.1**	**0.066**	**0.410**	**3.09**	**6,879**	**6,420**
SJVAPCD Operational Significance Thresholds	--	--	--	--	--	--	--	--	--	--	--	--	--	***10***	***10***	--	--	***15***	--	--	***15***	***100***	***27***	--	--	--	--
Threshold exceeded?	--	--	--	--	--	--	--	--	--	--	--	--	--	***No***	***No***	--	--	***No***	--	--	***No***	***No***	***No***	--	--	--	--
Total Yearly DPM Emissions From Onsite Diesel Engine Exhaust, tons*																***0.0018***	--	--	--	--	--	--	--	--	--	--	--
GHG - $MTCO_2E$ conversions																								***273***	***28***	***1***	--
Total Operational Phase $MTCO_2E$/yr																								***6,420***			
Amortized Construction Phase Emissions																								***20.2***			
Total Operational Phase + Amortized Construction Phase Emissions $MTCO_2E$/yr																								***6,440***			

Notes:

- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

$MTCO_2E$ - Metric Tons of Carbon Dioxide Equivalent

SJVAPCD - San Joaquin Valley Air Pollution Control District

NO_x - Oxides of Nitrogen

ROG - Reactive Organic Gases

$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

DPM - Diesel Particulate Matter

CO - Carbon Monoxide

SO_2 - Sulfur Dioxide

N_2O - Nitrous Oxide

CH_4 - Methane

CO_2 - Carbon Dioxide

Assumptions:

Operations assumed 7 days per week.

* - Includes vehicle emissions from facilities operation such as deliveries and maintenance. A majority of these emissions occur offsite and away from adjacent sensitive receptors.

** - Onsite DPM emissions were calculated with the assumption that each diesel vehicle would drive at least 0.5 miles onsite. Diesel vehicles were also assumed to idle onsite for at least five minutes.

THE HUB DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Operations

Landscaping Equipment Sources

Source	BHP	Load Factor	Number	Hours/ Day	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	25	38	3	8	52	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	623.788	1.138	2.647	0.004	0.005	153.3	0.006	0.003	0.013	313.5	0.030	0.069	0.000	0.000	3.987	0.00014	0.0001	0.0003	8.1522
Trimmer	5	91	2	8	52	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	808.574	0.297	1.067	0.012	0.016	48.9	0.002	0.001	0.005	129.8	0.008	0.028	0.000	0.000	1.270	0.00005	0.0000	0.0001	3.3741
Leaf Blower	5	94	2	8	52	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658.309	0.446	1.017	0.001	0.002	42.7	0.002	0.001	0.005	109.1	0.012	0.026	0.000	0.000	1.111	0.00004	0.0000	0.0001	2.8376
Other Landscape Equipment	5	58	4	8	52	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658.309	0.551	1.253	0.002	0.002	52.7	0.002	0.001	0.006	134.7	0.014	0.033	0.000	0.000	1.371	0.00005	0.0000	0.0001	3.5017
														Total	**2.43**	**5.98**	**0.019**	**0.025**	**298**	**0.011**	**0.006**	**0.029**	**687**	**0.063**	**0.156**	**0.0005**	**0.001**	**7.739**	**0.0003**	**0.0002**	**0.001**	**17.9**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2848	15	365	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	3.050	0.531	0.089	0.082	59.367	0.249	0.374	0.1465	25144.2	0.557	0.097	0.016	0.015	10.835	0.045	0.068	0.027	4589
Light-Duty Truck - LDT2 (offsite)	1	1	949	15	365	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	1.284	0.276	0.144	0.137	2.643	0.078	1.291	0.0128	8192.7	0.234	0.050	0.026	0.025	0.482	0.014	0.236	0.002	1495
Passenger Vehicle - EV LDA (offsite)	1	1	29	15	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Light-Duty Truck - EV LDT2 (offsite)	1	1	10	15	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Med-Heavy Duty - T6 Utility (offsite)	1	1	32	25	52	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	968.5	0.386	0.006	0.007	0.007	0.038	0.016	0.269	0.0003	1708.2	0.010	0.000	0.000	0.000	0.001	0.000	0.007	0.000	44.41
Heavy Duty Trucks - T7TC (offsite)	1	1	8	25	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
Heavy Duty Trucks - T7TC (offsite)	1	1	15	50	260	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	1.038	0.012	0.018	0.017	0.062	0.023	0.385	0.0006	2445.3	0.135	0.002	0.002	0.002	0.008	0.003	0.050	0.000	317.88
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.022	0.000	0.000	0.000	0.001	0.000	0.008	0.000	50.86
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.069	0.001	0.001	0.001	0.004	0.002	0.026	0.0000	163.0	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.000	4.24
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	312	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.554	0.006	0.010	0.009	0.033	0.012	0.205	0.0003	1304.1	0.086	0.001	0.002	0.001	0.005	0.002	0.032	0.000	203.45
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
														Total	**7.5**	**0.85**	**0.288**	**0.272**	**62**	**0.404**	**2.96**	**0.161**	**41,566**	**1.07**	**0.150**	**0.047**	**0.045**	**11.3**	**0.066**	**0.410**	**0.029**	**6,756**

On-Road Sources - Within Development Only

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2848	15	365	0.3706	0.0930	34.905463	8.760740408	6.370247	1.598835
Light-Duty Truck - LDT2 (offsite)	1	1	949	15	365	0.3715	0.0933	11.662944	2.929973151	2.128487	0.534720
Passenger Vehicle - EV LDA (offsite)	1	1	29	15	365	0.3691	0.0925	0.351164	0.087996731	0.064088	0.016059
Light-Duty Truck - EV LDT2 (offsite)	1	1	10	15	365	0.3691	0.0925	0.117054	0.029331854	0.021362	0.005353
Med-Heavy Duty - T6 Utility (offsite)	1	1	32	25	52	0.4113	0.1073	0.725476	0.189199539	0.018862	0.004919
Heavy Duty Trucks - T7TC (offsite)	1	1	8	25	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
Heavy Duty Trucks - T7TC (offsite)	1	1	15	50	260	0.4366	0.1161	0.721880	0.191985745	0.093844	0.024958
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.4366	0.1161	0.192501	0.051196199	0.015015	0.003993
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	52	0.4366	0.1161	0.048125	0.01279905	0.001251	0.000333
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	312	0.4366	0.1161	0.385003	0.102392398	0.060060	0.015973
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
							Total	**50**	**12.5**	**8.8**	**2.21**

0.0310

Land Use Sources

Electricity Use (Land Use)

Source	Units	Electricity Use kWh/sf/yr	Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
			N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Car Wash	4,765	10,330	0.000004	0.000033	0.3486	0.00011	0.00093	9.86688	0.00002	0.00017	1.80
Coffee w/drive thru	2,450	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Food w/drive-thru	3,250	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Food w/drive-thru	3,250	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Grocery	18,500	11,825	0.000004	0.000033	0.3486	0.00013	0.00107	11.29448	0.00002	0.00020	2.06
Health club	19,900	51,217	0.000004	0.000033	0.3486	0.00056	0.00463	48.92072	0.00010	0.00085	8.93
Office	9,800	20,929	0.000004	0.000033	0.3486	0.00023	0.00189	19.99109	0.00004	0.00035	3.65
Parking Lot	2,800	876	0.000004	0.000033	0.3486	0.00001	0.00008	0.83673	0.00000	0.00001	0.15
Retail	2,800	10,351	0.000004	0.000033	0.3486	0.00011	0.00094	9.88652	0.00002	0.00017	1.80
Total						**0.002**	**0.020**	**216**	**0.0005**	**0.004**	**39.4**

Land Use Sources

Natural Gas Use (Land Use)

Source	Units	Natural Gas Use kBTU/sf/yr	Emission Factors, g/kBTU									Peak Day Emissions (lb/day)									Total Emissions (tons)								
			NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Car Wash	4,765	41,459	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0105	0.0006	0.0008	0.0008	0.0045	0.0001	0.0000	0.0012	13.3	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	2.42
Coffee w/drive thru	2,450	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Food w/drive-thru	3,250	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Food w/drive-thru	3,250	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Grocery	18,500	41,014	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0104	0.0006	0.0008	0.0008	0.0044	0.0001	0.0000	0.0012	13.1	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	2.40
Health club	19,900	30,238	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0076	0.0004	0.0006	0.0006	0.0032	0.0000	0.0000	0.0009	9.69	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.77
Office	9,800	28,869	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0073	0.0004	0.0006	0.0006	0.0031	0.0000	0.0000	0.0008	9.25	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.69
Parking Lot	2,800	0.000	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Retail	2,800	9,689	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0024	0.0001	0.0002	0.0002	0.0010	0.0000	0.0000	0.0003	3.11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.567
											Total	**0.130**	**0.008**	**0.011**	**0.011**	**0.056**	**0.001**	**0.0003**	**0.015**	**166**	**0.024**	**0.001**	**0.002**	**0.002**	**0.010**	**0.000**	**0.000**	**0.003**	**30.2**

Land Use Sources

Electricity Use (Water Use)

Source	Water Use/Year	Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
		N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Car Wash	2,600,000	0.000004	0.000033	0.3486	0.000000	0.000001	0.00978	0.0000000	0.0000002	0.00179
Coffee w/drive thru	743,658	0.000004	0.000033	0.3486	0.000000	0.000000	0.00280	0.0000000	0.0000000	0.00051
Food w/drive-thru	986,485	0.000004	0.000033	0.3486	0.000000	0.000000	0.00371	0.0000000	0.0000001	0.00068
Food w/drive-thru	986,485	0.000004	0.000033	0.3486	0.000000	0.000000	0.00371	0.0000000	0.0000001	0.00068
Grocery	2,280,462	0.000004	0.000033	0.3486	0.000000	0.000001	0.00858	0.0000000	0.0000001	0.00157
Health club	1,176,949	0.000004	0.000033	0.3486	0.000000	0.000000	0.00443	0.0000000	0.0000001	0.00081
Landscaping	902,480	0.000004	0.000033	0.3486	0.000000	0.000000	0.00340	0.0000000	0.0000001	0.00062
Office	1,741,791	0.000004	0.000033	0.3486	0.000000	0.000001	0.00655	0.0000000	0.0000001	0.00120
Parking Lot	0	0.000004	0.000033	0.3486	0.000000	0.000000	0.00000	0.0000000	0.0000000	0.00000
Retail	207,403	0.000004	0.000033	0.3486	0.000000	0.000000	0.00078	0.0000000	0.0000000	0.00014
Total					**0.000001**	**0.000004**	**0.0437**	**0.0000001**	**0.000001**	**0.008**

Wastewater Treatment

Source	Wastewater Generated (gallons/yr)	Emission Factor (lb/gal)			Emissions (pound/day)			Emissions (tons/year)		
		N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Car Wash	2,600,000	0.0000017	0.0008020	0.0007800	0.0121	5.7129	5.5562	0.00001	0.00286	0.00278
Coffee w/drive thru	743,658	0.0000017	0.0008020	0.0007800	0.0035	1.6340	1.5892	0.00000	0.00082	0.00079
Food w/drive-thru	986,485	0.0000017	0.0008020	0.0007800	0.0046	2.1676	2.1081	0.00000	0.00108	0.00105
Food w/drive-thru	986,485	0.0000017	0.0008020	0.0007800	0.0046	2.1676	2.1081	0.00000	0.00108	0.00105
Grocery	2,280,462	0.0000017	0.0008020	0.0007800	0.0106	5.0108	4.8733	0.00001	0.00251	0.00244
Health club	1,176,949	0.0000017	0.0008020	0.0007800	0.0055	2.5861	2.5151	0.00000	0.00129	0.00126
Landscaping	0	0.0000017	0.0008020	0.0007800	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000
Office	1,741,791	0.0000017	0.0008020	0.0007800	0.0081	3.8272	3.7222	0.00000	0.00191	0.00186
Parking Lot	0	0.0000017	0.0008020	0.0007800	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000
Retail	207,403	0.0000017	0.0008020	0.0007800	0.0010	0.4557	0.4432	0.00000	0.00023	0.00022
Total					**0.0501**	**23.6**	**22.9**	**0.0000**	**0.012**	**0.011**

Solid Waste

Source	Solid Waste Generated (tons/yr)	Emission Factor (tons/ton)		Emissions (pound/day)		Emissions (tons/year)	
		CH_4	CO_2	CH_4	CO_2	CH_4	CO_2
Car Wash	18.2	0.00844	0.09846	0.0005	0.0054	0.1536	1.79
Coffee w/drive thru	28.2	0.00844	0.09846	0.0007	0.0084	0.2381	2.78
Food w/drive-thru	37.4	0.00844	0.09846	0.0010	0.0111	0.3159	3.69
Food w/drive-thru	37.4	0.00844	0.09846	0.0010	0.0111	0.3159	3.69
Grocery	104.3	0.00844	0.09846	0.0027	0.0310	0.8804	10.27
Health club	113.4	0.00844	0.09846	0.0029	0.0337	0.9571	11.17
Office	9.1	0.00844	0.09846	0.0002	0.0027	0.0769	0.90
Parking Lot	0.000	0.00844	0.09846	0.0000	0.0000	0.0000	0.000
Retail	12.0	0.00844	0.09846	0.0003	0.0036	0.1016	1.19
			Total	**0.01**	**0.107**	**3.04**	**35.5**

Notes:

- Square footage and number of units provided by client
- Daily trips for LDA and LDT2 were estimated from peak AM and PM traffic data obtained from the Draft Traffic Evaluation and Vehicle Miles Traveled Assessment for the Hub Project (C2 Consult Corp, 2024).
- Round trips for medium and heavy duty trucks were estimated.
- Assumes 1% of LDA and LDT2 will be electric vehicles.
- Assumes 15 mile round trips for LDA and LDT2.
- Assumes 25 to 50 mile round trips for medium and heavy duty trucks.

THE HUB DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

TABLE 3: Operational Emission Factors and Assumptions

Onsite Maintenance

Source	Tier	Operational Horsepower	Load Factor	Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)							
				NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	--	25	38	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	624	0.0050	0.0116	0.0000	0.0000	0.6725	0.00002	0.00001	0.00006	1.3752
Trimmer	--	5	91	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	809	0.0041	0.0147	0.0002	0.0002	0.6712	0.00003	0.00002	0.00007	1.7826
Leaf Blower	--	5	94	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513
Other Landscape Equipment	--	5	58	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513

Offsite

Source	Tier	Region	Emission Factors (g/mile)									Emission Factors (lb/mile)								
			NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000000	0.00000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0000
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	261	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000000	0.00000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0000
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1479	0.0014	0.0000	0.0000	0.0000	0.0001	0.00003	0.00051	0.00000	3.2604

Offsite Dust - Mobile Sources

Source	Tier	Region	Emission Factors (g/mile)		Emission Factors (lb/mile)	
			PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.3706	0.0930	0.000817	0.000205
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.3691	0.0925	0.000814	0.000204
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.3715	0.0933	0.000819	0.000206
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.3691	0.0925	0.000814	0.000204
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.4113	0.1073	0.000907	0.000237
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.4366	0.1161	0.000963	0.000256

Offsite

Source	Energy Consumption (kWh/mile)
Passenger Vehicle - EV LDA (offsite)	0.40674
Light-Duty Truck - EV LDT2 (offsite)	0.40674

Recycling and Composting

Recycling and Composting Program	Percentage of Waste Recycled or Composted
	0

Electricity and Natural Gas Use by Land Use

Source	kWhr/Unit/Year	kBtu/Unit/Year
	Electricity	Natural Gas
Car Wash	10,330	41,459
Coffee w/drive thru	40,154	121,851
Food w/drive-thru	40,154	121,851
Food w/drive-thru	40,154	121,851
Grocery	11,825	41,014
Health club	51,217	30,238
Office	20,929	28,869
Parking Lot	876	0.000
Retail	10,351	9,689

Electricity Emission Factors

Source	Electricity Source	Emission Factors (lb/kWhr)		
		N_2O	CH_4	CO_2
Electricity Usage	Southern California Edison	0.000004	0.00003	0.3486

Natural Gas Emissions Factors

Source	Electricity Source	Emission Factors, g/kBTU									Emission Factors (lb/kBTU)								
		NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Natural Gas Residential	California Gas Company	0.041802	0.002446	0.003380	0.003380	0.017788	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977
Natural Gas Commercial	California Gas Company	0.044470	0.002446	0.003380	0.003380	0.037355	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977

Water Energy-Intensity

Source	kWh/Gal
Project Site	0.00394

Solid Waste Disposal Rate

Source	Region	Rate (Tons/Year)
Car Wash	Statewide	18
Coffee w/drive thru	Statewide	28
Food w/drive-thru	Statewide	37
Food w/drive-thru	Statewide	37
Grocery	Statewide	104
Health club	Statewide	113
Office	Statewide	9
Parking Lot	Statewide	0
Retail	Statewide	12

Solid Waste Emissions Factors

Landfill Type	CH_4 (tons/ton)	CO_2 (tons/ton)
No Landfill Gas Collection	0.0084	0.0985

Water Use Rates				Water Use		
Source	**Units or Square Feet**	**Indoor Water Use (gal/unit or Square Feet per yr)**	**Outdoor Water Use (gal/unit or gal/Square Feet per yr)**	**Total Indoor Water Use (gal)**	**Total Outdoor Water Use (gal)**	**Total Water Use (gal)**
Car Wash	4,765	546	0.000	2,600,000	0.000	2,600,000
Coffee w/drive thru	2,450	304	0.000	743,658	0.000	743,658
Food w/drive-thru	3,250	304	0.000	986,485	0.000	986,485
Food w/drive-thru	3,250	304	0.000	986,485	0.000	986,485
Grocery	18,500	123	0.000	2,280,462	0.000	2,280,462
Health club	19,900	59.1	0.000	1,176,949	0.000	1,176,949
Landscaping	85,378	0.000	10.6	0.00	902,480	902,480
Office	9,800	178	0.000	1,741,791	0.000	1,741,791
Parking Lot	2,800	0.000	0.000	0.000	0.000	0.000
Retail	2,800	74.1	0.000	207,403	0.000	207,403
			Total	**10,723,231**	**902,480**	**11,625,711**

Wastewater Treatment	Emission Factor (lb/gal)		
Source	**N_2O**	**CH_4**	**CO_2**
Wastewater Treatment	0.0000017	0.000802	0.00078

Climate Zone	4

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020 and CalEEMod, Appendix G, 2022.
- Electricity and Natural Gas Emission Factors were obtained from CalEEMod, Appendix G 2022.
- Electricity Use by Land Use obtained from CalEEMod, Appendix G 2022.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D- 20164.*
- CO_2 and CH_4 emission factors for equipment were obtained from *CalEEMod Appendix G 2022.*
- CO_2 and CH_4 emission were obtained from *CalEEMod Appendix G 2022.*
- Vehicle emissions factors obtained from EMFAC-2021
- Solid waste and waste water emission factors and waste disposal rates obtained from CalEEMod Appendix G 2022
- Water use rates and wastewater treatment rates obtained from CalEEMod Appendix G 2022
- Waste disposal rates obtained from CalEEMod Appendix G 2022

Daily Vehicle Estimate Email

From: Charley Clouse
To: Andrew Mangano
Cc: Robert Vander Weele; Darlene Mata; Greg Nunley
Subject: Re: Construction and Operational Emissions Estimates - The Hub Development
Date: Thursday, December 12, 2024 11:54:51 AM

Afternoon, One and all,
Looking at the Hub in focus for the AQ assessment, the calculation/estimate for daily trips can be derived from the ITE Trip Generation Manual. Using the Shopping Plaza land use, the estimate for daily trips would be 6,394. Again, this would be total trips at the driveways, not new trips. ITE suggests up to 40% of these trips would be pass-by trips coming from the existing traffic. Applying that factor would result in approximately 3,836 new trips added as a result of the Hub Project.

I would caution use of these numbers for AQ analysis as they represent a different application of the ITE Trip Generation data sets. That said, I believe this represents reasonable estimates of daily trips.

Let me know if you have any questions or need any additional information.
Charley

Prioritization Screening

Name	Prioritization Calculator			
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.			
Author or updater	Robert Vander Weele	*Last Update*	December 18, 2024	
Facility: Proposed Hub Development Project **ID#:** N/A **Project #:** 2402-4031 **Unit and Process#:** Operations Project	Construction			
Operating Hours hr/yr*	2,000.00			

Receptor Proximity and Proximity Factors		Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100	**1.000**	7.11	0.04620	0.00E+00	7.11
100≤R<250	**0.250**	1.78	0.01155	0.00E+00	1.78
250≤R<500	**0.040**	0.28	0.00185	0.00E+00	0.28
500≤R<1000	**0.011**	0.08	0.00051	0.00E+00	0.08
1000≤R<1500	**0.003**	0.02	0.00014	0.00E+00	0.02
1500≤R<2000	**0.002**	0.01	0.00009	0.00E+00	0.01
2000<R	**0.001**	0.01	0.00005	0.00E+00	0.01

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Diesel engine exhaust, particulate matter (Diesel PM)	9901

* - Based on 250 work days per year 8 hours per day

** - Based on max daily PM10 emissions.

*** - Annual PM10 emissions for mobile diesel emissions sources only

Construction

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)**	Maximum Hourly (lbs/hr)	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	3.08E+00	1.17E-02	3.08E+00	1.17E-02	1.54E-03	7.11E+00	4.62E-02	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
							Totals	**7.11E+00**	**4.62E-02**	**0.00E+00**

Name	Prioritization Calculator				
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.				
Author or updater	Robert Vander Weele	*Last Update*	December 17, 2024		
Facility: Proposed Hub Development Project **ID#:** N/A **Project #:** 2402-4031 **Unit and Process#:** Operations Project	Opeations				
Operating Hours hr/yr*	5,475.00				

Receptor Proximity and Proximity Factors		Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100	1.000	8.55	0.02027	0.00E+00	8.55
100≤R<250	0.250	2.14	0.00507	0.00E+00	2.14
250≤R<500	0.040	0.34	0.00081	0.00E+00	0.34
500≤R<1000	0.011	0.09	0.00022	0.00E+00	0.09
1000≤R<1500	0.003	0.03	0.00006	0.00E+00	0.03
1500≤R<2000	0.002	0.02	0.00004	0.00E+00	0.02
2000<R	0.001	0.01	0.00002	0.00E+00	0.01

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Diesel engine exhaust, particulate matter (Diesel PM)	9901

* - Based on 365 work days per year 15 hours per day
** - Based on max daily PM10 emissions.
*** - Annual PM10 emissions for mobile diesel emissions sources only

Opeations

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)**	Maximum Hourly (lbs/hr)	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	9901	1.0000	3.70E+00	1.17E-02	3.70E+00	1.17E-02	6.76E-04	8.55E+00	2.03E-02	0.00E+00
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		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
							Totals	**8.55E+00**	**2.03E-02**	**0.00E+00**

LIVE OAK
ASSOCIATES, INC.

BIOLOGICAL EVALUATION
THE HUB COMMERCIAL DEVELOPMENT
VISALIA, CALIFORNIA

Prepared by:

LIVE OAK ASSOCIATES, INC.

Austin Pearson, Vice President
Rebekah Jensen, Senior Project Manager and Ecologist

Prepared for:

N&M Capital, LLC
1878 N. Mooney Blvd., Suite J
Tulare, CA 93274

September 30, 2024 PN 2917-01

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) investigated the biological resources of an approximately 9-acre site proposed for a commercial development ("project"), and evaluated potential project-related impacts to such resources pursuant to the California Environmental Quality Act (CEQA). The site is located within the southeastern limits of the City of Visalia, in Tulare County, California. Proposed facilities include a grocery store, a gym, several restaurants, a car wash, and associated parking areas and drive lanes

LOA's analysis was based on a reconnaissance-level field survey conducted on September 25, 2024. At that time, the site consisted entirely of a ruderal field. It was vegetated primarily with non-native grasses and forbs, but also contained four native valley oak trees. The site does not contain wildlife movement corridors, sensitive natural communities, designated critical habitat, or aquatic features likely to be considered jurisdictional by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or California Department of Fish and Wildlife.

The project site has the potential to be used for nesting by various avian species protected by state and federal laws, possibly including the special-status loggerhead shrike. The project site also has the potential to support roosting by native bat species, possibly including the special-status pallid bat. Construction-related mortality and disturbance of nesting birds and raptors and roosting bats are considered potentially significant impacts of the project. By limiting construction to lower-risk times of year if feasible, conducting preconstruction surveys for nesting birds and roosting bats, avoiding any active nests or maternity roosts that are found, and humanely evicting bats from any non-maternity roosts, these impacts can be reduced to a less than significant level under CEQA.

No other biological resources would be significantly impacted by project implementation. Impacts are considered less than significant for all regionally-occurring special status plant species, 16 of 18 regionally-occurring special status animal species, wildlife movement corridors, sensitive natural communities, jurisdictional waters, and designated critical habitat. The project appears to be consistent with City of Visalia General Plan policies related to biological resources. It is assumed that project-related removal of oak trees will be carried out in accordance with the City's oak tree ordinance and associated mitigation policy. The project is presumably not subject to any Habitat Conservation Plans or Natural Community Conservation Plans.

TABLE OF CONTENTS

1.0 INTRODUCTION

This technical report, prepared by Live Oak Associates, Inc. (LOA) in support of California Environmental Quality Act (CEQA) review, describes the biological resources of an approximately 9-acre site ("project site") proposed for a commercial development ("project"), and evaluates the potential impacts to biological resources associated with project implementation. The project site is located within the southeastern limits of the City of Visalia, in Tulare County, California (Figure 1). It may be found on the *Visalia* U.S. Geological Survey (USGS) 7.5-minute quadrangle, in Section 33 of Township 18 South, Range 25 East, Mount Diablo Base and Meridian (Figure 2).

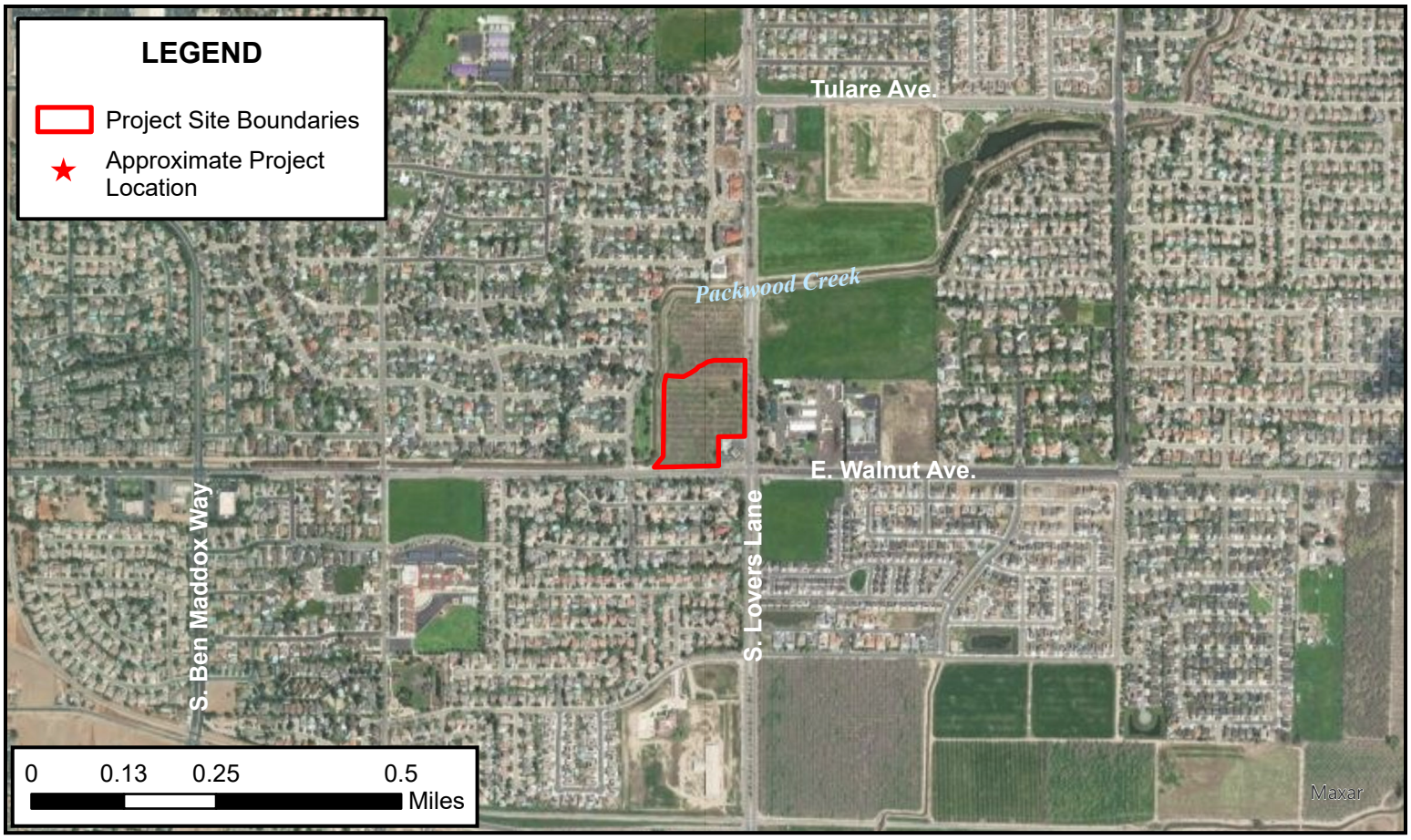
1.1 PROJECT DESCRIPTION

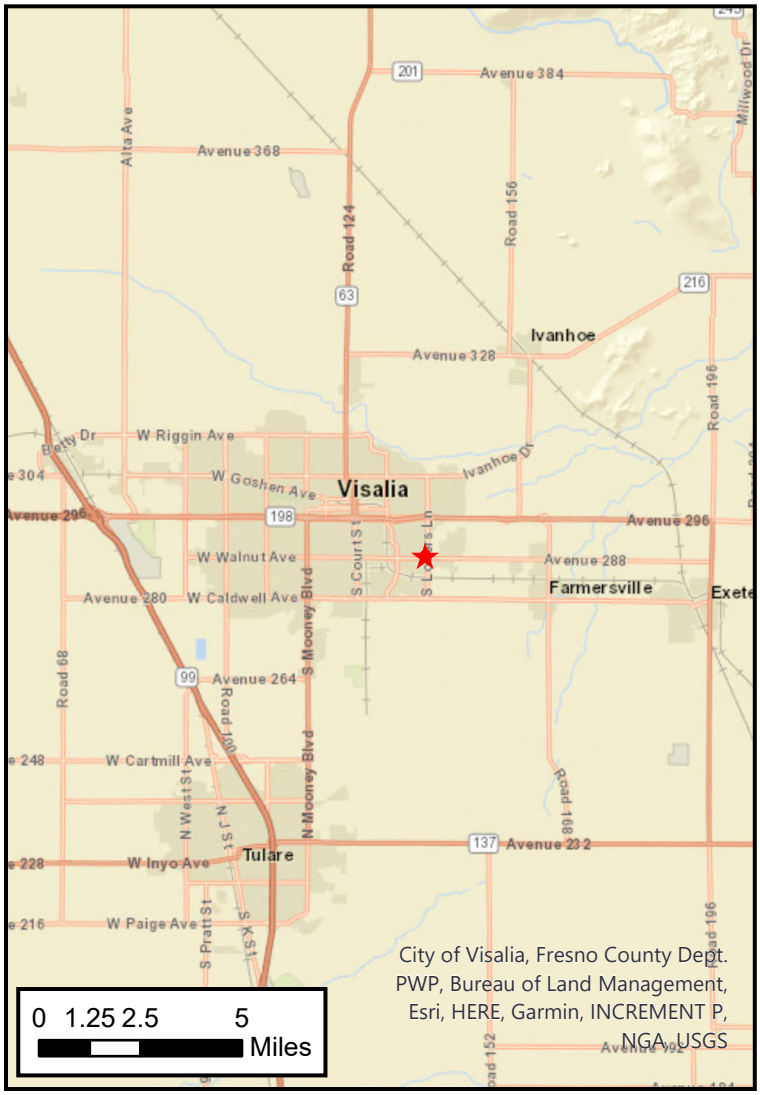
N&M Capital, LLC proposes a commercial development on an approximately 9-acre property in Visalia. Planned facilities include a grocery store, a gym, several restaurants, a car wash, and associated parking areas and drive lanes. According to the site plan, the site's existing valley oak (*Quercus lobata*) trees will be removed, and an approximately 35-foot-wide strip of land along the property's western boundary, contiguous with an urban greenway along Packwood Creek, will be dedicated to the City of Visalia.

1.2 REPORT OBJECTIVES

The objectives of this technical report are to:

- Characterize the project site's existing biological resources, including biotic habitats, flora and fauna, soils, and aquatic resources
- Evaluate the project site's potential to support sensitive resources such as special status species, sensitive natural communities, and jurisdictional waters and wetlands
- Summarize all state and federal natural resource protection laws that may be relevant to project implementation
- Identify and discuss potential project-related impacts to biological resources within the context of CEQA and other state and federal laws
- Identify avoidance and mitigation measures that would reduce the magnitude of project-related impacts in a manner consistent with CEQA and species-specific guidelines





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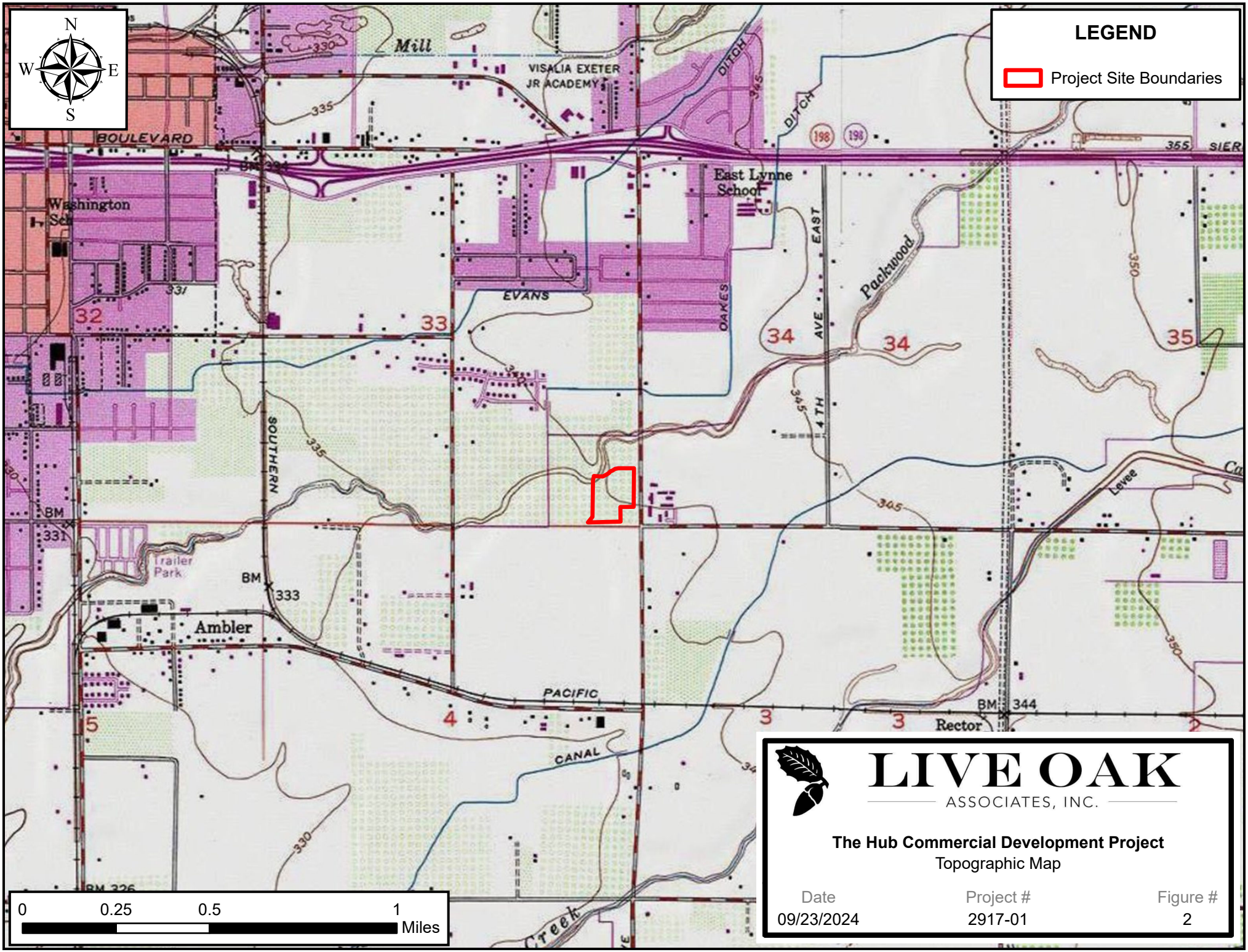
The Hub Commercial Development Project
Vicinity Map

Date	Project #	Figure #
09/23/2024	2917-01	1



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The Hub Commercial Development Project
Topographic Map

Date	Project #	Figure #
09/23/2024	2917-01	2

1.3 STUDY METHODOLOGY

A reconnaissance-level field survey of the project site was conducted on September 25, 2024 by LOA ecologist Jeff Gurule. The survey consisted of walking through the project site while identifying its principal land uses, biotic habitats, flora, and fauna, and assessing its potential to support special status species and other sensitive resources. The survey did not include a formal aquatic resources delineation or focused surveys for special status species. The survey was sufficient to assess the significance of possible biological impacts associated with project implementation, and to assess the need for more detailed studies that could be warranted if sensitive resources were identified in this initial survey.

LOA conducted an analysis of potential project impacts based on the known and potential biotic resources of the project site. Sources of information used in the preparation of this analysis included the *California Natural Diversity Data Base* (CDFW 2024), *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024), and manuals, reports, and references related to plants and animals of the project vicinity.

2.0 EXISTING CONDITIONS

2.1 REGIONAL SETTING

The project site is located in the southeastern San Joaquin Valley of California. The San Joaquin Valley is bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coastal ranges to the west, and the Sacramento-San Joaquin Delta to the north.

Like most of California, the San Joaquin Valley experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation in the project vicinity varies considerably from year to year, but averages approximately 10 inches, almost all of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

The principal drainage in the project vicinity is Packwood Creek, which passes within 50 feet west of the project site at its closest point. Packwood Creek is a distributary of the Kaweah River. It splits from the river channel approximately 3 miles upstream (northeast) of the project site, and flows generally west and south through Visalia. Downstream of Visalia, it enters a series of ditches and canals utilized for agricultural irrigation.

The site is located in southeastern Visalia, in a landscape dominated by urban uses. It is bordered to the north by a ruderal field; to the east by S. Lovers Lane and, beyond that, a CALFIRE station; to the southeast by a gas station and convenience store; to the south by E. Walnut Avenue and, beyond that, a residential development; and to the west by an urban greenway along Packwood Creek and, beyond that, residential development contiguous with the downtown area.

2.2 PROJECT SITE

The project site has level topography and sits at an elevation of approximately 340 feet above sea level. At the time of LOA's field survey, it consisted entirely of a ruderal field. It contains two soil map units: Nord fine sandy loam, 0 to 2 percent slopes and Grangeville sandy loam, drained, 0 to 2 percent slopes (NRCS 2024). The latter soil type is classified as hydric, meaning it has the

propensity to pond water and support the growth of wetland vegetation. However, the site has a long history of agricultural disturbance and is no longer expected to exhibit its native soil characteristics.

Lists of the vascular plant species observed within the project site and the terrestrial vertebrates using, or potentially using, the site are provided in Appendices A and B, respectively. Representative photographs are presented in Appendix C.

2.3 LAND USES / BIOTIC HABITATS

The project site contains a single land use, ruderal field. Analysis of aerial imagery indicates the field was previously an orchard, with the trees removed in 2022 or 2023. At the time of LOA's field survey, the field was vegetated primarily with non-native grasses and forbs including ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), prickly lettuce (*Lactuca serriola*), Canadian horseweed (*Erigeron canadensis*), and Russian thistle (*Salsola tragus*). It also contained four valley oak (*Quercus lobata*) trees, and a small chinaberry (*Melia azedarach*) tree along its Walnut Avenue frontage.

The wildlife value of the site's ruderal field is fairly low due to its degraded nature and high levels of ambient disturbance. The field is most likely to support common, disturbance-tolerant species associated with open habitats, and may also be used incidentally by species associated with the nearby Packwood Creek. Reptiles expected to occur here include the western fence lizard (*Sceloporus occidentalis*), common kingsnake (*Lampropeltis californiae*), and Pacific gopher snake (*Pituophis catenifer catenifer*). Common amphibians such as the western toad (*Bufo boreas*) and Sierran treefrog (*Pseudacris sierra*) may breed in Packwood Creek and subsequently disperse through the field.

The site's field may be used for foraging by a number of common avian species. These include the western kingbird (*Tyrannus verticalis*) in the summer, the Say's phoebe (*Sayornis saya*) and savannah sparrow (*Passerculus sandwichensis*) in the winter, and the Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Haemorhous mexicanus*), American kestrel (*Falco sparverius*) and red-tailed hawk (*Buteo jamaicensis*) year-round. The field could potentially support nesting by the mourning dove (*Zenaida macroura*) and killdeer (*Charadrius vociferus*),

both ground-nesting species. The oak trees could be used for nesting by a larger number of species including American robins (*Turdus migratorius*), Anna's hummingbirds (*Calypte anna*), and Bullock's orioles (*Icterus bullockii*), among others.

Small mammal use of the site's ruderal field is expected to include the deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), and California ground squirrel (*Otospermophilus beecheyi*). Mammalian predators expected to use the field include the raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*). Due to the proximity of residences, domestic dogs (*Canis familiaris*) and cats (*Felis catus*) may also occur here from time to time.

2.4 SPECIAL STATUS PLANTS AND ANIMALS

Many species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided CDFW and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own ranking system, California Rare Plant Ranks (CRPR), for native plants considered rare, threatened, or endangered. Plants with a CRPR ranking of 1 or 2 meet the definitions of the California Endangered Species Act and are eligible for state listing. Collectively, all of the aforementioned plants and animals are referred to as "special status species."

The California Natural Diversity Data Base (CNDDB) (CDFW 2024) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangles containing and immediately surrounding the project site *(Clovis, Lanes Bridge, Friant, Academy, Round Mountain, Sanger, Malaga, Fresno South,* and *Fresno North*). These species, and their potential to occur on site, are listed in Table 1 on the following pages. Sources of information for Table 1 included *California's*

Wildlife, Volumes I, II, and III (Zeiner et. al 1988), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012), CNPS's *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024), Calflora.org, and eBird.org.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
California jewelflower (*Caulanthus californicus*)	FE, CE, CRPR 1B	Occurs in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland in sandy soils. Elevations between 200 and 3,300 feet. Blooms February-May.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Hoover's spurge (*Euphorbia hooveri*)	FT CRPR 1B	Occurs in vernal pools of California's Central Valley; blooms July-September; elevation 80-820 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
San Joaquin Valley orcutt grass (*Orcuttia inaequalis*)	FT, CE CRPR 1B	Occurs in Central Valley vernal pools between 130 and 820 ft. in elevation. Requires deep pools with prolonged periods of inundation. Blooms April-Sept.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CRPR 1B	Annual sunflower occurs in grasslands of the Sierra Nevada foothills in heavy clay soils of the Porterville and Centerville series, between 300 and 2,625 ft. in elevation. Blooms March-April.	**Absent**. Suitable habitat and soils for this species are absent from the project site and adjacent lands.

CNPS-Listed Species

Heartscale (*Atriplex cordulata* var. *cordulata*)	CRPR 1B	Occurs on saline or alkaline soils in chenopod scrub, meadows, seeps, and grasslands; blooms April-October; elevations below 1,230 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Earlimart Orache (*Atriplex cordulata* var. *erecticaulis*)	CRPR 1B	Occurs in valley and foothill grasslands between 130 and 330 ft. in elevation; blooms August-September.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands. Moreover, the site is situated above its elevational distribution.
Brittlescale (*Atriplex depressa*)	CRPR 1B	Occurs in chenopod scrub, valley and foothill grassland, and wetland habitats; blooms April-October; elevations below 1,050 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Lesser Saltscale (*Atriplex minuscula*)	CRPR 1B	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; alkaline/sandy soils; blooms May-October; elevation 50-660 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Vernal Pool Smallscale (*Atriplex persistens*)	CRPR 1B	Occurs in alkaline vernal pools; blooms July-October; elevations below 400 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Subtle Orache (*Atriplex subtilis*)	CRPR 1B	Occurs in valley and foothill grasslands of the San Joaquin Valley; blooms August-October; elevation 130-330 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands. Moreover, the site is situated above its elevational distribution.
Recurved Larkspur (*Delphinium recurvatum*)	CRPR 1B	Occurs in cismontane woodland and valley and foothill grasslands; blooms March-June; alkaline soils; elevations below 2,500 ft.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Spiny-sepaled button-celery (*Eryginum spinosepalum*)	CRPR 1B	Occurs in vernal pools in valley and foothill grasslands of the San Joaquin Valley between 330 and 840 ft. in elevation. Blooms April-May.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (cont'd)

CNPS-Listed Species

Species	Status	Habitat	Occurrence on the Project Site
Spiny-sepaled button-celery (*Eryginum spinosepalum*)	CRPR 1B	Occurs in vernal pools in valley and foothill grasslands of the San Joaquin Valley between 330 and 840 ft. in elevation. Blooms April-May.	**Absent**. Suitable habitat for this species is absent from the project site and adjacent lands.
Winter's sunflower (*Helianthus winteri*)	CRPR 1B	Found within woodland and grassland habitats on relatively steep, south-facing slopes with granitic soils. Often found on roadsides. Elevations 400 to 1,500 ft.; blooms year-round.	**Absent**. Suitable habitat and topography is absent from the project site and adjacent lands. Moreover, the site is situated below this species' elevational distribution.
California satintail (*Imperata brevifolia*)	CRPR 2B	Found in wetland seeps and riparian areas within various types of scrub, chaparral, and desert communities up to 4,000 feet in elevation. Blooms September-May.	**Absent.** Suitable habitat for this species is absent from the project site and adjacent lands.
Alkali-sink goldfields (*Lasthenia chrysantha*)	CRPR 1B	Found in alkaline vernal pools in the southern Sacramento Valley and San Joaquin Valley. Elevations up to 650 ft.; blooms February-June.	**Absent.** Suitable habitat for this species is absent from the project site and adjacent lands.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CRPR 1B	Found in coastal marshes, playas, and vernal pools. Elevations up to 4,000 feet; blooms February-June.	**Absent.** Suitable habitat for this species is absent from the project site and adjacent lands.
California Alkali-Grass (*Puccinellia simplex*)	CRPR 1B	Occurs in saline flats and mineral springs in the Central Valley, San Francisco Bay Area and western Mojave Desert. Elevations up to 3,000 ft.; blooms March-May.	**Absent.** Suitable habitat for this species is absent from the project site and adjacent lands.
Sanford's arrowhead (*Sagittaria sanfordii*)	CRPR 1B	Occurs in shallow freshwater marshes, ponds, sloughs, and ditches of the Central Valley and Sierra Nevada foothills up to 2,100 ft. in elevation. Blooms May-October.	**Absent**. Suitable habitat for this species is absent from the project site.

ANIMALS

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Crotch bumble bee (*Bombus crotchii*)	CCE	A species of open grassland and scrub habitats, the Crotch bumble bee historically ranged throughout central and southern California. Widespread conversion of grassland to agricultural and urban uses has led to its near-extirpation from the Central Valley. Where present, it is associated with remnant grassland and scrub supporting food plants of the *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* genera (Williams et al. 2014).	**Absent.** The project site does not contain suitable habitat for this species, and is situated in a matrix of urban uses incompatible with this species' ecology.
Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra foothills, generally along waterways and in floodplains.	**Absent.** Current accepted VELB distribution does not include the San Joaquin Valley south of Merced County.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Suitable vernal pool habitat for this species is absent from the project site and surrounding lands.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Primarily found in vernal pools, but may use other seasonal wetlands in mesic valley and foothill grasslands.	**Absent.** Suitable vernal pool habitat for this species is absent from the project site and surrounding lands.
California tiger salamander (CTS) (*Ambystoma californiense*)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for aestivation. Although most CTS aestivate within 0.4 mile of their breeding pond, outliers may aestivate up to 1.3 miles away (Orloff 2011).	**Absent.** The site is situated in a matrix of urban uses within which this species would not have been able to persist.
Western spadefoot (*Spea hammondii*)	FPT, CSC	Occurs in grasslands of San Joaquin Valley, where it breeds in vernal pools or other seasonal wetlands and aestivates in underground refugia such as rodent burrows. Baumberger et al. (2019) recorded a mean maximum distance of around 230 feet between breeding and aestivation sites, with an overall maximum of 890 feet.	**Absent.** The site is situated in a matrix of urban uses within which this species would not have been able to persist.
Western pond turtle (*Actinemys marmorata*)	FPT, CSC	Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires partially submerged rocks or logs or sandy banks for basking sites. Nesting takes place in open areas, on a variety of soil types, and up to ¼ mile away from water.	**Unlikely.** The only aquatic feature in the near project vicinity, Packwood Creek, carries seasonal flows and is characterized by a highly maintained engineered channel of low habitat value for western pond turtles, with a dearth of suitable nesting and overwintering habitat in the adjoining urban landscape. This species is not expected to occur in Packwood Creek and, by extension, on the project site itself. The only CNDDB occurrence of the western pond turtle in Visalia is historical in nature, from 1897. The nearest iNaturalist occurrence is more than 5 miles east of the site at the Kaweah Oaks Preserve.
Swainson's hawk (*Buteo swainsoni*)	CT	This breeding migrant to California nests in mature trees in riparian areas and oak savannah, and occasionally in lone trees at the margins of agricultural fields. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Possible.** The project site is situated in an urban landscape generally unsuitable for this species. However, given that Swainson's hawks are occasionally sighted in Visalia (eBird 2024), there is some chance for individuals to pass through or forage on site from time to time. Nesting on or near the site is not expected.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Frequents valley foothill and desert riparian habitats in scattered locations in California.	**Absent**. This species has been extirpated from the project vicinity.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
Tricolored blackbird (*Agelaius tricolor)*	CT	Nests colonially near fresh water in dense cattails or tules, in thickets of willows or shrubs, and increasingly in grain fields. Forages in grassland and cropland areas.	**Possible.** Tricolored blackbirds are occasionally sighted in the general project vicinity (eBird 2024), and may occasionally pass through or forage on site. Nesting habitat is absent from the project site and surrounding lands.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Occurs in chenopod scrub and alkali grasslands in isolated portions of Kings, Tulare, and Kern Counties.	**Absent.** Suitable habitat for this species is absent from the project site and surrounding lands.
San Joaquin kit fox (SJKF) (*Vulpes macrotis mutica*)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged ground squirrel burrows as denning habitat. May become adapted to urban environments, as has occurred in the cities of Bakersfield, Taft, and Coalinga.	**Unlikely.** The SJKF was historically known from the project vicinity, but has not been documented in or around Visalia for many years (CNDDB 2024). Of the 15 CNDDB occurrences within a 10-mile radius of the site, all are from more than 20 years ago, and most are from the 1970s. Since its launch in 2008, iNaturalist has logged no sightings of the SJKF anywhere in Tulare County. The site is situated in a matrix of residential and commercial uses generally incompatible with kit fox ecology. There is no known record of urban-adapted kit foxes in or around Visalia. While portions of the project site are theoretically suitable for kit fox foraging and denning, this species is highly unlikely to occur in the project vicinity such that it would be able to access the site.

ANIMALS (cont'd)

California Species of Special Concern or Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
Northern California legless lizard (*Anniella pulchra*)	CSC	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Requires moist soils.	**Absent.** Suitable habitat for this species is absent from the project site and vicinity.
Burrowing owl (*Athene cunicularia*)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Unlikely.** The project site is situated in a matrix of urban uses incompatible with burrowing owl ecology. There are no known records of the burrowing owl within Visalia city limits, where the site is located (CNDDB 2024, eBird 2024, iNaturalist 2024). While the site could conceivably provide opportunities for burrowing owl foraging and nesting, this species is highly unlikely to occur in the project vicinity such that it would be able to access the site.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

California Species of Special Concern or Fully Protected

Species	Status	Habitat	Occurrence on the Project Site
Loggerhead shrike (*Lanius ludovicianus*)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	**Possible**. This species is occasionally sighted in Visalia (eBird 2024), and has some potential to nest and forage on site.
Pallid bat (*Antrozous pallidus*)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but many also use tree cavities, caves, bridges, and buildings.	**Possible**. The pallid bat could forage on or over the site, and could potentially roost in the site's oak trees.
Western mastiff bat (*Eumops perotis* ssp. *californicus*)	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Roosts in cliff faces, high buildings, and tunnels.	**Possible.** The western mastiff bat could forage over the site, but roosting habitat is absent.
American badger (*Taxidea taxus*)	CSC	Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Utilize subterranean burrows, usually self-dug, for rest and reproduction.	**Unlikely.** The site's disturbed nature and urban setting make it highly unlikely to be occupied or utilized by American badgers.

OCCURRENCE DESIGNATIONS AND STATUS CODES

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

STATUS CODES

FE	Federally Endangered
FT	Federally Threatened
FC	Federal Candidate
CE	California Endangered
CT	California Threatened
CCE	California Candidate Endangered
CFP	California Fully Protected
CSC	California Species of Special Concern
CR	California Rare

CRPR CODES

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened, or Endangered in California and elsewhere
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere

2.5 JURISDICTIONAL WATERS

Jurisdictional waters are those rivers, creeks, drainages, lakes, ponds, reservoirs, and wetlands that are subject to the authority of the USACE, CDFW, and/or the RWQCB. In general, the USACE regulates navigable waters, tributaries to navigable waters, and wetlands with a continuous surface

connection to these waters, where wetlands are defined by the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. All waters under USACE jurisdiction are also regulated by the RWQCB as waters of the State. Additionally, the RWQCB asserts jurisdiction over certain isolated features disclaimed by the USACE. The CDFW has jurisdiction over waters that have a defined bed and bank. The regulation of jurisdictional waters is discussed in more detail in Section 3.2.7.

Aquatic features, including any potentially jurisdictional waters or wetlands, are absent from the project site.

2.6 SENSITIVE NATURAL COMMUNITIES

California contains a wide range of natural communities, or unique assemblages of plants and animals. These communities have largely been classified and mapped by CDFW as part of their Vegetation Classification and Mapping Program (VegCAMP). Natural communities are assigned state and global ranks according to their rarity and the magnitude and trend of the threats they face. Any natural community with a state rank of 3 or lower (on a 1 to 5 scale) is considered "sensitive" and must be considered in CEQA review.

The project site does not contain or adjoin any sensitive natural communities.

2.7 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation.

The project site does not contain any features likely to function as wildlife movement corridors. Packwood Creek adjacent to the site may facilitate some wildlife movement through the surrounding matrix of urban uses, but is unlikely to function as a regionally important movement corridor due to its disturbed nature and limited vegetative cover, and because it does not interconnect blocks of natural land or other high-value wildlife areas.

2.8 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project site and immediate vicinity. The nearest unit of critical habitat is located approximately 10 miles north of the project site at its closest point, and is designated for the protection of several vernal pool species.

3.0 RELEVANT GOALS, POLICIES, AND LAWS

3.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

In California, any project carried out or approved by a public agency that will result in a direct or reasonably foreseeable indirect physical change in the environment must comply with CEQA. The purpose of CEQA is to ensure that a project's potential impacts on the environment are evaluated and methods for avoiding or reducing these impacts are considered before the project is allowed to move forward. A secondary aim of CEQA is to provide justification to the public for the approval of any projects involving significant impacts on the environment.

According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest." Although the lead agency may set its own CEQA significance thresholds, project impacts to biological resources are generally considered to be significant if they would meet any of the following criteria established in Appendix G of the CEQA Guidelines:

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

Furthermore, CEQA Guidelines Section 15065(a) requires the lead agency to make "mandatory findings of significance" if there is substantial evidence that a project may:

- Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare or threatened species.
- Achieve short-term environmental goals to the detriment of long-term environmental goals.
- Produce environmental effects that are individually limited but cumulatively considerable, meaning that the incremental effects of the project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects.

3.2 OTHER RELEVANT LAWS AND POLICIES

3.2.1 City of Visalia General Plan

Cities and counties adopt general plans to guide future development and to protect and/or enhance natural and cultural resources. In general, projects must be consistent with the goals and policies of these general plans. The City of Visalia's general plan was adopted in 2014, and has a planning horizon through 2030.

The Open Space and Conservation Element of the Visalia General Plan includes a number of goals, policies, and implementation programs concerning biological resources. Key policies include: 1) for new development, require a minimum 50-foot setback from the top of bank of Mill, Packwood, and Cameron Creeks *and* a minimum 5-foot setback from the dripline of any associated riparian trees, 2) protect and enhance natural vegetation, particularly sensitive natural communities, 3) establish best management practices for control of invasive plant species where such plants could adversely impact wildlife habitat, 4) establish a "no net loss" standard for sensitive habitat acreage, 5) protect significant stands of valley oak woodlands from further development by designating them for conservation, creating habitat management plans, and/or undertaking restoration activities as appropriate, 6) protect and enhance habitat for special status species, and 7) require protection of sensitive habitat areas and special status species in new development in the following order: avoidance, onsite mitigation, and offsite mitigation.

3.2.2 City of Visalia Valley Oak Tree Ordinance

The City of Visalia has an oak tree ordinance that was established pursuant to Visalia Municipal Code Chapter 12.24. The ordinance establishes policies for the care, trimming, and removal of native valley oak trees. Residents and developers must obtain permission from the City to remove or prune valley oaks, and must provide mitigation for the loss of any valley oaks in accordance with the City's Oak Tree Mitigation Policy. Mitigation options include payment of a mitigation fee, currently assessed at a rate of $120 per inch of diameter at breast height (DBH), and/or in-kind mitigation at a rate of one replacement tree per inch of DBH.

3.2.3 Threatened and Endangered Species

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). The USFWS commonly interprets "take" to include the loss of habitat utilized by a listed species.

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

3.2.4 Migratory Birds

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Native birds are also protected under California state law. The California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

3.2.5 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, 1992), which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.2.6 Nesting Birds

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

3.2.7 Habitat Conservation Plans and Natural Community Conservation Plans

Section 10 of the federal Endangered Species Act establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized

and thoroughly mitigated. A Habitat Conservation Plan (HCP), developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

3.2.8 Wetlands and Other Jurisdictional Waters

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), issued in January 2023 and amended in August 2023. Generally speaking, waters of the U.S. include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide
- The territorial seas
- Interstate waters
- Impoundments of waters otherwise defined as waters of the United States under the definition
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems
- Prior converted cropland
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water
- Certain artificial features, e.g. irrigation basins, swimming pools, borrow pits, and artificially irrigated areas
- Swales and erosional features characterized by low volume, infrequent, or short duration flow

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The SWRCB and RWQCBs also administer the federal National Pollution Discharge Elimination System (NPDES) program, which is concerned with the discharge of stormwater and other pollutants into water bodies. Projects that disturb one or more acres of soil must obtain coverage under the SWRCB's current NPDES Construction Stormwater General Permit. A prerequisite for permit coverage is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Other types of pollutant discharges into waters of the U.S.,

such as wastewater, may require coverage under a different NPDES general permit, and in some cases an individual permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

4.0 IMPACTS AND MITIGATIONS

The following discussions assume that the project site will be entirely converted to commercial uses, other than an area of approximately ½ acre that will be dedicated to the City of Visalia. It is assumed that all four of the site's valley oak trees will be removed to accommodate the development.

4.1 POTENTIALLY SIGNIFICANT PROJECT IMPACTS/MITIGATION

4.1.1 Potential Project Impacts to Nesting Birds and Raptors including the Loggerhead Shrike

Potential Impacts. The project site has the potential to be used for nesting by a variety of avian species. For example, the site's ground vegetation could be used for nesting by the mourning dove, barren areas could be used by the disturbance-tolerant killdeer, and the oak trees could be used by a number of birds including the American robin, Anna's hummingbird, and potentially also the loggerhead shrike (*Lanius ludovicianus*), a California Species of Special Concern. If birds are nesting on or near the site at the time of future residential buildout, individual birds could be killed or disturbed such that they would abandon their nests. Construction-related mortality of nesting birds and construction-related disturbance leading to nest abandonment are potentially significant impacts of the project. Moreover, such incidents would violate the Migratory Bird Treaty Act and California Fish and Game Code.

Loggerhead shrikes are not expected to be adversely affected by project-related loss of habitat. The site's potential nesting and foraging habitats for this species are of relatively low value given the urban setting. Similar or higher quality habitat is regionally abundant. For these reasons, project-related loss of habitat for the loggerhead shrike is considered less than significant under CEQA.

Mitigation. The following measures will be implemented for the protection of nesting birds and raptors including the loggerhead shrike.

Mitigation Measure 4.1.1a (Construction Timing). If feasible, future construction activities will take place entirely outside of the avian nesting season, defined here as February 1 to August 31.

***Mitigation Measure 4.1.1b (Preconstruction Surveys*).** If construction must occur between February 1 and August 31, a qualified biologist will conduct surveys for active bird nests within 7 days prior to the start of work during this period. The survey area will encompass the site and accessible surrounding lands within 250 feet.

***Mitigation Measure 4.1.1c (Avoidance of Active Nests*).** Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.

Implementation of the above measures will reduce potential project impacts to nesting birds and raptors, including the loggerhead shrike, to a less than significant level under CEQA and ensure compliance with state and federal laws protecting these species.

4.1.2 Potential Project Impacts to Roosting Bats including the Pallid Bat

Potential Impacts. A few native bat species have the potential to roost in the project site's few valley oak trees. Among these are the pallid bat (*Antrozous pallidus*), a California Species of Special Concern. Any bats roosting in the trees at the time of their removal are likely to be injured or killed. Construction-related injury or mortality of the pallid bat and other roosting bats is considered a potentially significant impact of the project.

The project will not result in a significant loss of roosting or foraging habitat for the pallid bat. Although a few potential roost structures may be removed, numerous similar structures will remain available elsewhere in the project vicinity. The site does not offer unique foraging habitat for the pallid bat, nor is it likely to represent an important part of any individual foraging range, given its disturbed nature and urban setting. Similar and higher quality foraging habitats are abundant in the project vicinity and elsewhere in the region.

Mitigation. The following measures will be implemented for the protection of roosting bats including the special-status pallid bat.

***Mitigation Measure 4.1.2a* (*Construction Timing*).** To avoid potential impacts to maternity bat roosts, and if feasible, removal of the site's trees will occur outside of the

period between April 15 and September 30. This is the time frame within which colony-nesting bats in the vicinity generally assemble, give birth, nurse their young, and ultimately disperse.

***Mitigation Measure 4.1.2b* (*Pre-construction Surveys*).** Within 10 days prior to the removal of the site's trees, a qualified biologist will survey the trees for roosting bats. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites.

***Mitigation Measure 4.1.2c* (*Avoidance of Maternity Roosts*).** Should any active maternity bat roosts be discovered, the biologist will identify a suitable construction-free buffer around the maternity roost. The buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the nursery is no longer active.

***Mitigation Measure 4.1.2d* (*Humane Eviction of Non-breeding Bats*).** If any non-breeding bat colonies are found in trees to be removed, the individuals will be humanely evicted, under the direction of a qualified biologist, to ensure that bats are not physically harmed during this process.

Implementation of the above measures will reduce potential construction-related impacts to the pallid bat and other roosting bats to a less than significant level under CEQA.

4.2 LESS THAN SIGNIFICANT PROJECT IMPACTS

4.2.1 Potential Project Impacts to Special Status Plants

Potential Impacts. Nineteen special status plant species have been documented in the general vicinity of the project site (see Table 1). All 19 species are considered absent from or unlikely to occur on the project site due to an absence of suitable habitat and/or soils, the site's being situated outside of the species' distribution, or a combination thereof. The project is not expected to adversely affect these species, either directly or indirectly, and impacts are considered less than significant under CEQA.

Mitigation. No mitigation is warranted.

4.2.2 Project Impacts to Special Status Animal Species Absent from or Unlikely to Occur on the Project Site

Potential Impacts. Eighteen special status animal species have been documented in the general vicinity of the project site, or are known to occur regionally (Table 1). Of these, 13 are considered

absent from or unlikely to occur on the site due to the absence of suitable habitat, the site's urban setting and other landscape factors, and/or the site's being situated outside of the species' known distribution. These comprise the Crotch bumblebee (*Bombus crotchii*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondii*), western pond turtle (*Actinemys marmorata*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), San Joaquin kit fox (*Vulpes macrotis mutica*), northern California legless lizard (*Anniella pulchra*), burrowing owl (*Athene cunicularia*), and American badger (*Taxidea taxus*). Because these species have no appreciable potential to occur on site, they are not expected to be affected by the project, directly or indirectly. Project impacts are considered less than significant under CEQA.

Mitigation. Mitigation measures are not warranted.

4.2.3 Project Impacts to Special Status Animal Species that Would Use the Site for Foraging Only

Potential Impacts. Three special status animal species, the Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), and western mastiff bat (*Eumops perotis* ssp. *californicus*), have the potential to forage on the site from time to time but would not utilize the site or immediately adjacent lands for breeding, roosting, or other activities in which they would be vulnerable to construction-related injury, mortality, or disturbance (see Table 1). Individuals of these species are unlikely to be injured or killed by construction activities because they are highly mobile while foraging and would be expected to simply avoid active work areas.

The project would not adversely affect any of these species through loss of foraging habitat. The site does not offer unique habitat for any of these species, nor is it likely to represent an important part of any individual foraging range, given its disturbed nature and urban setting. Similar and higher quality habitats are abundant in the project vicinity and elsewhere in the region. For these reasons, impacts to the Swainson's hawk, tricolored blackbird, and western mastiff bat are considered less than significant under CEQA.

Mitigation. Mitigation is not warranted.

4.2.4 Project Impacts to Wildlife Movement Corridors

Potential Impacts. As discussed, Packwood Creek adjacent to the site may facilitate some wildlife movement through the surrounding matrix of urban uses, but is unlikely to function as a regionally important movement corridor due to its disturbed nature and limited vegetative cover, and because it does not interconnect blocks of natural land or other high-value wildlife areas. Wildlife utilizing this corridor would presumably already tolerate a fairly high level of anthropogenic disturbance, and are not expected to be substantially affected by commercial buildout of the project site. Project impacts to wildlife movement corridors are considered less than significant under CEQA.

Mitigation. Mitigation is not warranted.

4.2.5 Project Impacts to Sensitive Natural Communities and Critical Habitat

Potential Impacts. The project site does not contain or adjoin any sensitive natural communities or designated critical habitat. There will be no impact to such resources.

Mitigation. Mitigation is not warranted.

4.2.6 Project Impacts to Jurisdictional Waters

Potential Impacts. As discussed, the project site does not contain any aquatic features. There will be no impacts to jurisdictional waters associated with proposed residential buildout.

Mitigation. Mitigation is not warranted.

4.2.7 Consistency with Local Policies and Ordinances

Potential Impacts. The project appears consistent with Visalia General Plan policies related to biological resources. It is assumed that project-related tree removal will be carried out in accordance with the City's oak tree ordinance and associated mitigation policy.

Mitigation. Mitigation measures are not warranted.

4.2.8 Consistency with Habitat Conservation Plans and Natural Community Conservation Plans

Potential Impacts. There are no known HCPs or NCCPs that would apply to the project.

Mitigation. Mitigation measures are not warranted.

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APPENDIX A: VASCULAR PLANT LIST

APPENDIX A
VASCULAR PLANTS OF THE PROJECT SITE

The plants listed below were observed on the project site during LOA's September 25, 2024 survey. The wetland indicator status of each plant, derived from the USACE-administered National Wetland Plant List for the Arid West Region, has been shown following its common name if available.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland

AMARANTHACEAE — Amaranth Family		
Amaranthus albus		
Salsola tragus	Russian thistle	FACU
ASTERACEAE – Sunflower Family		
Erigeron canadensis	Canadian Horseweed	FACU
Helianthus annuus	Common Sunflower	FACU
Lactuca serriola	Prickly Lettuce	FACU
BORAGINACEAE- Borage Family		
Amsinckia sp.	Fiddleneck	UPL
CHENOPODIACEAE—Goosefoot Family		
Salsola tragus	Russian Thistle	FACU
FAGACEAE –Oak Family		
Quercus lobata	Valley Oak	FACU
MALVACEAE—Mallow Family		
Malva parviflora	Cheeseweed	UPL
MELIACEAE – Mahogany Family		
Melia azedarach	Chinaberry	UPL
POACEAE – Grass Family		
Avena sp.	Wild Oats	UPL
Bromus diandrus	Ripgut Brome	UPL
Cynodon dactylon	Bermudagrass	FACU
Hordeum murinum	Foxtail Barley	FACU
POLYGONACEAE – Smartweed Family		
Polygonum aviculare	Prostrate Knotweed	FAC
ZYGOPHYLLACEAE—Creosota-bush Family		
Tribulus terrestris	Puncturevine	UPL

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

APPENDIX B
TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may be expected to routinely and predictably use or pass through the project site during some or all of the year. An asterisk denotes a species observed on or immediately adjacent to the site during LOA's September 25, 2024 field survey.

CLASS: AMPHIBIA
ORDER: ANURA (Frogs and Toads)
FAMILY: BUFONIDAE (True Toads)
Western Toad (*Bufo boreas*)
FAMILY: HYLIDAE (Treefrogs and Relatives)
Pacific Tree Frog (*Pseudacris regilla*)
CLASS: REPTILIA
ORDER: SQUAMATA (Lizards and Snakes)
SUBORDER: SAURIA (Lizards)
FAMILY: PHRYNOSOMATIDAE
Side-blotched Lizard (*Uta stansburiana*)
*Western Fence Lizard (*Sceloporus occidentalis*)
FAMILY: TEIIDAE (Whiptails and relatives)
Western Whiptail (*Cnemidophorus tigris*)
SUBORDER: SERPENTES (Snakes)
FAMILY: COLUBRIDAE (Colubrids)
Pacific Gopher Snake (*Pituophis catenifer catenifer*)
Common Kingsnake (*Lampropeltis californiae*)
FAMILY: VIPERIDAE (Vipers)
Western Rattlesnake (*Crotalus viridis*)

CLASS: AVES
ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)
FAMILY: ARDEIDAE (Bitterns, Herons, and Egrets)
Great Blue Heron (*Ardea herodi*as)
Great Egret (*Ardea alba*)
FAMILY: CATHARTIDAE (New World Vultures)
Turkey Vulture (*Cathartes aura*)
ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)
Red-tailed Hawk (*Buteo jamaicensis*)
Red-shouldered Hawk (*Buteo lineatus*)
FAMILY: FALCONIDAE (Caracaras and Falcons)
American Kestrel (*Falco sparverius*)
ORDER: GALLIFORMES (Megapodes, Currassows, Pheasants, and Relatives)
FAMILY: ODONTOPHORIDAE (New World Quails)
California Quail (*Callipepla californica*)
ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)
FAMILY: CHARADRIIDAE (Plovers and relatives)

Killdeer (*Charadrius vociferus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)

FAMILY: COLUMBIDAE (Pigeons and Doves)

Rock Pigeon (*Columba livia*)

*Mourning Dove (*Zenaida macroura*)

Eurasian Collared Dove (*Streptopelia decaocto*)

ORDER: STRIGIFORMES (Owls)

FAMILY: TYTONIDAE (Barn Owls)

Barn Owl (*Tyto alba*)

FAMILY: STRIGIDAE (Typical Owls)

Great Horned Owl (*Bubo virginianus*)

ORDER: PICIFORMES (Woodpeckers and relatives)

FAMILY: PICIDAE (Woodpeckers)

Northern Flicker (*Colaptes auratus*)

*Nuttall's Woodpecker (*Picoides nuttallii*)

ORDER: APODIFORMES (Swifts and Hummingbirds)

FAMILY: TROCHILIDAE (Hummingbirds)

Black-chinned Hummingbird (*Archilochus alexandri*)

Anna's Hummingbird (*Calypte anna*)

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

Black Phoebe (*Sayornis nigricans*)

Say's Phoebe (*Sayornis saya*)

Western Kingbird (*Tyrannus verticalis*)

FAMILY: CORVIDAE (Jays, Magpies, and Crows)

*California Scrub Jay (*Aphelocoma coerulescens*)

American Crow (*Corvus brachyrhynchos*)

Common Raven (*Corvus corax*)

FAMILY: ALAUDIDAE (Larks)

Horned Lark (*Eremophila alpestris*)

FAMILY: HIRUNDINIDAE (Swallows)

Cliff Swallow (*Petrochelidon pyrrhonota*)

Barn Swallow (*Hirundo rustica*)

Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)

FAMILY: AEGITHALIDAE (Bushtits)

Bushtit (*Psaltriparus minimus*)

FAMILY: TROGLODYTIDAE (Wrens)

House Wren (*Troglodytes aedon*)

FAMILY: REGULIDAE (Kinglets)

Ruby-crowned Kinglet (*Regulus calendula*)

FAMILY: TURDIDAE (Thrushes)

Western Bluebird (*Sialia mexicana*)

American Robin (*Turdus migratorius*)

FAMILY: MIMIDAE (Mockingbirds and Thrashers)

Northern Mockingbird (*Mimus polyglottos*)

FAMILY: PARULIDAE (Wood Warblers and Relatives)

*Yellow-rumped Warbler (*Dendroica coronata*)

FAMILY: STURNIDAE (Starlings and Allies)

*****European Starling (*Sturnus vulgaris*)

FAMILY: MOTACILLIDAE (Wagtails and Pipits)

American Pipit (*Anthus rubrescens*)

FAMILY: EMBERIZIDAE (Sparrows)

Savannah Sparrow (*Passerculus sandwichensis*)

White-crowned Sparrow (*Zonotrichia leucophrys*)

Golden-crowned Sparrow (*Zonotrichia atricapilla*)

FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)

Western Meadowlark (*Sturnella neglecta*)

Red-winged Blackbird (*Agelaius phoeniceus*)

Great-tailed Grackle (*Quiscalus mexicanus*)

Brewer's Blackbird (*Euphagus cyanocephalus*)

Brown-headed Cowbird (*Molothrus ater*)

Bullock's Oriole (*Icterus bullockii*)

FAMILY: FRINGILLIDAE (Finches)

*House Finch (*Carpodacus mexicanus*)

Lesser Goldfinch (*Carduelis psaltria*)

FAMILY: PASSERIDAE (Old World Sparrows)

House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA

ORDER: DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

Virginia Opossum (*Didelphis virginiana*)

ORDER: INSECTIVORA (Shrews and Moles)

FAMILY: TALPIDAE (Moles)

Broad-footed Mole (*Scapanus latimanus*)

ORDER: CHIROPTERA (Bats)

FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)

Yuma Myotis (*Myotis yumanensis*)

California Myotis (*Myotis californicus*)

Western Pipistrelle (*Pipistrellus hesperus*)

Big Brown Bat (*Eptesicus fuscus*)

Pale Big-eared Bat (*Corynorhinus townsendii pallescens*)

FAMILY: MOLOSSIDAE (Free-tailed Bat)

Brazilian Free-tailed Bat (*Tadarida brasiliensis*)

ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)

FAMILY: LEPORIDAE (Rabbits and Hares)

Audubon's Cottontail (*Sylvilagus audubonii*)

ORDER: RODENTIA (Rodents)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

*California Ground Squirrel (*Otospermophilus beecheyi*)

FAMILY: GEOMYIDAE (Pocket Gophers)

*Botta's Pocket Gopher (*Thomomys bottae*)

FAMILY: MURIDAE (Mice, Rats and Voles)

Western Harvest Mouse (*Reithrodontomys megalotis*)
Deer Mouse (*Peromyscus maniculatus*)
Norway Rat (*Rattus norvegicus*)
House Mouse (*Mus musculus*)
California Vole (*Microtus californicus*)

FAMILY: HETEROMYIDAE (Kangaroo Rats)

Heermann's Kangaroo Rat (*Dipodomys heermanni*)

ORDER: CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves, and Relatives)

Red Fox (*Vulpes vulpes*)
Coyote (*Canis latrans*)
Domestic Dog (*Canis familiaris*)

FAMILY: PROCYONIDAE (Raccoons and Relatives)

Raccoon (*Procyon lotor*)

FAMILY: MUSTELIDAE (Weasels and Relatives)

Striped Skunk (*Mephitis mephitis*)

FAMILY: FELIDAE (Cats)

Feral Cat (*Felis cattus*)

APPENDIX C: REPRESENTATIVE PHOTOS OF THE PROJECT SITE

Photo 1 (above). Facing south along the project site's Lovers Lane frontage, toward adjacent off-site gas station. **Photo 2 (below).** Facing west along the project site's Walnut Avenue frontage. Small chinaberry tree visible in foreground.

Photo 3 (above). The project site's ruderal field and one of four on-site valley oak trees. **Photo 4 (below).** Largest of the site's valley oak trees.

Photo 5 (above). Off-site urban greenway along Packwood Creek. Packwood Creek is visible at left and project site at right. An approximately 35-foot-wide strip of land at the project site's interface with the urban greenway will be dedicated to the City of Visalia.

Phase I Cultural Resources Assessment for The Hub Commercial Development Project, City of Visalia, Tulare County, California

Consuelo Y. Sauls, M.A., RPA

Prepared By

Taylored Archaeology
6083 N. Figarden Dr., Ste 616
Fresno, CA 93722

Prepared For
N&M Capital, LLC
1878 Mooney Blvd.
Tulare, CA 93274

October 2024

USGS Visalia 7.5' topographic quadrangle
8.87-acre project boundary; intensive pedestrian survey
Keywords: Negative Findings

MANAGEMENT SUMMARY

Taylored Archaeology completed a Phase I Cultural Resources Assessment for The Hub Commercial Development Project (Project). The Project consists of an 8.87-acre property in Visalia, Tulare County, California at the northwest corner of East Walnut Avenue and South Lovers Lane. The Project proposes to zone and develop the property into a series of commercial stores, offices with associated parking, infrastructure, and landscaping. The Project is subject to the California Environmental Quality Act (CEQA).

This Phase I Cultural Resources Assessment in compliance with CEQA requirements, entails (1) a records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), (2) archival research, (3) a search of the Native American Heritage Commission's (NAHC) Sacred Lands File, a request for Native American local contact information, and nongovernmental Native American outreach; and (4) an archaeological pedestrian survey of the Project boundary.

The records search results at the SSJVIC identified two prior cultural resources studies and no cultural resources recorded within the Project area. Further review of these studies showed that neither one covered the Project site. The SSJVIC reported four prior cultural resources studies and five historic-era cultural resources within a 0.5-mile buffer. These resources do not intersect the Project boundary.

The NAHC's Sacred Lands File search yielded negative results and did not identify sacred places within the Project area. Outreach to local Native American representatives was conducted and did not result in the identification of sacred or special sites with the Project site. No responses were received regarding the proposed Project.

No cultural resources were identified on the ground surface during the pedestrian survey. The absence of cultural material on the ground surface does not, however, preclude the possibility of Project construction unearthing buried archaeological deposits. Therefore, it is recommended cultural resources compliance approval under provisions of CEQA be provided.

Based on the results of this investigation and to ensure there are no potential Project impacts, Taylored Archaeology recommends the following:

- In the event that previously unidentified archaeological remains are encountered during development or ground-moving activities in the Project boundary, all work should be halted until a qualified archaeologist can identify the discovery and assess its significance. In the event of accidental discovery of unidentified archaeological remains during development or ground-moving activities in the Project site, all work shall be halted in the immediate vicinity until a qualified archaeologist can identify the discovery and assess its significance.

- If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

A copy of this report will be provided to the SSJVIC for inclusion in the CHRIS database.

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APPENDICIES

FIGURES

TABLES

1
INTRODUCTION

Taylored Archaeology performed a Phase I cultural resources assessment for The Hub Commercial Development Project (Project) in the City of Visalia in Tulare County, California. As part of development approval process, the City of Visalia as lead agency must comply with the California Environmental Quality Act (CEQA). California Public Resources Code [PRC] 21000 [g] mandates that government agencies consider the impacts of a project on the environment, including cultural resources.

1.1 PROJECT DESCRIPTION AND LOCATION

The Project site is a vacant lot currently zoned for commercial use (C-3), and the proposed Project consists of the zoning and construction of 8.87 acres of commercial development for a total of 362,327 square feet of commercial buildings, parking lots, and associated landscaping.

The Project boundary covers approximately 8.87-acres of vacant land within Tulare County Assessor's Parcel Number 100-370-025 and is in the City of Visalia, California (Figure 1-1). The Project boundary is within Section 33 of Township 18 South, Range 25 East, Mount Diablo Meridian of the Visalia, California 7.5-minute USGS quadrangle (Figure 1-2).

1.2 REGULATORY SETTING

1.2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to CEQA, a historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources. Historical resources may include, but are not limited to, "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically or archaeologically significant" (PRC §5020.1[j]). In addition, a resource included in a local register of historical resources or identified as significant in a local survey conducted in accordance with the state guidelines are also considered historic resources under California Public Resources Code (PRC) Section 5020.1.

According to California Code of Regulations (CCR) Title 14 §15064.5 (a)(3), criteria for listing on the California Register of Historical Resources includes the following:

> (A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
> (B) Is associated with the lives of persons important in our past.
> (C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
> (D) Has yielded, or may be likely to yield, information important in prehistory or history.

According to CEQA guidelines §21074 (a)(1)(2), criteria for tribal cultural resources includes the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following: (A) included or determined to be eligible for inclusion in the California Register of Historical Resources. (B) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

1.3 PROFESSIONAL QUALIFICATIONS

Archaeologist Consuelo Y. Sauls (M.A.), a Registered Professional Archaeologist (RPA 41591505), managed the assessment and compiled this report for the Project. Ms. Sauls also conducted the records search, literature review, requested Sacred Lands File and performed the pedestrian field survey of the Project site. Ms. Sauls meets the Secretary of the Interior's Standards for Professional Qualifications in Archaeology. Statement of Qualifications for key personnel is provided in Appendix A.

Figure 1-1 Project vicinity in Tulare County, California.

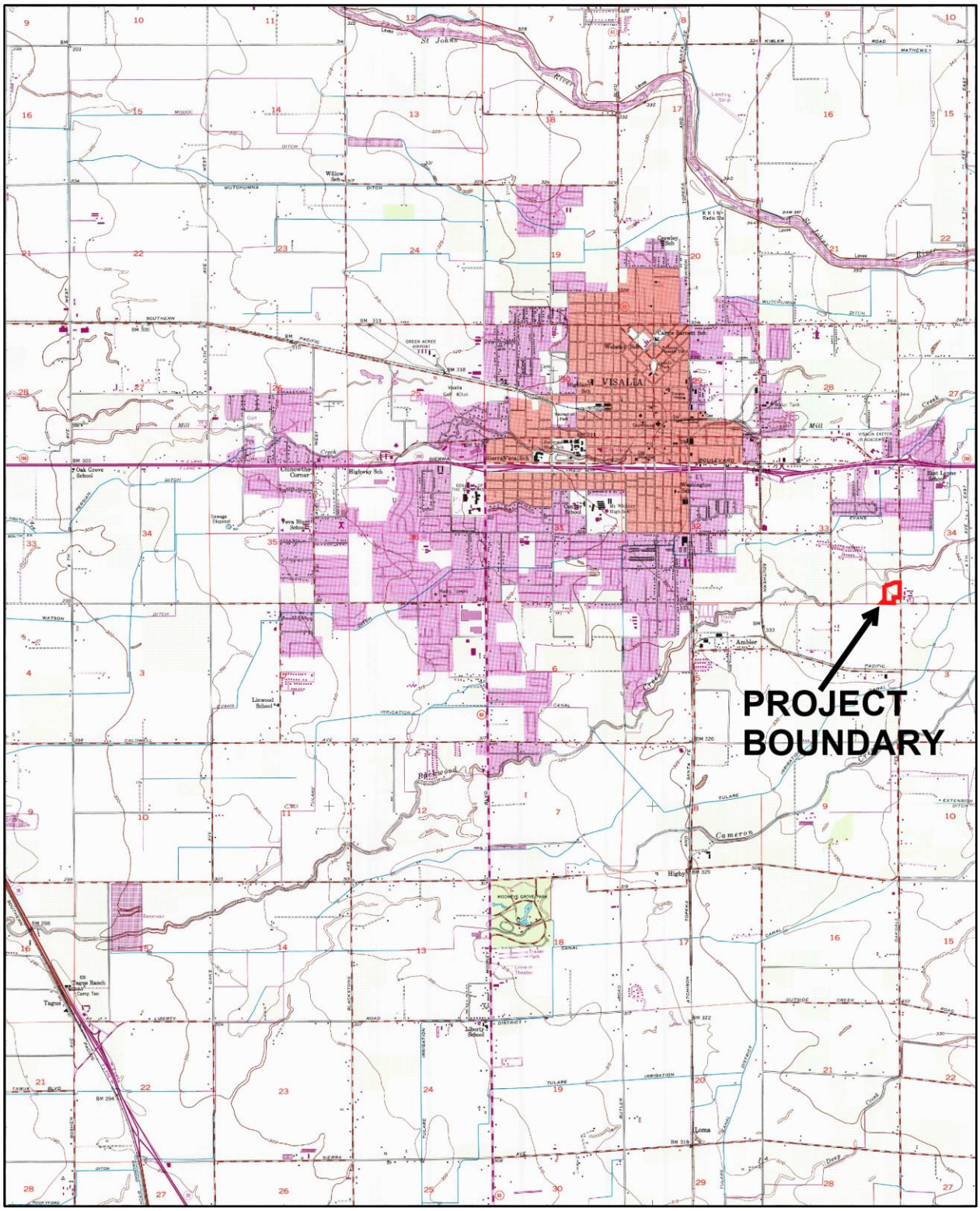

Figure 1-2 Project location on the USGS Visalia, CA 7.5-minute quadrangle.

Figure 1-3 Aerial view of the Project boundary.

1.4 REPORT STRUCTURE

This report documents the results of a cultural resource assessment of the proposed Project area. In order to comply with California regulations for CEQA, the following specific tasks were completed: (1) requesting a records search from the Southern San Joaquin Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), at California State University, Bakersfield; (2) requesting a Sacred Lands File Search and list of interested parties from the Native American Heritage Commission (NAHC) and initiating outreach to local Native American individuals and tribal representatives; (3) conducting an archaeological pedestrian survey, and (4) preparing this technical report.

Taylored Archaeology prepared this report following the California Office of Historic Preservation standards in the 1990 Archaeological Resources Management Report Recommended Contents and Format. Chapter 1 describes the introduction of the Project and its location, and identifies the key personnel involved in this report. Chapter 2 summarizes the Project setting, including the natural, prehistoric ethnography, and historic background for the Project area and surrounding area. Chapters 3 details the methods used for cultural records searches, local Native American outreach, and archaeological pedestrian survey. Chapter 4 summarizes the results of the cultural resource investigation. Chapter 5 discusses the Project findings and offers management recommendations. Chapter 6 is a bibliography of references cited within this report. The report also contains the following appendices: qualifications of key personnel (Appendix A), the CHRIS records search results (Appendix B), and Taylored Archaeology's nongovernmental Native American outreach (Appendix C).

2
PROJECT SETTING

2.1 NATURAL ENVIRONMENT

The Project area lies in the Central Valley of California, which is approximately 450 miles from north to south, and ranges in width east to west from 40 to 60 miles (Prothero 2017). The Central Valley is divided into two subunits, the Sacramento Valley in the north and the San Joaquin Valley in the south, which are each named after the primary rivers within each valley (Madden 2020). The Project is located approximately 340 feet above sea level on the open flat plains of the Southern San Joaquin Valley. Climate within the San Joaquin valley is classified as a 'hot Mediterranean climate', with hot and dry summers, and cool damp winters characterized by periods of dense fog known as 'tule fog' (Prothero 2017).

The San Joaquin Valley is a comprised of a structural trough created approximately 65 million years ago and is filled with nearly six miles of sediment (Bull 1964). The San Joaquin Valley ranges from Stockton and the San Joaquin-Sacramento River Delta in the north to Wheeler Ridge to the south, ranging nearly 60 miles wide at its widest (Zack 2017). It is split by late Pleistocene alluvial fans between the San Joaquin River hydrologic area in the north and the Tulare Lake Drainage Basin in the south (Rosenthal et al 2007). The Project site is located within the latter of the two hydrologic units. The Kaweah, Tule, Kern, and Kings rivers flowed into large inland lakes with no outflow except in high flood events, in which the lakes would flow through the Fresno Slough into the San Joaquin River. The largest of these inland lakes was Tulare Lake, which occupied a vast area of Tulare and Kings Counties and was the largest freshwater lake west of the Mississippi. These four rivers in the Tulare Lake Drainage Basin accounted for more than 95 percent of water discharged into Tulare Lake, with the remaining five percent sourced from small drainages originating in the Coast Ranges to the west (Adams et al. 2015).

The Project is in central western Tulare County on the valley floor of the San Joaquin Valley within the greater Kaweah River Delta alluvial fan. Specifically, the Project is located on a former bank of Packwood Creek, which is a distributary of the Kaweah River (Hammond 1885). Distributaries form when debris-laden river waters meet abrupt changes in channel and slope confinement, resulting in unstable channel networks that change with time (Wagner et al. 2013).

Before the appearance of agriculture in the nineteenth century, the general Project location would have been comprised of prairie grasslands with scattered oak tree savannas near the foothills, and riparian forest along the various streams and drainages (Preston 1981).

Riparian environments would also have been present along various waterways, including drainages and marshes. Riparian forest vegetation would have been comprised of multiple layers of dense undergrowth. The upper canopy species would have consisted of Western sycamore (*Platanus racemosa*), willow (*Salix* spp.), valley oak (*Quercus lobata*), and Fremont cottonwood (*Populus fremonti*) (Katibah 1984). Intermediate layers were likely dominated by Oregon ash (*Fraxinus latifolia*), willow (*Salix* spp.), and California box elder (*Acernegundo* subsp. *californicum*), while riparian forest undergrowth would have included California wild grape (*Vitis*

californica), poison oak (*Rhus diversiloba*), California mugwort (*Artemisia douglasiana*), California wild rose (*Rosa californica*), and blackberry (*Rubus* spp.) Drier portions of the southern end of the San Joaquin Valley would have been dominated by saltbrush (*Atriplex* spp.) desert. (Katibah 1984).

The region around the Project site was largely dominated by annual grasslands in drier upland habitat, and riparian forest, rivers and marshland near waterways. Historically, these habitats provided a lush environment for a variety of animals, including rodents, insects, reptiles, birds and other waterfowl, California grizzly bear (*Ursus arctos californicus*), tule elk (*Cervus canadensis nannodes*), pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), American black bear (*Ursus americanus*), and mountain lion (*Puma concolor*) (Preston 1981). Native trees and plants observed in the Project vicinity include various blue, live, and white oaks (*Quercus* spp.), cottonwood (*Populus spp.*), and willow (*Salix* spp.). The introduction of agriculture to the region resulted in large animals being forced out of their habitat. Common land mammals now include coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), kit fox (*Vulpes macrotis*), and rabbits (*Leporidae* spp.).

Rivers and lakes throughout the valley provide habitat for freshwater fish, including rainbow trout (*Oncorhynchus mykiss*), Sacramento sucker (*Catostomus occidentalis*), and Sacramento perch (*Archoplites interruptus*) (Preston 1981). Chinook salmon (*Oncorhynchus tshawytscha*) were also found throughout the valley, including as far south as the San Joaquin River, and occasionally the Kings River, though it is estimated that chinook salmon have lost as much as 72 percent of their original habitat throughout the Central Valley (Yoshiyama et al. 2001).

2.2 PREHISTORIC SETTING

Research into San Joaquin Valley prehistory began in the early 1900s with several archaeological investigations (Rosenthal et al. 2007). The Southern San Joaquin Valley is of one of the least understood areas within California due to a lack of well-grounded chronologies for large segments of the valley (Rosenthal et al. 2007). This is largely due to the valley floor being filled with thick alluvial deposits, and from human activity largely disturbing much of the valley floor due to a century and a half of agricultural use (Dillon 2002; Siefken 1999). Mound sites may have occurred as frequently as one every two or three miles along major waterways but studying such mounded occupations sites is difficult as most surface sites have been destroyed (Schenck and Dawson 1929). Much of the early to middle Holocene archaeological sites may be buried as deep as 10 meters due to millennia of erosion and alluvial deposits from the western Sierras (Moratto 1984).

Mass agricultural development has heavily disturbed and changed the landscape of the Southern San Joaquin Valley, from the draining of marshes and the vanishing of the extensive Tulare Lake, known as “Pa’ashi” meaning “Big Water” in the Yokut language, to grading nearly the entire valley for agricultural operations (Garone 2011). These activities have impacted or scattered much of the shallow surface deposits and mounds throughout the valley (Rosenthal et al 2007). Some researchers have suggested that potentially as much as 90 percent of all Central California archaeological sites have been destroyed from these activities (Riddell 2002).

The cultural traits and chronologies which are summarized below are largely based upon information discussed in multiple sources, including Fredrickson (1973, 1974), Garfinkel (2015), McGuire and Garfinkel (1980), Moratto (1984), and Rosenthal et al. (2007). The most recent comprehensive approach to compiling a chronology of the Southern San Joaquin Valley prehistory is by Garfinkel in 2015, which builds off Rosenthal's 2007 previous work. Both Garfinkel's and Rosenthal's chronologies are calculated in years B.C. In the interest of maintaining cohesiveness with modern anthropological research, the dates of these chronologies have been adapted into years before present (B.P.).

The Paleo-Indian Period (13,500-10,600 cal B.P.) was largely represented by ephemeral lake sites which were characterized by atlatl and spear projectile points. Around 14,000 years ago, California was largely a cooler and wetter place, but with the retreat of continental Pleistocene glaciers, California largely experienced a warming and drying period. Lakes filled with glacial meltwater were located in the valley floor and used by populations of now extinct large game animals. A few prehistoric sites were discovered near the southwestern shore of Tulare Lake (Garfinkel 2015). Foragers appear to have operated in small groups which migrated on a regular basis.

During the Lower Archaic Period (10,500-7450 cal B.P.), climate change created a largely different environment which led to the creation of larger alluvial fans and flood plains. Most of the archaeological records of the prior period wound up being buried by geological processes. During this time, cultural patterns appear to have emerged between the foothill and valley populations of the local people. The foothill sites were often categorized by dense flaked and ground stone assemblages, while the valley sites were instead characterized by a predominance of crescents and stemmed projectile points. Occupation within the area is represented mostly by isolated discoveries and along the former shoreline of Tulare Lake. Archaeological finds are typically characterized by chipped stone crescents, stemmed points, and other distinctive flakes stone artifacts (Rosenthal et al. 2007). Variations in consumption patterns emerged as well, with the valley sites more marked by consumption of waterfowl, mussels, and freshwater fish, while the foothills sites saw an increase in nuts, seeds, and a more narrowly focused diet than the valley sites.

The Middle Archaic (7450-2500 cal B.P.) saw an increase in semi-permanent villages along river and creek settings, with more permanent sites located along lakes with a more stable supply of water and wildlife. Due to the warmer and drier weather of this period, many lakes within the valley dramatically reduced in size, while some vanished completely (Garone 2011). Cultural patterns during this time saw an increase in stone tools, while a growth in shell beads, ornaments, and obsidian evidence an extensive and ever-growing long-distance trade network. Little is known of cultural patterns in the valley during the Upper Archaic (2500-850 B.P.), but large village structures appeared to be more common around local rivers. An overall reduction of projectile point size suggests changing bow and arrow technologies. Finally, the Emergent Period (850 cal B.P. - Historic Era) was generally marked by an ever-increasing specialization in tools, and the bow and arrow generally replaced the dominance of the dart and atlatl. Cultural traditions ancestral to those recorded during ethnographic research in the early 1900s are identifiable.

2.3 ETHNOGRAPHY

The Project boundary is in the Southern Valley Yokuts ethnographic territory of the San Joaquin Valley. The Yokuts were generally divided into three major groups, the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothill Yokuts. The Yokuts are a sub-group of the Penutian language that covers much of coastal and central California and Oregon (Callaghan 1958). The Yokuts language contained multiple dialects spoken throughout the region, though many of them were mutually understandable (Merriam 1904).

The Yokuts have been extensively researched and recorded by ethnographers, including Powers (1877), Kroeber (1925), Gifford and Schenck (1926, 1929), Gayton (1930, 1945), Driver (1937), Harrington (1957), Latta (1977), and Wallace (1978). Much of the research from these ethnographers focuses on the central Yokuts tribes due to the northernmost tribes being impacted by Euro-Americans during the California Gold Rush of the mid 1800s, and by the southernmost tribes often being removed and relocated by the Spanish to various Bay Area or coastal missions. The central Yokuts tribes, and especially the western Sierra Nevada foothill tribes, were the most intact at the time of ethnographic study.

The most detailed ethnographic information gathered regarding Native American group territories in Central California is located within maps prepared by Kroeber. The information presented in Kroeber's map of Southern and Central Yokuts shows the Project area within the Telamni Yokuts territory (1925: Plate 47). The main ethnographic village for this area was *Waitatahulul*, which was approximately 3 miles to the southwest of the Project boundary along Packwood Creek (Kroeber 1925). Primary Yokuts villages were typically located along lakeshores and major stream courses, with scattered secondary or temporary camps and settlements located near gathering areas in the foothills. Yokuts were organized into local tribes, with one or more linked villages and smaller settlements within a territory (Kroeber 1925).

Each local tribe was a land-owning group that was organized around a central village and shared common territory and ancestry. Most local tribe populations ranged from 150 to 500 people (Kroeber 1925). These local tribes were often led by a chief, who was often advised by a variety of assistants including the winatum, who served as a messenger and assistant chief (Gayton 1930). Early studies by Kroeber (1925), Gifford and Schenck (1926), and Gayton (1930) concluded that social and political authority within local tribes was derived from male lineage and patriarchy. However, more recent reexaminations (Dick-Bissonnette 1998) argue that this assumption of patriarchal organization was based on male bias by early 20th century researchers, and instead Yokuts sociopolitical authority was matriarchal in nature and centered around matrilineal use-rights and women's work groups.

Prior to Euro-American contact, there was abundance of natural resources within the greater Tulare Lake area. Due to these resources, Yokuts maintained some of the largest populations in North America west of the continental divide (Cook 1955a).

2.4 HISTORIC SETTING

2.4.1 California History

European contact in modern-day California first occurred in 1542 with the arrival of a Spanish expedition lead by Juan Rodríguez Cabrillo into San Diego Bay (Engstrand 1997). Expeditions along the California coast continued throughout the sixteenth century and primarily focused on finding favorable harbors for further expansion and trade across the Pacific. However, rocky shorelines, unfavorable currents, and wind conditions made traveling north from New Spain to the upper California coast a difficult and time-consuming journey (Eifler 2017). The topography of California, with high mountains, large deserts, and few natural harbors lead to European expansion into California only starting in the 1760s. As British and Russian expansion through fur trading encroached on California from the north, Spain established a system of presidios, pueblos, and missions along the California coast to defend its claim, starting with Mission San Diego de Alcalá in 1769 (Engstrand 1997).

2.4.2 Central California History

The San Joaquin Valley did not experience contact with Europeans until the late 1700s (Starr 2007). Life at the California missions was hard and brutal for Native Americans, with many dying of disease, poor conditions, and many fleeing to areas not under direct Spanish control (Jackson and Castillo 1995). The earliest exploration of the San Joaquin Valley by Europeans was likely by the Spaniards when in the fall of 1772 a group known as the Catalonian Volunteers entered the valley through Tejon Pass in search of deserters from the Southern California Missions (Zack 2017). However, the group only made it as far north as Buena Vista Lake in modern day Kern County before turning around due to the extensive swamps. Additional excursions to the valley were for exploration such as those led by Lieutenant Bariel Moraga in 1806, but also to find sites for suitable mission sites and to track down Native Americans fleeing the coastal missions (Cook 1958).

Subsequent expeditions were also sent to pursue outlaws from the coast who would often flee to the valley for safety. One of the subsequent explorations was an expedition in 1814 to 1815 with Sargent Juan Ortega and Father Juan Cabot, who left the Mission San Miguel with a company of approximately 30 Spanish soldiers and explored the San Joaquin Valley (Smith 2004). This expedition passed through the Kaweah Delta and modern-day Visalia and made a recommendation to establish a mission near modern-day Visalia. However, with European contact also came European disease. Malaria and other new diseases were brought by Europeans, and in 1833 an epidemic of unknown origin traveled throughout the Central Valley. Some estimates place the Native American mortality of the epidemic as high as 75 percent (Cook 1955b). Combined with the rapid expansion of Americans into California in 1848 during the Gold Rush, Native American populations within the valley never fully recovered (Eifler 2017).

Initial settlement within the valley by Europeans in the 1830s was largely either by trappers like Jedediah Smith or horse thieves like Pegleg Smith (Clough and Secrest 1984). In fact, horse and other livestock theft was so rampant that ranching operations on the Rancho Laguna de Tache

by the Kings River and Rancho del San Joaquin Rancho along the San Joaquin River could not be properly established (Cook 1962). With the end of the Mexican American War and the beginning of the gold rush in 1848, the San Joaquin Valley became more populated with ranchers and prospectors. Most prospectors traveled by sea to San Francisco and used rivers ranging from the Sacramento River to the San Joaquin River to access the California interior (Eifler 2017). Most areas south of the San Joaquin River were less settled simply because those rivers did not connect to the San Francisco Bay area except in wet flood years. By 1850, California became a state and Tulare County was established in 1853.

2.4.3 Local History

The City of Visalia is one of the oldest cities within the Southern San Joaquin Valley and was founded in 1852. By the late 1850s the town of Visalia was a major station along the Butterfield Overland Mail stage route as it traveled north from Los Angeles to Stockton (Helmich 2008). During the first few decades, Visalia was a supply center for nearby gold rushes, served as the regional population center of Tulare County, and had an agricultural economy based on livestock and some agriculture (Dyett and Bhatia 2014). During the 1850s and 1860s roughly made earthen ditches and dams diverted stream water for irrigation, with the earliest ditches in the San Joaquin Valley being constructed in Visalia between 1852 to 1853 (Caltrans 2000). The Southern Pacific Railroad was extended from Fresno into Tulare County in the early 1870s but bypassed the City of Visalia as the city was located six miles to the east of the rail line (Small 1926).

The construction of the rail line also brought an increase in agriculture and farms, which clashed with existing ranching operations in the local area. Escalating conflicts and livestock disputes between ranchers and farmers lead to the “No Fence Law” in 1874, which forced ranchers to pay for crop and property damage caused by their cattle (Ludeke 1980). With the passage of this law and the expansion of irrigation systems, predominant land use in the 1870s switched from grazing to farming (Mitchell 1974). This led to the beginning of the vast change of the San Joaquin Valley from native vegetation and grasslands to irrigated crops (Varner and Stuart 1975).

Water rights within California originally arose from the ‘first come first serve’ policy of the Gold Rush era. Diverting surface water to farms became big business but was a convoluted mess of customs, traditions, and conflicting claims (Zack 2017). Fed up with the situation, small farmers gathered behind Modesto lawyer C.C. Wright, who was elected to the California legislature in 1887 on the platform of taking water rights from large estates and putting it in the power of community-controlled irrigation districts (Hundley 1992). To solve this mess, the Wright Act of 1887 was passed that allowed residents to petition a local county board of supervisors to create irrigation districts that had the power to issues bonds, and tax land within the district boundaries to pay for the creation and maintenance of canals and ditches for irrigation purposes.

One of the first three districts created under the new act was the Tulare Irrigation District (TID), which was organized on September 21, 1889 (Caltrans 2000). The TID originally covered 219,000 acres from the foothills of the Sierra Nevada to the eastern boundary of Tulare Lake but was ultimately reduced to approximately 32,000 acres (Zack 2017).

At the same time as the Wright Act, an important step forward was made in ditch-digging technology that allowed irrigation systems to be built at a faster pace. From the 1840s to 1890s, farm ditches and canals were largely constructed through the use of buckboards and slip-scoops, which involved the use of a board pulled by horses in an uprights position in order to level ground (Bulls 2010). Between 1883 and 1885, Scottish immigrant James Porteous had moved to Fresno and made significant improvements to the buckboard style scraper that allowed the new scraper to be pulled by two horses and scrape and move soil while dumping it at a controlled depth. This new design was patented and sold as the "Fresno Scraper", which lead to an explosion of ditch digging efforts within the San Joaquin Valley (Zack 2017).

With the passage of a $500,000 bond approved by residents of the newly formed TID, construction of the Tulare Irrigation Canal started in 1891 (Small 1926). Starting at the St. John's River, the main canal was sixty-four feet wide and six feet deep, with a capacity of 500 cubic feet per second, and supplied water to farms as far south as the City of Tulare.

3
METHODS

3.1 RECORDS SEARCH

On August 27, 2024, Taylored Archaeology requested a cultural resource records search from the SSJVIC of the CHRIS at California State University in Bakersfield, California. The purpose of this request was to identify and review prior cultural resource studies and previously recorded cultural resources on or near the Project boundary. The records search included prior cultural resources investigation reports conducted, previously recorded resources within the Project boundary and the 0.5- mile radius around the Project boundary (Appendix B). Also included in research were cultural resource records (DPR forms) as well as the Historic Properties Directory of the Office of Historic Preservation list, General Land Office Maps, Archaeological Determinations of Eligibility list, and the California Inventory of Historic Resources list.

3.2 ARCHIVAL RESEARCH

Archival research was conducted to investigate the historical background for any potential historic structures, buildings and historical deposits that may exist and land use within the Project boundary. Historical maps, historical aerial photographs, historical US Geological Survey (USGS) topographic maps, Google Earth aerial photographs, Google Street View photos, Map Aerial Locator Tool (MALT) at the Henry Madden Library, California State University, Fresno, books, articles and other records were used to better understand the prehistory and history of the Project area. The results of this research are presented in Chapter 4.

3.3 NATIVE AMERICAN OUTREACH

Taylored Archaeology requested a Sacred Lands File (SLF) search from the NAHC on August 27, 2024. The SLF search was requested to identify whether there are sensitive or sacred tribal cultural resources in the vicinity of the Project boundary that could be affected by the proposed Project. The NAHC also included contact information of local Native American representatives who may have knowledge or interest in sharing information of resources of sacred significance present in or near the Project boundary. Each individual listed was sent a nongovernmental outreach letter and a map were sent via email notifying them of the Project and asking if they had any knowledge of the Project area or surrounding vicinity. Follow-up communication was performed via email and phone calls, as appropriate. The SLF results are in Chapter 4.

3.4 ARCHAEOLOGICAL PEDESTRIAN SURVEY

On September 14, 2024, Archaeologist Consuelo Sauls conducted an archaeological pedestrian survey of the 8.87-acre Project site. The survey began in the southeast corner of the Project boundary and was completed from east to west along transects oriented south to north using parallel transects spaced 5 meters apart in most of the Project boundary. All areas of the Project boundary were accessible and surveyed. The archaeologist carefully inspected all exposed

ground surface and rodent burrow back-dirt piles and other areas of bare earth for soil discoloration that could indicate the presence of artifacts (e.g., lithics and ceramic sherds), soil depressions, and features indicating of the former presence of buildings or structures (e.g., postholes and foundations). The Project boundary was checked for both prehistoric deposits and historic-age features, structures, and artifacts more than 50 years old that may be present on the ground surface. The archaeologist photographed portions of the Project site using digital camera. A survey plan map of the site boundary was used to see vegetation, structures, map out transects and surveyed, and recorded observations on field notes, and collected locational data on a Gaia Global Positioning System application.

4
RESULTS

4.1 RECORDS SEARCH

The SSJVIC provided the records search results in a letter dated September 9, 2024 (Appendix B). According to the search results, two prior cultural resource studies were conducted within the Project area (Table 4-1). Further review of these studies showed that neither one covered the Project site. TU-00041 is an archaeological field survey and report for a proposed pipeline corridor which in the local area only surveyed along the State Route 99 corridor, approximately 7 miles west of the Project site. TU-01190 is a historical account of the Mariposa War of 1850-1851 and is not pertinent to this Project area. In addition, four previous cultural resources studies were within a 0.5-mile radius of the Project boundary as depicted in Table 4-2. None of these studies intersected the Project boundary.

The SSJVIC reported there were no cultural resources previously documented within the Project area. Five cultural resources were recorded within a 0.5-mile radius of the Project boundary (Table 4-3). These resources are historic-era resources and they do not intersect the Project boundary.

Table 4-1
Previous Cultural Resources Studies within the Project Area

Report Number	Author(s)	Date	Report Title	Study
TU-00041	William Self	1995	Class I Overview, Santa Fe Pacific Pipeline Partners, L.P., Proposed Concord to Colton Pipeline Project	Archaeological Field Survey (Survey was two miles west of Project area.)
TU-01190	Annie R. Mitchell	1957	Jim Savage and the Tulareño Indians	Book (No survey of Project area.)

Table 4-2
Previous Cultural Resources Studies within 0.5-mile of the Project Area

Report Number	Author(s)	Date	Report Title	Study
TU-00214	R.J. Cantwell	1978	Archaeological and Historical Survey Report for Road 137 (Pinkham) from D-136 (K Road) to Avenue 295, Tulare County, California	Archaeological and Architectural/Historical Field Survey

Report Number	Author(s)	Date	Report Title	Study
TU-01166	Adrianna L. Jackson	2002	Cultural Resource Assessment for Telecommunications Facility VIS-017-C (Cars-4U), 1147 South Lover's Lane, Visalia, Tulare County, California	Archaeological and Architectural/Historical Field Survey
TU-01936	Consuelo Y. Sauls	2022	Phase I Cultural Resources Assessment for the Higgin's Ranch Annexation and Tentative Subdivision Map Project, City of Visalia, Tulare County, California	Archaeological and Architectural/Historical Field Survey
TU-01966	Peter A. Carey, David S. Whitley and Robert Azpitarte	2022	Phase I Survey, Pearl Woods Subdivision Project, Tulare County, California	Archaeological and Architectural/Historical Field Study

Table 4-3
Previously Recorded Cultural Resources within 0.5-mile radius of the Project Area

Resource Number	Age Association	Resource Type	Resource Description	Year Recorded	Distance from Project Boundary
P-54-002179	Historic	Structure	Evans Ditch and Mill Creek Levees	2017 (Applied Earthworks)	0.5 miles north
P-54-004626	Historic	Structure	Southern Pacific Railroad	2020 (ASM Affiliates)	0.48 miles south
P-54-005290	Historic	Structure	Oakes Ditch and Mill Creek Water Company	2017 (Applied Earthworks)	0.22 miles north
P-54-005296	Historic	Structure	Tulare Irrigation Canal	2022 (Karana Hattersley-Drayton)	0.4 miles southeast
CHL 471	Historic	Monument	Butterfield Stage Route – A plaque placed by the California State Park Commission in Cooperation with the Tulare County Historical Society	Unknown	Within 0.5 miles, exact location unknown.

4.2 ARCHIVAL RESEARCH

A review of historical aerial photographs of the Project site and its surrounding area through MALT showed it has been utilized for agricultural purposes since at least 1885. Available historic map coverage of the Project site begins in 1885. A review of an 1885 irrigation map of the Visalia area shows the Project site as owned by a "Cutler" with the northwestern portion of the Project site crossed by Packwood Creek (Hammond 1885). A more detailed survey map of Tulare County from 1892 shows the site as owned by a "G.W. Small" with Packwood Creek crossing the site similar to the 1885 irrigation map (Thompson 1892). The next available historical map of the Project site is a 1927 USGS topographic map, which depicts the site by an unnamed dirt road to the east with the same alignment as present-day South Lovers Lane and bordered to the south by an unnamed dirt road in the same alignment as present-day East Walnut Avenue, and finally with the northwestern portion of the site intersected by Packwood Creek (USGS 1927, Figure 4-1).

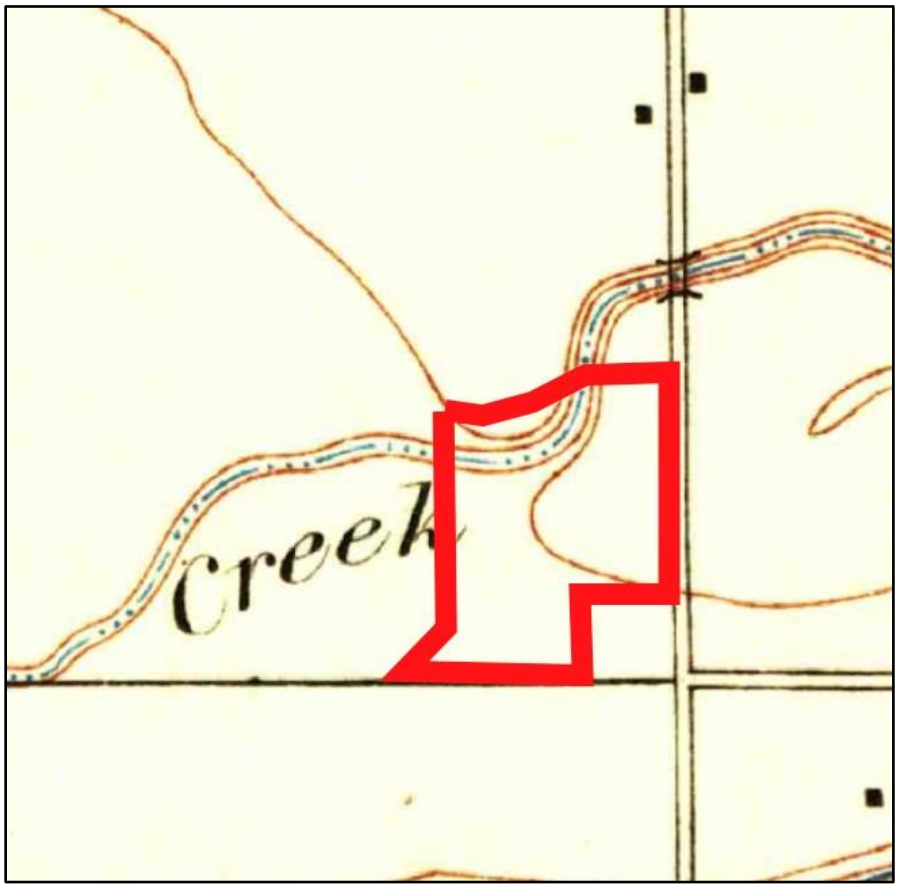

Figure 4-1 1927 topo map showing Packwood Creek, Project site in red (USGS 1927)

The Project site is shown in a similar manner in the 1949 topographic map, and by 1969 Packwood Creek appears to have been realigned outside of the Project site similar to its present-day alignment (USGS 1949, 1969). Topographic maps from 2012 to 2021 show increased suburban

development surrounding the Project site, especially to the north, west, and south (USGS 2012-2021).

Available historic aerial photograph coverage of the Project site began in 1946 with historic aerial photographs by the United State Agricultural Adjustment Administration (USAAA), which depicts the Project site in similar configuration to the 1949 USGS topographic map (USAAA 1946, Figure 4-2). A historic aerial photograph from 1956 shows the Packwood Creek as having been realigned similar to the 1969 topographic map (NETROnline 2024). By 1969 the California Department of Forestry and Fire Protection - Visalia Station appears to have been developed east of the Project site across South Lovers Lane, and by 1984 residential development appears to have been constructed to the west of the Project site (NETROnline 2024). In a 1994 aerial photograph the residential development south of the Project site appears to be in the initial stages of construction and by 2003 a fuel station appears to have been constructed adjacent to the southeast (Google Earth 2024). Finally in 2022, a bike trail was constructed adjacent to the west of the Project site and in 2023 the orchard appears to have been removed (Google Earth 2024). Based on available historic aerial coverage, the Project site appears to have been utilized as an orchard from at least 1946 to 2023, and the area surrounding the Project site has been slowly transitioning from agricultural to single-family suburban use since 1984 (NETROnline 2024, Google Earth 2024).

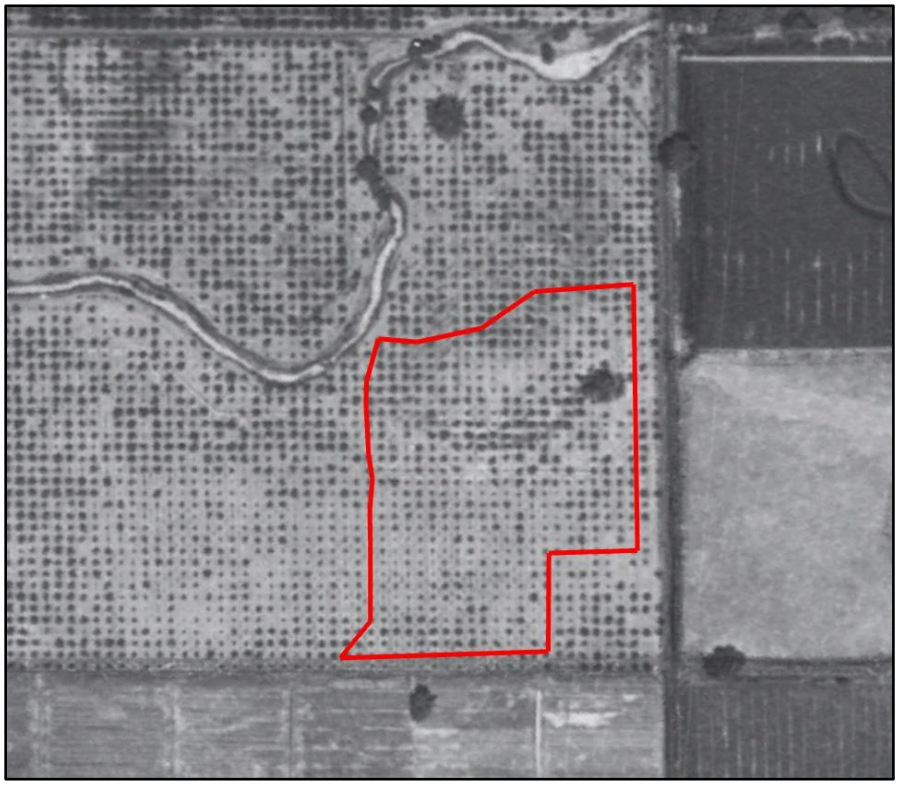

Figure 4-2 1946 aerial photograph showing Packwood Creek, Project site in red (USAAA 1946)

4.3 NATIVE AMERICAN OUTREACH

The NAHC responded on August 29, 2024, via email with a letter regarding Taylored Archaeology's request. The SLF search did not identify the presence of tribal cultural resources in the proposed Project boundary. The NAHC supplied a list of Native American representatives to contact for information or knowledge of cultural resources in the Project site and the surrounding area (Appendix C).

The following Native American organizations/individuals were contacted from the list provided by NAHC below:

1. Chairperson Robert Ledger of Dumna Wo-Wah Tribal Government
2. Chairperson Delia Dominguez of the Kitanemuk & Yowlumne Tejon Indians
3. Cultural Specialist I Nichole Escalon of the Santa Rosa Rancheria Tachi Yokut Tribe
4. Tribal Historic Preservation Officer Shana Powers of the Santa Rosa Rancheria Tachi Yokut Tribe
5. Cultural Specialist II Samantha McCarty of the Santa Rosa Rancheria Tachi Yokut Tribe
6. Chairperson Michelle Heredia-Cordova of Table Mountain Rancheria
7. Cultural Resource Director Bob Pennell of Table Mountain Rancheria
8. Chairperson David Alvarez of Traditional Choinumni Tribe
9. Environmental Department Director Kerri Vera of the Tule River Tribe
10. Tribal Archaeologist Joey Garfield of the Tule River Indian Tribe
11. Chairperson Neil Peyron of the Tule River Indian Tribe
12. Chairperson Kenneth Woodrow of the Wuksache Indian Tribe/Eshom Valley Band

The NAHC Native American Contact List included the following individuals for the Santa Rosa Rancheria Tachi Yokut Tribe: Cultural Specialist I Nichole Escalon, Tribal Historic Preservation Officer Shana Powers, and Cultural Specialist II Samantha McCarty. Per a September 13, 2024, from Samantha McCarty, Nichole Escalon has been designated by Tribal Council as the new Tribal Historic Preservation Officer and Shana Powers no longer works for the tribe.

The outreach letters were sent via email to each individual on the contact list on September 17, 2024 (Appendix C). The letters included a description of the proposed Project and a topographic and aerial map of the location. Follow-up emails were sent on September 26, 2024. As of the date of this report, no responses have been received.

4.4 ARCHAEOLOGICAL SURVEY RESULTS

The landscape on the Project site consisted of open field (Figure 4-3). The oak tree in Figure 4-3 appears to be the same oak tree seen in the 1946 aerial photograph previously shown in Figure 4-2. As mentioned in Section 4.2, the project site was a former orchard previously removed in 2023. Most of the site within the Project boundary was disked and plowed.

Overall, the ground visibility within the Project boundary was mostly good (95 to 100 percent) (Figure 4-4). Rodent burrows and any related soil piles were closely observed for lithic scatters or for indications of buried deposits. Surface sediments were observed to be light brown sandy loam with abundant silt with many angular shaped pebbles and gravel. Soils observed consisted of a light brown sandy loam consistent throughout the Project site.

No other archaeological sites, isolated artifacts, buildings or features were encountered on the ground surface during the pedestrian survey. The natural topography of the area has been altered by historical and modern agricultural practices and much of the land on the Project site has been graded, plowed, planted and/or harvested, which has caused additional disturbance to the soil. While past agricultural and development activities may have potentially destroyed or obscured ground surface evidence of archaeological resources within the Project site, intact archaeological resources may potentially exist below the ground surface.

Figure 4-3 Overview of project site, facing north.

Figure 4-4 Overview of ground visibility in southern portion of project site, facing east.

5
SUMMARY AND RECOMMENDATION

Taylored Archaeology performed a Phase I Cultural Resources Assessment for The Hub Commercial Development Project. The Project proposes the zoning and construction of 8.87 acres of commercial development for a total of 362,327 square feet of commercial buildings, parking lots, and associated landscaping. Taylored Archaeology's assessment consisted of a records search from the SSJVIC, archival research to gather background information on the site, nongovernmental Native American outreach, and a pedestrian survey. No cultural resources were identified on the ground surface within the Project boundary. Furthermore, an examination of historical topographic maps and aerial images indicates that the Project site has largely been used for agricultural purposes and was located adjacent to a former channel of Packwood Creek. The absence of cultural material on the ground surface does not, however, preclude the possibility of Project construction unearthing buried archaeological deposits.

The records search results at the SSJVIC identified two prior cultural resources studies and no cultural resources recorded within the Project area. Further review of these studies showed that neither one covered the Project site. The SSJVIC reported four prior cultural resources studies and five historic-era cultural resources within a 0.5-mile radius. These resources do not intersect the Project boundary.

A search of the NAHC's Sacred Lands File was negative and did not result in the identification of sacred places within the Project area. Outreach to local Native American representatives did not result in the identification of sacred or special sites with the Project site. Finally, the pedestrian survey did not identify any cultural resources on the ground surface within the Project site.

Based on the results of this investigation Taylored Archaeology recommends the following:

- In the event that previously unidentified archaeological remains are encountered during development or ground-moving activities in the Project boundary, all work should be halted until a qualified archaeologist can identify the discovery and assess its significance. In the event of accidental discovery of unidentified archaeological remains during development or ground-moving activities in the Project site, all work shall be halted in the immediate vicinity until a qualified archaeologist can identify the discovery and assess its significance.

- If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

6
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APPENDIX A

Personnel Qualifications

Consuelo Sauls, M.A., RPA 41591505
Archaeologist
csaulsarchaeo@gmail.com
559.797.1572

Areas of Expertise

- Cultural Resource Management
- CEQA and Federal regulations
- Prehistoric Archaeology
- Laboratory Management
- Technical Writing
- Phase I Assessments

Years of Experience

- 16

Education

- M.A., Archaeology, University of Durham, 2014
- B.A., Anthropology, California State University, Fresno, 2009

Registrations/Certifications

- Registered Professional Archaeologist 41591505

Professional Affiliations

- Coalition for Diversity in California Archaeology
- Society for American Archaeology
- Society for California Archaeology
- Society of Black Archaeologists

Professional Experience

2019 –Present Principal Investigator, Taylored Archaeology, Fresno, California

2018 – 2019 Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California

2016 – 2018 Principal Investigator, Soar Environmental Consulting, Inc., Fresno, California

2015 Archivist/Database Technician, Development and Conservation Management, Inc., Laguna Beach, California

2013 Laboratory Research Assistant, Durham University Archaeology Department and Archaeology Museum, Durham, England, UK

2011 – 2012 Laboratory Technician, University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, Pennsylvania

2008 – 2009 Laboratory Technician, California State University, Fresno

2008 Field School, California State University, Fresno

Technical Qualifications

Ms. Sauls meets the Secretary of the Interior's Professional Qualification Standards as an archaeologist. She has conducted pedestrian surveys, supervised Extended Phase I survey, authored technical reports, and completed the Section 106 process with the State Historic Preservation Officer and Tribal Historic Preservation Officer. Her experience includes data recovery excavation at Western Mono sites and processing recovered artifacts in the laboratory as well as conducting archival research about prehistory and ethnography of Central California. Ms. Sauls has authored and contributed to technical and letter reports in compliance with of the National Historical Preservation Act (NHPA) Section 106 and the California Environmental Quality Act (CEQA). She also has supported NHPA tribal consultation and responded to Assembly Bill 52 tribal comments. Ms. Sauls also has an extensive background supervising laboratory processing, cataloging, and conservation of prehistoric and historical archaeological collections. In addition, she worked with the Rock Art Heritage Group in the management, preservation, and presentation of rock art in museums throughout England, including a thorough analysis of the British Museum's rock art collections. At Durham University Archaeology Museum, Ms. Sauls processed the excavated skeletal remains of 30 individuals from the seventeenth century.

APPENDIX B

Records Search Results

California Historical Resources Information System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

9/9/2024

Consuelo Sauls
Taylored Archaeology
6083 N. Figarden Drive, Suite 616
Fresno, CA 93722

Re: The Hub
Records Search File No.: 24-401

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on Visalia USGS 7.5' quads. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ GIS data

Resources within project area:	None
Resources within 0.5 mile radius:	P-54-002179, 004626, 005290, 005296; Informal: CHL-471
Reports within project area:	TU-00041, 01190
Reports within 0.5 mile radius:	TU-00214, 01166, 01936, 01966

Resource Database Printout (list):	☒ enclosed ☐ not requested ☐ nothing listed
Resource Database Printout (details):	☒ enclosed ☐ not requested ☐ nothing listed
Resource Digital Database Records:	☒ enclosed ☐ not requested ☐ nothing listed
Report Database Printout (list):	☒ enclosed ☐ not requested ☐ nothing listed
Report Database Printout (details):	☒ enclosed ☐ not requested ☐ nothing listed
Report Digital Database Records:	☒ enclosed ☐ not requested ☐ nothing listed
Resource Record Copies:	☒ enclosed ☐ not requested ☐ nothing listed
Report Copies:	☒ enclosed ☐ not requested ☐ nothing listed
OHP Built Environment Resources Directory:	☒ enclosed ☐ not requested ☐ nothing listed
Archaeological Determinations of Eligibility:	☒ enclosed ☐ not requested ☐ nothing listed
CA Inventory of Historic Resources (1976):	☒ enclosed ☐ not requested ☐ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see https://dot.ca.gov/programs/environmental-analysis/cultural-studies/california-historical-bridges-tunnels

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see https://livingatlas.arcgis.com/topomapexplorer

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see https://www.slc.ca.gov/shipwrecks/

Soil Survey Maps: Not available at SSJVIC; please see http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Jeremy E David
Assistant Coordinator

APPENDIX C

Native American Outreach

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710

August 29, 2024

Consuelo Sauls
Taylored Archaeology

Via Email to: ***csaulsarchaeo@gmail.com***

Re: The Hub Project, Tulare County

Dear Mr. Sauls:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Tulare County
8/29/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Tulare	Dumna Wo-Wah Tribal Government	N	Robert Ledger, Chairperson	2191 West Pico Ave. Fresno, CA, 93705	(559) 540-6346		ledgerrobert@ymail.com	Foothill Yokut Mono	Fresno,Kern,Madera,Tulare	
	Kitanemuk & Yowlumne Tejon Indians	N	Delia Dominguez, Chairperson	115 Radio Street Bakersfield, CA,	(626) 339-6785		2deedominguez@gmail.com	Kitanemuk Southern Valley Yokut	Fresno,Kern,Kings,Los Angeles,Madera,Monterey,San Benito,San Luis Obispo,Tulare	
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Nichole Escalon, Cultural Specialist I	P.O. Box 8 Lemoore, CA, 93245	(559) 924-1278		nescalone@tachi-yokut-nsn.gov	Southern Valley Yokut	Fresno,Kern,Kings,Merced,Monterey, San Benito,San Luis Obispo,Tulare	10/3/2023
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Shana Powers, THPO	P.O. Box 8 Lemoore, CA, 93245	(559) 423-3900		spowers@tachi-yokut-nsn.gov	Southern Valley Yokut	Fresno,Kern,Kings,Merced,Monterey, San Benito,San Luis Obispo,Tulare	10/3/2023
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Samantha McCarty, Cultural Specialist II	P.O. Box 8 Lemoore, CA, 93245	(559) 633-3440		smccarty@tachi-yokut-nsn.gov	Southern Valley Yokut	Fresno,Kern,Kings,Merced,Monterey, San Benito,San Luis Obispo,Tulare	10/3/2023
	Table Mountain Rancheria	F	Michelle Heredia-Cordova, Chairperson	P.O. Box 410 Friant, CA, 93626	(559) 822-2587	(559) 822-2693	mhcordova@tmr.org	Yokut	Fresno,Kern,Kings,Madera,Monterey, San Benito,San Luis Obispo,Tulare	12/21/2023
	Table Mountain Rancheria	F	Bob Pennell, Cultural Resource Director	P.O. Box 410 Friant, CA, 93626	(559) 325-0351	(559) 325-0394	rpennell@tmr.org	Yokut	Fresno,Kern,Kings,Madera,Monterey, San Benito,San Luis Obispo,Tulare	
	Traditional Choinumni Tribe	N	David Alvarez, Chairperson	2415 E. Houston Avenue Fresno, CA, 93720	(559) 217-0396	(559) 292-5057	davealvarez@sbcglobal.net	Foothill Yokut	Fresno,Kern,Madera,Tulare	
	Tule River Indian Tribe	F	Kerri Vera, Environmental Department	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	kerri.vera@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne	7/22/2016
	Tule River Indian Tribe	F	Joey Garfield, Tribal Archaeologist	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	joey.garfield@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne	7/22/2016
	Tule River Indian Tribe	F	Neil Peyron, Chairperson	P.O. Box 589 Porterville, CA, 93258	(559) 781-4271	(559) 781-4610	neil.peyron@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne	
	Wuksachi Indian Tribe/Eshom Valley Band	N	Kenneth Woodrow, Chairperson	1179 Rock Haven Ct. Salinas, CA, 93906	(831) 443-9702		kwood8934@aol.com	Foothill Yokut Mono	Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Stanislaus,Tulare,Tuolumne	6/19/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed The Hub Project, Tulare County.

Record: PROJ-2024-004500
Report Type: List of Tribes
Counties: Tulare
NAHC Group: All

Taylored Archaeology

EXAMPLE

September 17, 2024

David Alvarez, Chairperson
Traditional Choinumni Tribe
2415 E. Houston Avenue
Fresno, CA 93720

RE: The Hub Commercial Development Project, Visalia, Tulare County, California

Dear David Alvarez,

Taylored Archaeology, under contract to N & M Capital, LLC, is providing cultural resource services for the proposed The Hub Commercial Development Project (Project) in Visalia, Tulare County, California. The proposed Project will construct a commercial development on approximately 8.87 acres site. The Project site was a former orchard and now an open field. The Project site consists of Assessor's Parcel Number 100-370-025 and is located on the northwest corner of South Lovers Lane and East Walnut Avenue and is south of State Route 198 in the city of Visalia. This project is subject to the California Environmental Quality Act (CEQA). The project boundary is in Section 33, Township 18 South, Range 25 East, Mount Diablo Meridian of the Visalia, California 7.5-minute USGS quadrangle. Please see the attached maps.

A search of the Native American Heritage Commission's (NAHC) Sacred Lands File did not indicate the presence of tribal or cultural resources in the immediate Project area. Taylored Archaeology also requested a records search of the Project boundary at the California Historic Resources Information System (CHRIS), Southern San Joaquin Valley Information Center (SSJVIC) located at the California State University, Bakersfield. The records search results did not identify any recorded cultural resources within the Project site. The CHRIS identified two previously completed survey reports in the Project area, and five within the surrounding 0.5-mile radius. On September 14, 2024, Taylored Archaeology completed an intensive pedestrian survey of the Project boundary to identify and record cultural resources present at the ground surface level. No prehistoric or historic cultural resources were found during the survey on the ground surface.

The NAHC provided your name and address as someone who may have interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the project area. Please note this outreach letter is research for a cultural resources investigation and is not government-to-government consultation under Assembly Bill 52. Taylored Archaeology understands and takes measures to protect the confidentiality of archaeological site locations, cemeteries, or sacred places, as required by law. Taylored Archaeology will not disclose locational information in any document available to the general public.

6083 N Figarden Dr., Ste. 616, Fresno, CA 93722
559.797.1572 / csaulsarchaeo@gmail.com

Taylored Archaeology

If you have information that you would like to share, have questions, or would like more information about the project, please contact me by email at csaulsarchaeo@gmail.com, or send a letter to my attention at 6083 N. Figarden Dr., Ste. 616, Fresno, CA 93722. Any response by October 3, 2024, would be greatly appreciated.

Sincerely,

Consuelo Y. Sauls

Consuelo Y. Sauls, M.A., RPA # 41591505
Archaeologist

Native American Outreach Log

The Hub Project, Tulare County, California

Tribe/ Affiliation	Name	Position	Address	Phone Number	Email Address	Letter	E-Mail	Comments
Native American Heritage Commission	Cameron Vela	Culutral Resources Analyst	1550 Harbor Boulevard Suite 100 West Sacramento, California 95691	(916) 373-3710	nahc@nahc.ca.gov		8/27/2024	Taylored Archaeology contacted NAHC on August 27, 2024. In a letter dated August 29, 2024, the NAHC stated that the results were negative and suggested to contact the local Native American representatives on the list provided.
Dumna Wo-Wah Tribal Government	Robert Ledger	Chairperson	2191 West Pico Ave. Fresno, CA, 93705	(559) 540-6346	ledgerrobert@ymail.com	9/17/2024	9/26/2024	Followed up. No response.
Kitanemuk & Yowlumne Tejon Indians	Delia Dominguez	Chairperson	115 Radio Street Bakersfield, CA 93305	(626) 339-6785	2deedominguez@gmail.com	9/17/2024	9/26/2024	Followed up. No response.
Santa Rosa Rancheria Tachi Yokut Tribe	Nichole Escalon	THPO	P.O. Box 8 Lemoore, CA 93245	(559) 423-3900	nescalone@tachi-yokut-nsn.gov	9/17/2024	9/26/2024	Followed up. No response.
Santa Rosa Rancheria Tachi Yokut Tribe	Samantha McCarty	Cultural Specialist II	P.O. Box 8 Lemoore, CA 93245	(559) 633-3440	smccarty@tachi-yokut-nsn.gov	9/17/2024	9/26/2024	Followed up. No response.
Table Mountain Rancheria	Michelle Heredia-Cordova	Chairperson	P.O. Box 410 Friant, CA 93626	(559) 822-2587	mhcordova@tmr.org	9/17/2024	9/26/2024	Followed up. No response.
Table Mountain Rancheria	Bob Pennell	Cultural Resource Direc	P.O. Box 410 Friant, CA, 93626	(559) 325-0351	rpennell@tmr.org	9/17/2024	9/26/2024	Followed up. No response.
Traditional Choinumni Tribe	David Alvarez	Chairperson	2415 E. Houston Avenue Fresno, CA 93720	(559) 217-0396	davealvarez@sbcglobal.net	9/17/2024	9/26/2024	Followed up. No response.
Tule River Indian Tribe	Kerri Vera	Environmental Department Director	P.O. Box 589 Porterville, CA 93258	(559) 783-8892	kerri.vera@tulerivertribe-nsn.gov	9/17/2024	9/26/2024	Followed up. No response.
Tule River Indian Tribe	Joey Garfield	Tribal Archaeologist	P.O. Box 589 Porterville, CA 93258	(559) 783-8892	joey.garfield@tulerivertribe-nsn.gov	9/17/2024	9/26/2024	Followed up. No response.
Tule River Indian Tribe	Neil Peyron	Chairperson	P.O. Box 589 Porterville, CA 93258	(559) 781-4271	neil.peyron@tulrivertribe-nsn.gov	9/17/2024	9/26/2024	Followed up. No response.
Wuksache Indian Tribe/Eshom Valley Band	Kenneth Woodrow	Chairperson	1179 Rock Haven Ct. Salinas, CA 93906	(831) 443-9702	kwood8934@aol.com	9/17/2024	9/26/2024	Followed up. No response.

45dB Acoustics, LLC
www.45dB.com
California | Colorado

October 31, 2024
45dB Project 24071

Project & Address:	**Developer:**	**Owner:**
The Hub Marketplace NW Corner of Walnut Avenue and Lovers Lane Visalia, CA 83292	N&M Capital, LLC Attn: Greg Nunley 1878 N. Mooney Blvd, Suite J Tulare, CA 93274	MFI Limited Attn: Andy Mangano 5665 Edna Ranch Circle San Luis Obispo, CA 93401

Summary

45dB Acoustics LLC ("**45dB**") has conducted an acoustical analysis of the proposed commercial development and car wash at the above location in the City of Visalia, CA. This analysis utilizes published traffic counts input into a noise propagation model (SoundPLAN®) along with sound levels for the proposed businesses, which are based upon our professional experience and previous measurements. The potential impact of noise from the project at nearby receiving land uses was evaluated and compared to the existing noise environment.

Existing noise levels were modeled for the site—including the dominant traffic from Lovers Lane and Walnut Ave. The principal noise sources associated with the proposed automatic car wash, drive-through speaker systems, and associated delivery and customer traffic throughout the parking lots were added and compared to the City's Municipal Code and Noise Element exterior noise level limits.

Based on our analysis and assumptions about the noise sources for the proposed Project, mitigation will not be required to comply with the City of Visalia's Municipal Code and Noise Element. We also conclude that the Project will not have a significant noise impact, per the CEQA Guidelines for Noise.

Compliance is dependent upon many factors which include: (1) a car wash system with continuous dryers having an entry noise level less than 81 dBA measured at 10 feet in front of the entrance, and an exit noise level less than 85.5 dBA measured 10 feet from the exit; (2) drive-through loudspeakers with an adjustable volume control system or that doesn't exceed 60dBA at the nearest property line; and (3) no idling delivery or refrigeration trucks on-site.

for 45dB Acoustics, LLC:

Sarah Taubitz, Mem.INCE, ASA
ST@45dB.com

Erin Dugan, INCE Bd. Cert.

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1 Introduction

This sound level assessment is intended to determine the potential noise impacts associated with the proposed commercial development project to be located at the northwest corner of Lovers Lane and Walnut Ave. in Visalia, California. The following topics are presented in this report in response to the City's requirements for stationary noise, as identified by the Municipal Code and Noise Element. The following factors are considered:

- The topographical relationship of potential noise sources and the nearby potential sensitive receptors
- Identification of noise sources and their characteristics, including predicted noise levels at the property lines of nearby residential land uses, considering present and future land usage and terrain
- Basis for the sound level prediction, noise attenuation measures to be applied (if any), and an analysis of the noise propagation considering the physical layout of the built environment
- Noise attenuation measures (mitigation) to be applied, if needed
- Information on fundamentals of noise and vibration to aid in interpreting the report (see Appendix, Section 9)

The Project's location is shown in Figure 11, highlighted in yellow. The site has residential land uses located to the north, south, and west of the site and commercial land uses located to the east (see Figure 22).[1] We have conservatively assumed the undeveloped land directly north of the proposed Project is residential for this analysis.

The site plan, provided by the Client, is shown in Figure 33. The proposed Project will consist of eight (8) commercial businesses and surrounding parking lot, with an 8-ft CMU wall along the west property line, as highlighted in red in Figure 33. Proposed businesses within the project include three food-service businesses (1 coffee shop and 2 restaurants) with drive-through service, four retail businesses, and an automatic car wash. For the purposes of this analysis, we conservatively assumed that the retail businesses and three food-service businesses will operate between 5:00 am and 12:00 am and the car wash will operate between 7:00 am and 7:00 pm. This site plan is slightly modified from the one we analyzed, chiefly that the retail building facing Walnut Avenue is larger; this does not invalidate or materially change our conclusions or results within this report.

2 Regulatory Setting

Noise regulations are addressed by federal, state, and local government agencies, as discussed below. In general, local policies are adaptations of federal and state guidelines, adjusted to prevailing local conditions.

[1] City of Visalia, Planning Division, *Interactive Map.* https://www.visalia.city/depts/community_development/planning/default.asp

2.1 State Regulation

The significance of environmental noise impacts resulting from a proposed project are evaluated based on the California Environmental Quality Act (CEQA) guidelines. Appendix G of the CEQA Guidelines[2] asks the following applicable questions with regard to noise. These will be answered in our Conclusion (Section 7).

Would the project result in:

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

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

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

2.2 Local Regulation

2.2.1 Municipal Code

2.2.1.1 Noise Ordinance

The City of Visalia Municipal Code Noise Ordinance[3] (Figure 44) provides regulations and guidelines regarding fixed noise sources. It provides exterior (property line) noise level limits at any receiver property line, for sources operating for specified cumulative periods of time within any hour.

For levels such as those emitted from the stationary sources at this project, which include the drive-through menu ordering speakers and an automatic car wash, we conservatively assume sound would be emitted from the project for at least 50% of any full hour—in this case, in fact we have assumed 100% of each operational hour for the car wash. For this, Standard Category No. 1 would apply, which states that the exterior noise level ("L_{eq}") at Residential properties may not exceed 50 dBA during daytime hours (6:00 a.m. – 7:00 p.m.) and 45 dBA during nighttime hours (7:00 p.m. – 6:00 a.m.). For locations where the ambient noise level exceeds the published limits, the allowable levels are adjusted to equal the ambient level.

[2] 2024 CEQA Statutes and Guidelines.
https://www.califaep.org/docs/2024_CEQA_Statute_and_Guidelines_Handbook.pdf
[3] City of Visalia Municipal Code, Section 8.36.040, *Exterior Noise Standards.*
https://codelibrary.amlegal.com/codes/visalia/latest/visalia_ca/0-0-0-26423#JD_Chapter8.36

2.2.1.2 Drive-Thru Lanes

The Municipal Code also provides performance standards for drive-thru lanes[4] and states the following:

> *Noise. No component or aspect of the drive-thru lane or its operation shall generate noise levels in excess of 60 dB between the hours of 7:00 p.m. and 6:00 a.m. daily.*

We assume the noise levels are to be measured at the nearest property lines for noise-sensitive land-use areas.

2.2.2 Noise Element

The Noise Element included within the City of Visalia General Plan[5] and Draft Environmental Impact Report[6] provides limits for both Transportation and Stationary Noise Sources (Figure 55).

- For **Transportation Noise Sources**, such as the delivery and parking lot vehicles throughout the Project site, the maximum allowed outdoor noise limit for Residential Land Uses is DNL/CNEL 65 dBA.
- For **Stationary Noise Sources**, which include the drive-through menu ordering speakers and an automatic car wash at this Project, the General Plan provides limits for daytime hours (7:00 a.m. – 10:00 p.m.) and nighttime hours (10:00 p.m. – 7:00 a.m.). The maximum allowable daytime hourly L_{eq} is 50 dBA and maximum allowable L_{max} is 70 dBA at the nearest property lines for noise-sensitive land-use areas. The maximum allowable nighttime hourly L_{eq} is 45 dBA and maximum L_{max} is 65 dBA.

The Noise Element recommends that the Noise Ordinance in the Municipal Code be updated to be consistent with the General Plan's Noise Element. Based on this recommendation, we defer to the Noise Element's limits for this Project. *Note: the Visalia Noise Element does not adjust for locations where the existing ambient level exceeds the published limits; for this, we use the Noise Ordinance's criteria where the allowable levels from the project alone are adjusted to equal the ambient level.*

3 Noise Propagation Model

3.1 Sound Modeling Software

SoundPLAN® is a state-of-the-art three-dimensional sound propagation modeling software package that calculates outdoor sound levels while taking into account the air and ground attenuation, terrain variation, existing (and proposed) built environment, road pavement types, and other relevant factors. The software utilizes traffic counts to accurately model/predict the noise levels from local roads and establish an ambient existing noise environment for

[4] City of Visalia Municipal Code, Section 17.32.162, *Drive-Thru Lanes Performance Standards.* https://codelibrary.amlegal.com/codes/visalia/latest/visalia_ca/0-0-0-35097
[5] City of Visalia, Adopted General Plan, Chapter 8, *Safety and Noise Element, Exterior noise standards.* https://www.visalia.city/depts/community_development/planning/gp.asp
[6] City of Visalia, Draft Environmental Impact Report, Chapter 3.10, *Noise.* https://www.visalia.city/depts/community_development/planning/gp.asp

comparison with the modeled noise levels due to the Project's proposed noise-generating sources.

SoundPLAN incorporates the following relevant standards[7] to accurately calculate the propagation of road and outdoor noise sources:

- Federal Highway Administration's Traffic Noise Model TNM 2.0 and 3.0 (See Section 9.5) for roadways
- ISO 9613-2: Engineering method for the prediction of sound pressure levels outdoors (See Section 9.4) for non-transportation sources

See the Appendix for more information on this software and its calculation methods. All sound levels in this report are presented in units of A-weighted decibels, dBA.

3.2 Traffic Noise

Traffic counts for local roads are input into SoundPLAN which, by default, apportions the count into vehicle types including automobiles, medium trucks, and heavy trucks/buses. Traffic counts for Lovers Lane and Walnut Avenue were obtained from the City of Visalia Department of Public Works[8]. The counts (see Table 1) were adjusted to the current year, assuming a 1% per year increase in traffic. SoundPLAN apportions the counts into daytime and nighttime hours, and appropriate vehicle speeds are input in order to predict the outdoor noise levels using the Traffic Noise Model.

Table 1: Traffic Count Data and 2024 Projections

Road	Speed Limit (mph)	Published ADT	Year	Years to Project	2024 AADT Projection with 1% Annual Growth
Walnut Ave (W of Lovers Lane)	50	8,760	2018	6	9,299
Walnut Ave (E of Lovers Lane)	50	9,030	2017	7	9,681
Lovers Lane (S of Walnut)	55	14,180	2018	6	15,052
Lovers Lane (N of Walnut)	55	16,455	2017	7	17,642

The FHWA's Traffic Noise Model utilizes an annual average traffic count (AADT) that is apportioned into daytime/evening/nighttime hours—on any given day or hour, traffic counts may vary from this annualized average. Minor differences can be attributed to slight variations in daily traffic.

Buses also travel on Walnut Avenue and Lovers Lane as part of the traffic mix[9]; however, because the Visalia buses run on natural gas and are typically quieter than buses operating with

[7] SoundPLAN Calculation and Assessment Standards.
https://www.soundplan.eu/en/software/soundplannoise/standards/
[8] City of Visalia, Traffic Engineering, *ADT Street Volumes List*.
https://www.visalia.city/depts/community_development/engineering/traffic_engineering/default.asp
[9] Visalia Transit, *Fixed Bus Routes and Schedules*.
https://www.visalia.city/depts/general_services/transit/bus_map_and_schedule_information/default.asp

standard fuel, we did not include buses as part of the traffic mix in the model for a more conservatively low existing ambient noise level.

3.3 Proposed Project Noise Sources

All project-related transportation, loudspeaker, and/or equipment noise sources that would potentially add a significant increase in the resulting noise levels for the area will be included in the model. All sources were conservatively modeled to represent worst-case scenarios, as detailed below.

Rooftop unit (RTU) and HVAC noise was not included as part of this study because the tenants for the proposed Project are unknown at this time.

3.3.1 Parking Lot

Per the Client's plans, the development's **parking lot** has a total of 266 spaces. The parking lot was conservatively modeled with 150 cars parking per hour between 7:00 a.m. and 10:00 p.m. and 50 cars parking each hour between 10:00 p.m. and 7:00 a.m. This is generally modeled as noise from the vehicle ignitions.

3.3.2 Delivery Truck Traffic

Delivery trucks were included in the model traveling through the parking lot and west of the grocery store. We assume that all deliveries will take place between 7:00 a.m. and 7:00 p.m. and that the semi-truck engines are turned off during deliveries, i.e., no idling. We conservatively modeled the delivery truck traffic with six medium-sized trucks and four large semi-trucks traveling at 10 mph through the site and behind the grocery store each hour. We also assume that delivery trucks, including refrigerated trucks, will not park and idle on site.

3.3.3 Car Wash Dryer Noise

As shown in the drawings, the car wash entrance opens to the north side of the building and its exit faces to the south. Car wash dryers were conservatively assumed to operate continuously (60 minutes per hour, 100% duty cycle) at maximum capacity between 7:00 a.m. and 7:00 p.m. The sound level from the car wash dryers far exceeds the sound level produced by the wash cycle and is the principal sound source for the tunnel.

The Client has not determined the exact model/configuration of car wash dryer equipment. We have modeled the car wash with a rather typical sound level from our "library" of various car wash emission levels. The number of dryer blowers and their individual sound emission level are a main factor in the levels near tunnel ends for any car wash system. These were input as area sources representing the open doors/tunnel ends with the following levels:

- **Entrance** – the sound level, as measured 10 feet from the car wash entrance, was modeled to be 81 dBA.
- **Exit** – the sound level, as measured 10 feet from the car wash exit, was modeled to be 85.5 dBA.

If a different/louder car wash system and/or duty cycle are selected, our analysis and recommendations for mitigation will need to be updated.

3.3.4 Car Wash Vacuums

We assume that the car wash will include a centralized vacuum system near the car wash system, where the vacuum turbine motors are enclosed within/inside of the vacuum equipment room within the car wash building. As is typical with car wash buildings, we assume it is constructed with concrete block, therefore the central vacuum equipment is not expected to be a significant source for this Project.

Eight (8) vacuum cleaner nozzles associated with the new car wash were modeled as point sources, each with a sound power level "L_{WA}" of 72.7 dBA. (See the Appendix for definitions of sound pressure and sound power levels.) Levels associated with the nozzles were modeled per levels measured by MD Acoustics for a car wash project using Vacutech brand equipment.[12] Equipment was assumed to operate at 50% duty, or no more than 30 minutes per hour.

If a different type of vacuum system, i.e. a coin-operated, non-centralized system, is selected, our analysis would need to be revised.

3.3.5 Drive Through Loudspeaker Noise

Six (6) drive-through loudspeakers at the three restaurant locations were included in the model. All loudspeakers in the model incorporated an AVC (Adjustable Volume Control) system, which adjusts volume according to the ambient levels and does not allow the levels to exceed 15 dB above the background noise. Documentation on this system from the manufacturer is also included at the end of this report.

We conservatively modeled all loudspeakers to operate at 50% duty (up to 30 minutes per hour) between the hours of 5:00 a.m. and 12:00 a.m.

4 Modeled Ambient Noise Environment

4.1 Existing Ambient Noise Levels

Figure 66, Figure 77 and Figure 88 show the CNEL, daytime hourly "$L_{eq,d}$", and nighttime hourly "$L_{eq,n}$" noise contours, respectively, for the area (at a 1.5-m/5-ft height), due to existing road traffic.

In general, the existing hourly ambient sound levels are anticipated to be 53 – 67 dBA during daytime hours and 45 – 59 dBA during nighttime hours at receiving land uses along the north and west property lines. Table 23 in Section 6.1.1 summarizes these levels at selected receiver locations (at a 1.5-m/5-ft height).

Note: Receiver locations were not placed on the property lines since these boundaries were in the center of a proposed road or wall, as shown in the site map; receiver locations were selected based on the nearest noise-sensitive land uses.

4.2 Ambient Noise Levels with Proposed Project Buildings in Place

With the project building and parking lot in place, the daytime and nighttime hourly noise levels at the nearest residential property lines are expected to differ slightly from the existing levels due

[12] MD Acoustics, LLC, "Quick Quack Car Wash Laurel Plaza (Store #8-034) Noise Impact Study", 2021. https://www.ci.oakley.ca.us/wp-content/uploads/2022/02/Quick-Quack-Updated-Noise-Impact-Study_2021-12-08.pdf

to the traffic noise reflecting off the hard parking lot surface and noise blocked by the proposed Project's buildings. We assume the parking lot surface will be paved with asphalt or concrete. Figure 99 and Figure 1010 show the daytime hourly and nighttime hourly noise contours, respectively, for the area due to existing road traffic with the project in place.

The ambient sound levels along the north and west property lines with the proposed project in place are anticipated to be 51 – 67 dBA during daytime hours and 43-60 dBA during nighttime hours.

5 Expected Noise Levels with Project

Figure 1111 shows a 3-dimensional view of the acoustic model's geometry with the proposed project in place, including the car wash, vehicles using the drive-through ordering systems, and delivery truck traffic. Terrain/elevation data is imported from Google Maps, and the buildings, noise sources, roadways, etc. are modeled/built on top of this terrain.

The resulting daytime and nighttime noise contours are shown in Figure 1212 and Figure 1313, respectively, with the project in place and all sources operating as described in Section 3.3 along with the existing traffic noise for a conservative prediction of the potential impact of the project.

With traffic, the hourly noise levels at the nearest residential property lines are expected to range between 53 – 69 dBA during daytime hours and 43 – 60 dBA during nighttime hours. Hourly noise levels due solely to the proposed Project's stationary sources are expected to range up to 65 dBA during daytime hours and up to 38 dBA during nighttime hours. Maximum noise levels are also expected to reach 56 dBA to the west of the Project during daytime and 45 dBA during nighttime hours. These levels are summarized below in Table 34 in Section 6.1.2.

6 Project Compliance Evaluation and Recommendations

6.1 Project Compliance

6.1.1 Code/Noise Element Limits

Traffic noise from Lovers Lane and Walnut Avenue is the dominant noise source throughout the surrounding area. The existing and proposed Project ambient levels due to noise from the local roads are provided below in Table 23 for selected receiver locations along the nearest residential property lines (as shown in Figure 1212 and Figure 1313) with the corresponding limits from the City's Municipal Code and Noise Element for each receiver location. Because of the elevated ambient noise levels, the limits are adjusted to the ambient noise level, as discussed in Section 2.2.2.

Table 2: Ambient Levels and Code/Noise Element Limits at Selected Receiver Locations along North and West Property Lines

	Existing Ambient			Project Ambient			Code/Noise Element Limits*				
Receiver Location	CNEL (dBA)	Daytime $L_{eq,d}$ (dBA)	Nighttime $L_{eq,n}$ (dBA)	CNEL (dBA)	Daytime $L_{eq,d}$ (dBA)	Nighttime $L_{eq,n}$ (dBA)	CNEL (dBA)	Daytime $L_{eq,d}$ (dBA)	Daytime Lmax (dBA)	Nighttime $L_{eq,n}$ (dBA)	Nighttime Lmax (dBA)
R1	68	67	59	69	67	60	69	67	70	60	65
R2	64	62	54	63	62	54	65	62	70	54	65
R3	60	59	51	59	58	50	65	58	70	50	65
R4	54	53	45	52	51	43	65	51	70	45	65
R5	56	55	47	53	51	43	65	51	70	45	65
R6	58	57	49	57	56	48	65	56	70	48	65

** Code & Noise Element limits are based on Project Ambient levels; see Section 4.2*

6.1.2 Evaluation of Compliance

Noise levels due to the proposed Project and its associated noise sources in place are shown below in Table 34. For direct comparison to the Code and Noise Element limits, the CNEL results only include transportation noise sources – local traffic and delivery trucks. The L_{eq} and L_{max} levels presented are due solely to the project's stationary sources (car wash, vacuums, and drive-thru loudspeakers).

For the residential locations along the nearest noise-sensitive property lines to the north and west, noise levels for the proposed Project (with all sources operating as described in Section 3.3) are not expected to exceed the City's Code and Noise Element limits. Maximum noise levels due to the drive through speakers (Figure 14) are also not expected to exceed 60 dBA at the nearest property lines. Therefore, mitigation will not be required.

Table 3: Expected Noise Levels Due to Proposed Project at Selected Receiver Locations along North and West Property Lines

Receiver Location	CNEL* (dBA)	Daytime $L_{eq,d}$ (dBA)	Daytime L_{max} (dBA)	Nighttime $L_{eq,n}$ (dBA)	Nighttime L_{max} (dBA)
R1	69	65	65	30	35
R2	65	61	60	38	43
R3	61	56	56	38	45
R4	53	32	30	13	16
R5	54	35	34	12	16
R6	58	36	35	22	27

** CNEL results only include noise due to local traffic and delivery trucks; L_{eq} and L_{max} levels only include stationary noise sources (car wash, vacuums, and drive-through loudspeakers)*

6.1.3 Vibration

The car wash is not anticipated to create groundborne vibration or noise levels beyond the close proximity of the car wash. There is not anticipated to be significant vibration due to the Project.

6.2 Recommendations

6.2.1 Car Wash

The car wash dryers are the dominant noise source for the project and will contribute to the noise levels at the locations along the north property line. (Levels due to the vacuums and drive through loudspeakers do not significantly contribute to the noise levels at the property lines.)

This analysis is based upon a car wash with dryers operating continuously with levels at the entrance no greater than 81 dBA, as measured at 10 feet from the entrance and levels at the exit must be less than 85.5 dBA, as measured at 10 feet in front of the car wash exit.

If a different car wash system and/or duty cycle are selected, our analysis will need to be updated to provide updated mitigation, if necessary. Additionally, if a non-centralized vacuum system is selected, this analysis will also need to be updated.

6.2.2 Drive-Through Loudspeakers

This analysis assumes all drive-through loudspeakers will incorporate an AVC (Adjustable Volume Control) system, which adjusts volume according to the ambient levels and does not allow the levels to exceed 15 dB above the background noise. *Whether or not the selected system adjusts for background noise, its emission/volume level should be set/adjusted to meet the Visalia Code (see 2.2.1.2). Assuming the evaluation of compliance for the 60dBA limit is at the nearest sensitive receiver property line, and given the distance from this drive-through to the property lines, we conclude compliance with the Code.*

7 Conclusion

Based on the above analysis and assumptions about the noise sources (automatic car wash, drive-through restaurant speaker systems, and associated delivery and customer traffic throughout the parking lots) for the proposed Project, mitigation will not be required to comply with the City of Visalia's Municipal Code and Noise Element.

Compliance is dependent upon many factors which include: (1) a car wash system with continuous dryers having an entry noise level less than 81 dBA, as measured at 10 feet in front of the entrance and an exit noise level less than 85.5 dBA, as measured 10 feet from the exit; (2) drive-through loudspeakers with an adjustable volume control system; and (3) no idling delivery or refrigeration trucks on-site.

Additionally, the CEQA requirements are answered below in Table 45.

Table 4: Checklist of CEQA Guidelines for Noise

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
Generation of excessive groundborne vibration or groundborne noise levels?				X
For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

The conclusions and recommendations of this acoustical analysis are based upon the information known to 45dB Acoustics, LLC ("**45dB**") at the time the analysis was prepared concerning the proposed site plans, traffic volumes, proposed project-related equipment and sound sources, and hours of operation. Any significant changes to these factors will require a reevaluation of the findings of this report. Additionally, any significant future changes in equipment, noise regulations or other factors beyond **45dB**'s control may result in long-term noise results different from those described by this analysis.

8 Figures

Figure 1: Site View (Google Maps)

Figure 2: Land Use Map

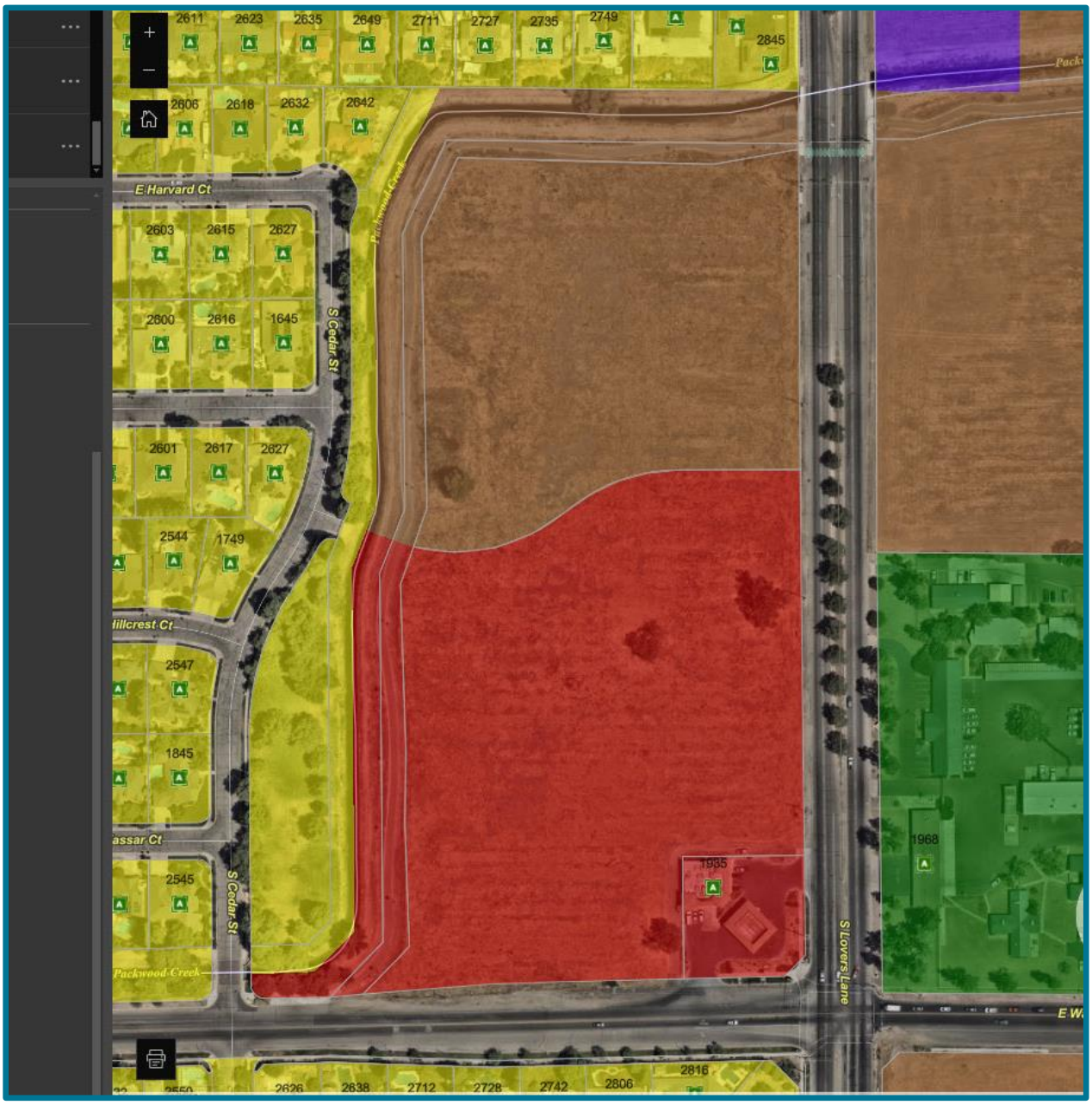


Figure 3: Project Site Plan (reprinted from client drawings)

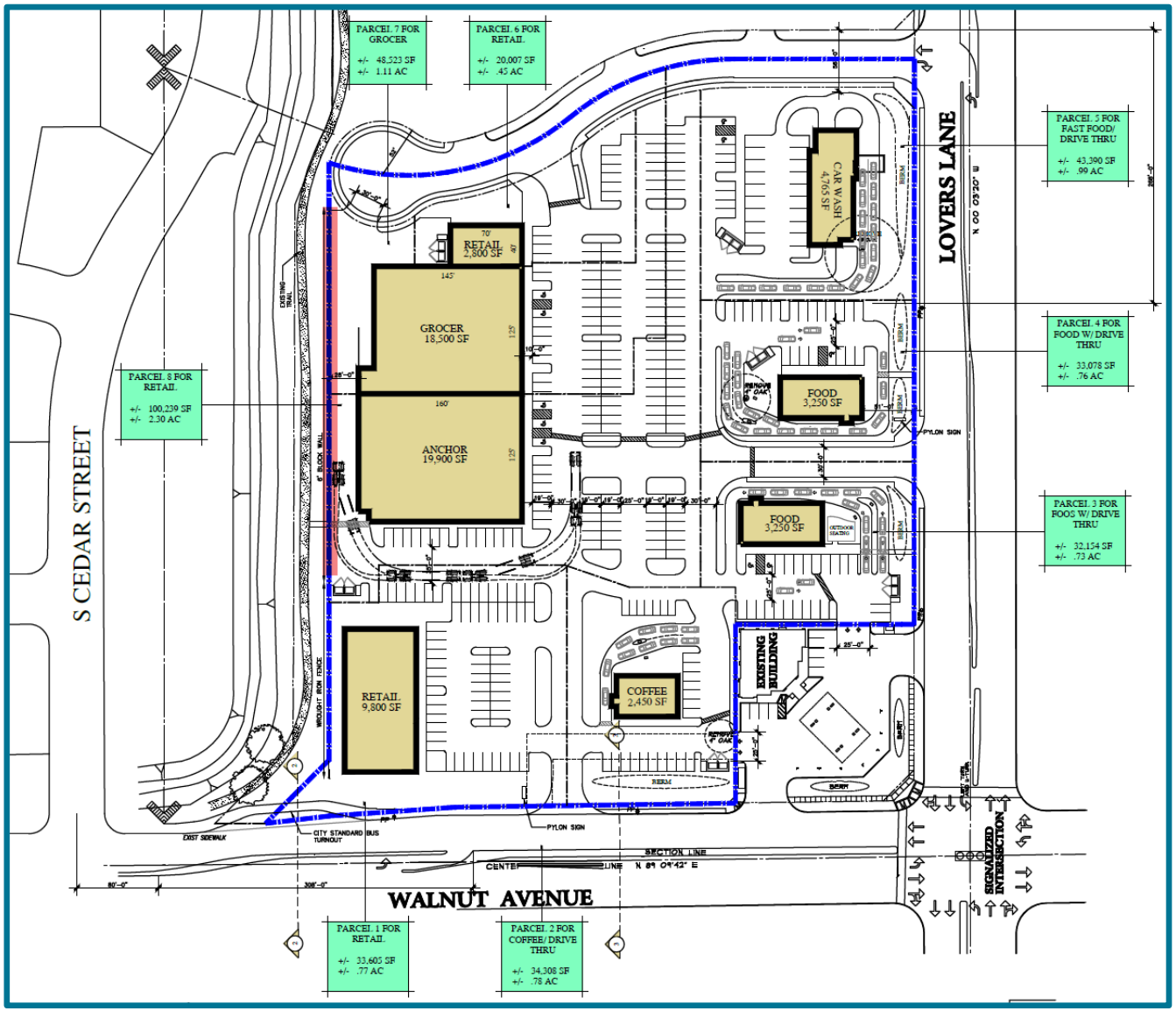


Figure 4: Exterior Noise Standards – Fixed Noise Sources, Section 8.36.040 of the Visalia Municipal Code

8.36.040 Exterior noise standards--Fixed noise sources.

A. It is unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level, when measured at the property line of any affected noise sensitive land use, to exceed any of the categorical noise level standards as set forth in the following table:

NOISE LEVEL STANDARDS, dBA

Category	Cumulative Number of minutes in any one-hour time period	Evening and Daytime 6 a.m. to 7 p.m.	Nighttime 7 p.m. to 6 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

D. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level without the source can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards. (Prior code § 5090.4.1)

Figure 5: Transportation and Stationary Noise Standards, Chapter 8.6 of the City of Visalia Safety and Noise Element

Table 8-3: Transportation Noise Sources

Noise-Sensitive Land Use	*Outdoor Activity Areas*[1]		*Interior Spaces*
	DNL/CNEL[2]*, dB*	*DNL/CNEL*[2]*, dB*	*L_{eq} dB*[3]
Residential	65	45	---
Transient Lodging	65	45	---
Hospitals, Nursing Homes	65	45	---
Theaters, Auditoriums, Music Halls	---	---	35
Churches, Meeting Halls	65	---	45
Office Buildings	---	---	45
Schools, Libraries, Museums	---	---	45

Notes:

(1) Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks or common recreation areas of multi-family developments.

(2) The CNEL is used for quantification of aircraft noise exposure as required by CAC Title 21.

(3) As determined for a typical worst-case hour during periods of use.

Table 8-4: Stationary Noise Sources[1]

	Daytime (7:00 a.m. – 10:00 p.m.)	*Nighttime (10:00 p.m. – 7:00 a.m.)*
Hourly Equivalent Sound Level (L_{eq}), dBA	50	45
Maximum Sound Level (L_{max}), dBA	70	65

(1) As determined at the property line of the receiving noise-sensitive use.

Figure 6: Existing Ambient CNEL Sound Level Contours, Plan View

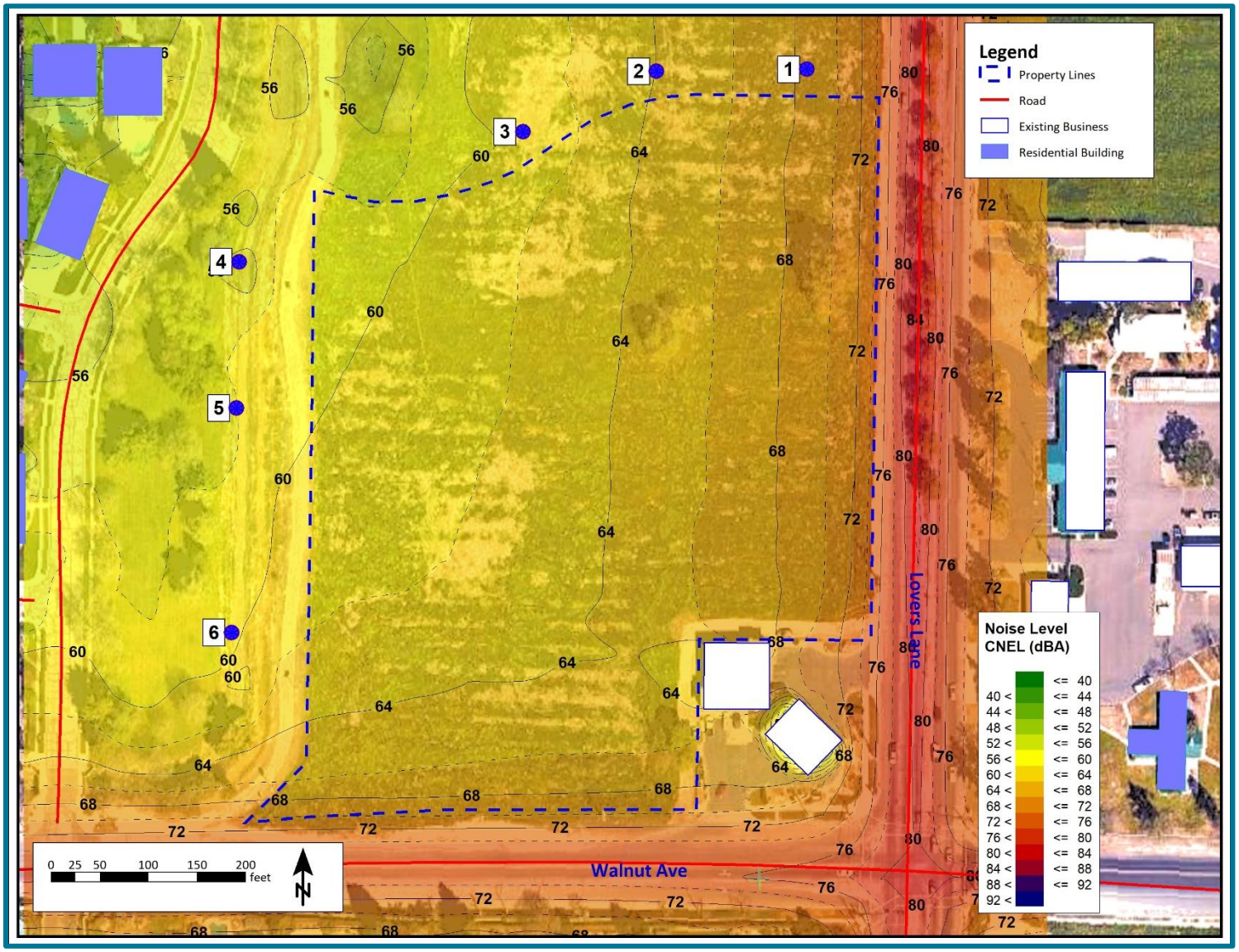


Figure 7: Existing Ambient Daytime Hourly ($L_{eq,d}$) Sound Level Contours, Plan View

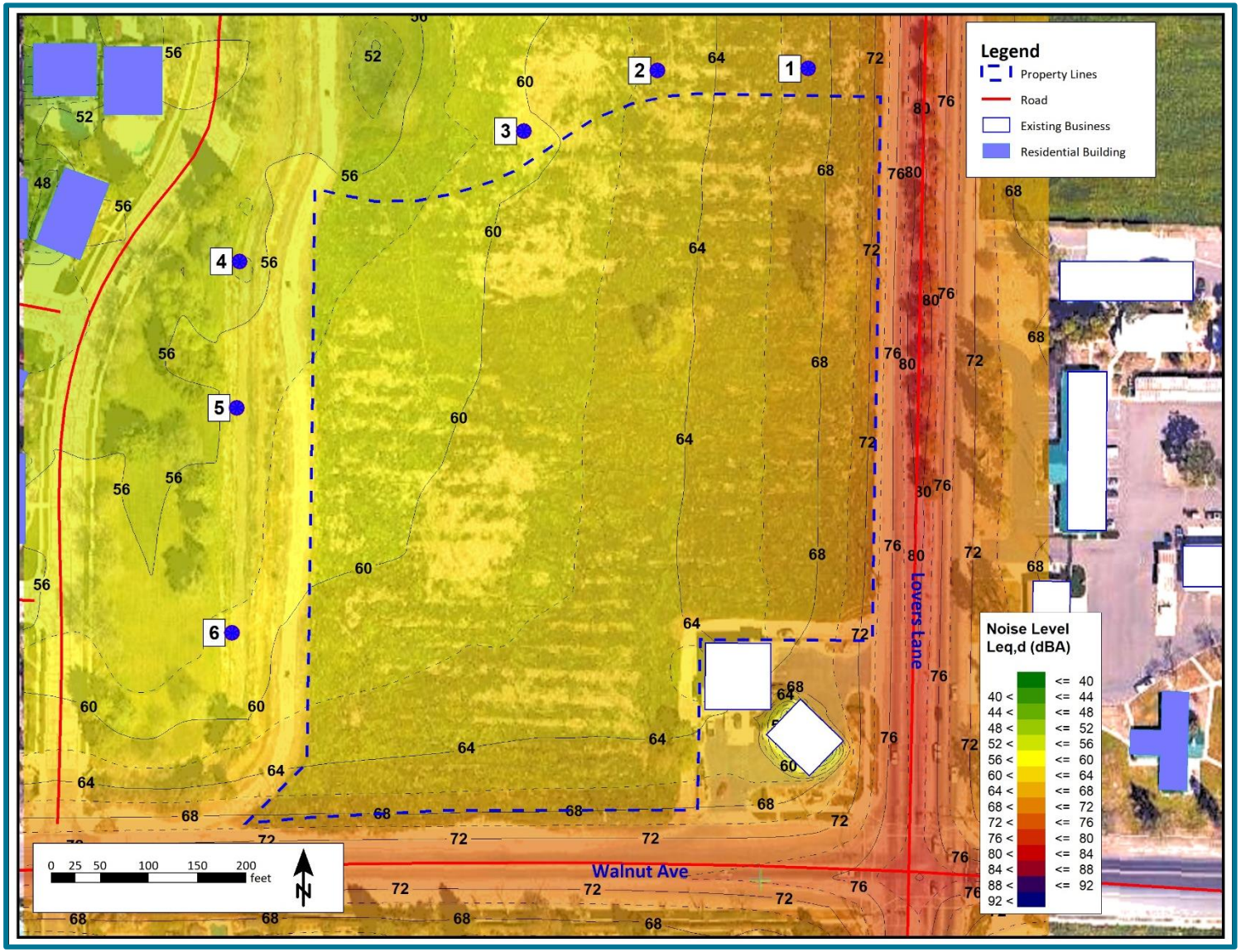


Figure 8: Existing Ambient Nighttime Hourly ($L_{eq,n}$) Sound Level Contours, Plan View

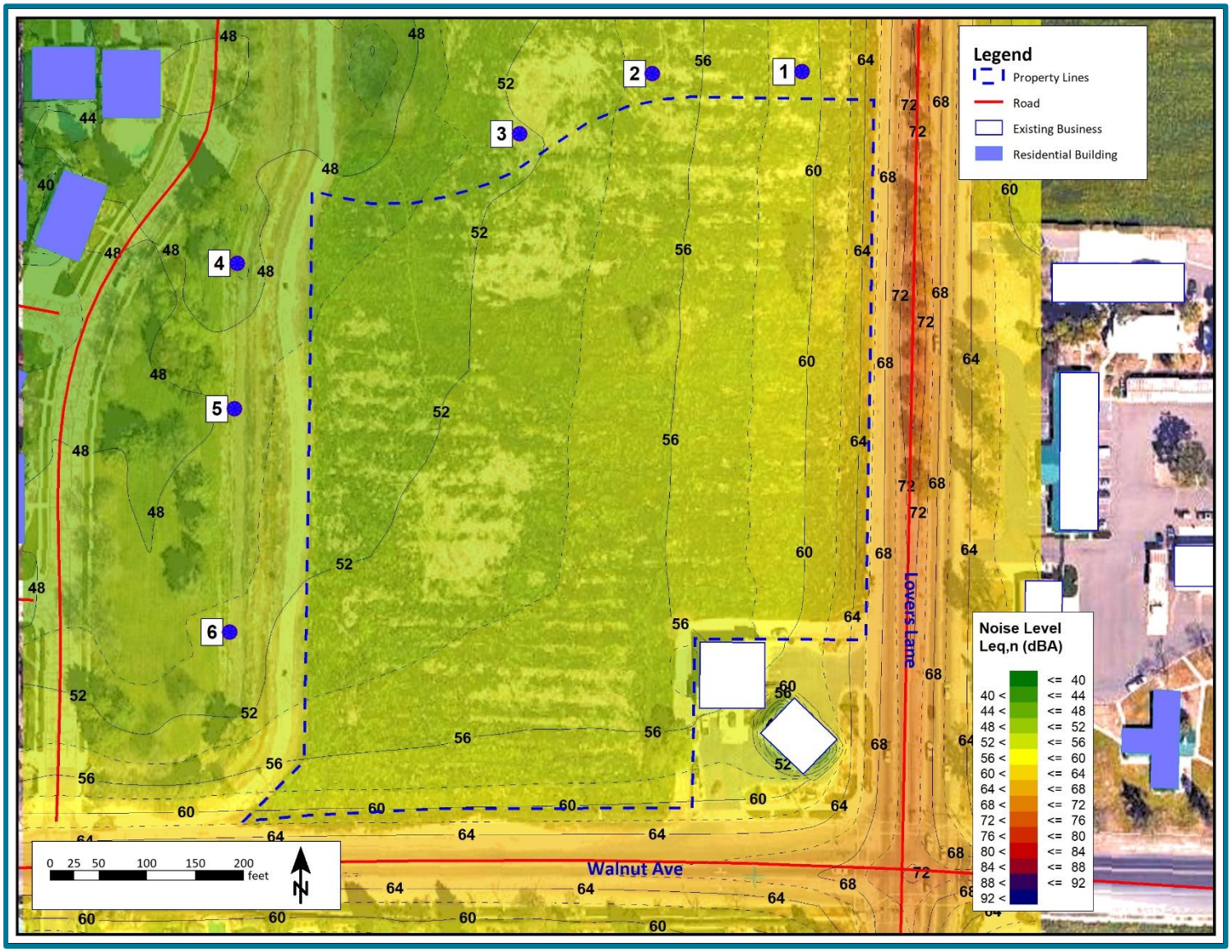


Figure 9: Ambient Daytime Hourly ($L_{eq,d}$) Sound Level Contours with Proposed Project Buildings in Place, Plan View

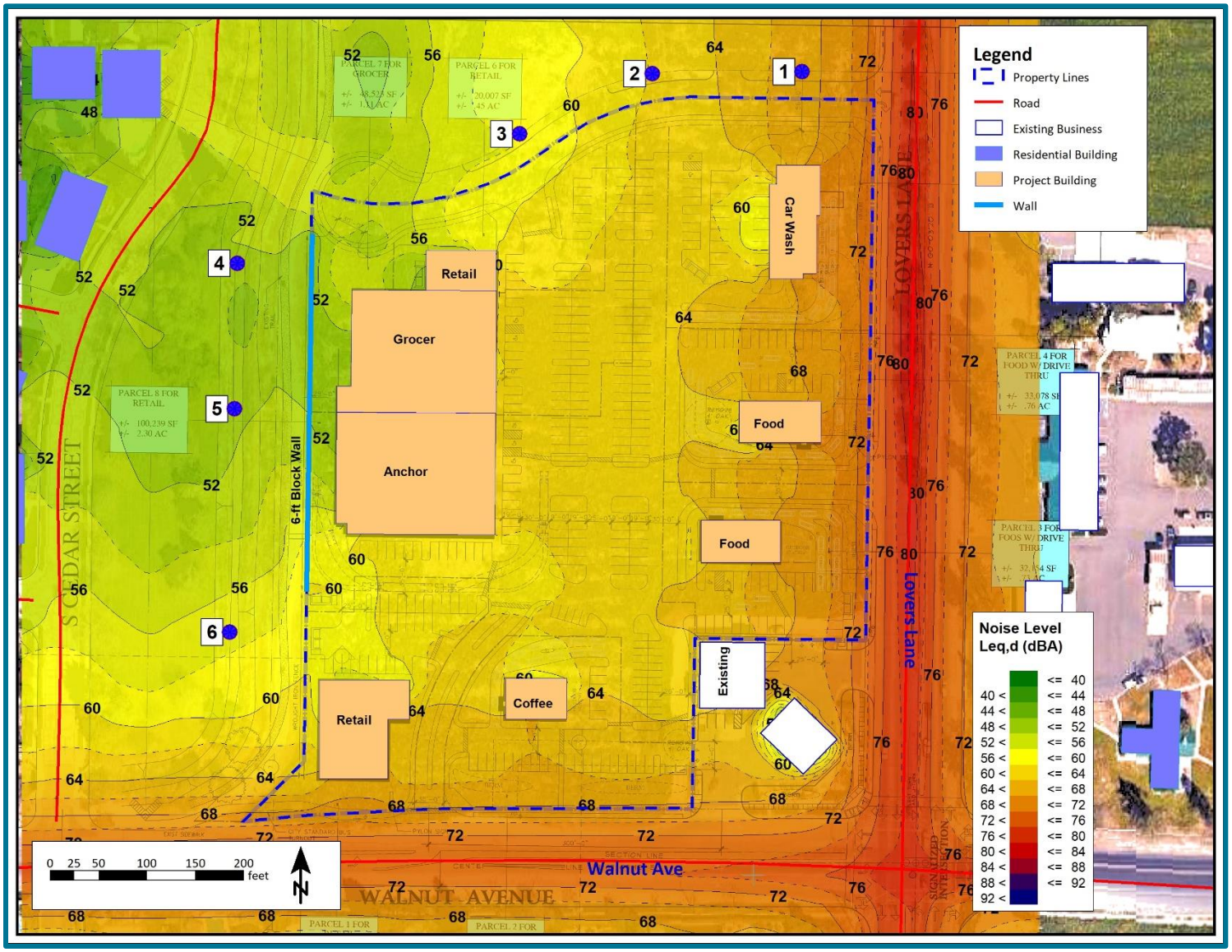


Figure 10: Ambient Nighttime Hourly ($L_{eq,n}$) Sound Level Contours with Proposed Project Buildings in Place, Plan View

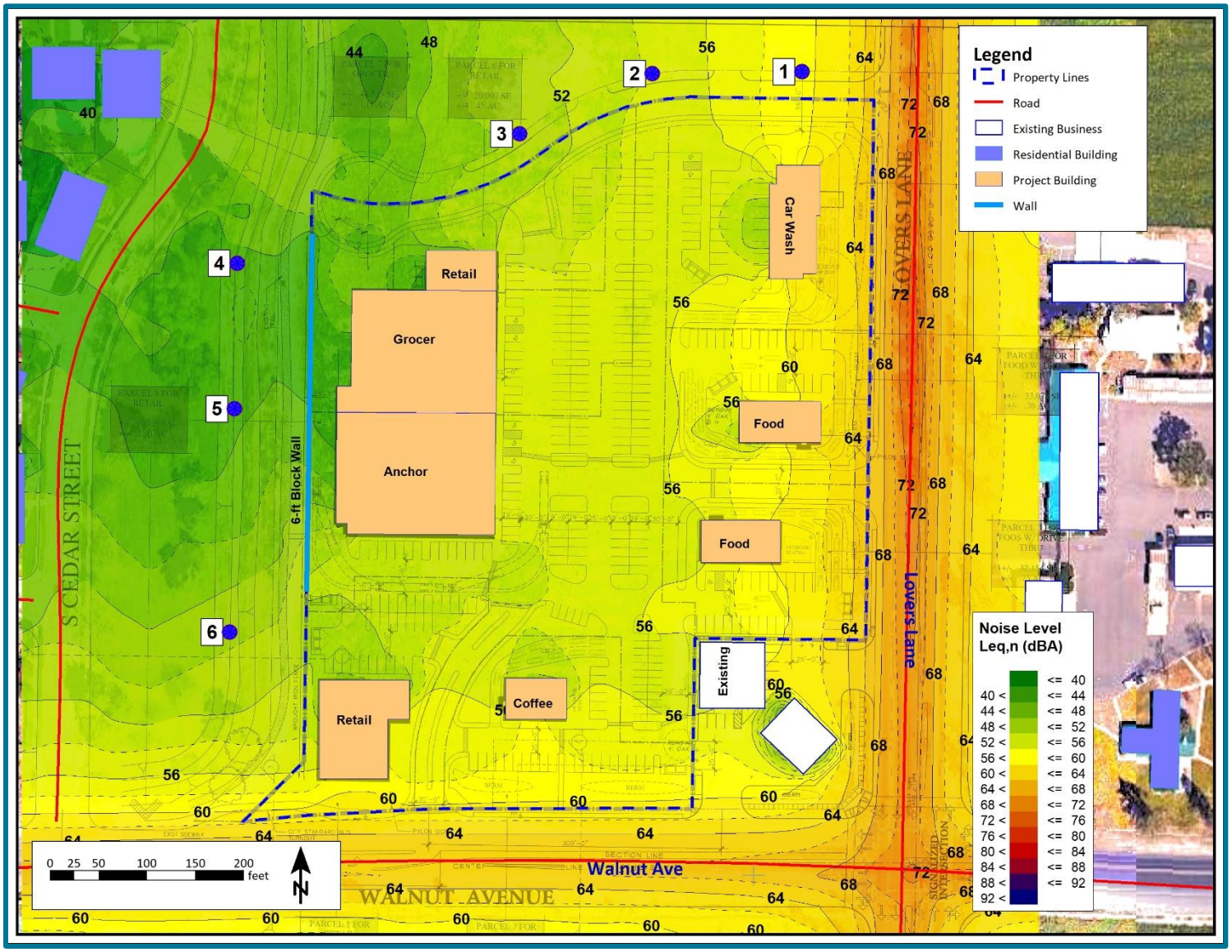


Figure 11: 3D Perspective of Acoustic Model Geometry

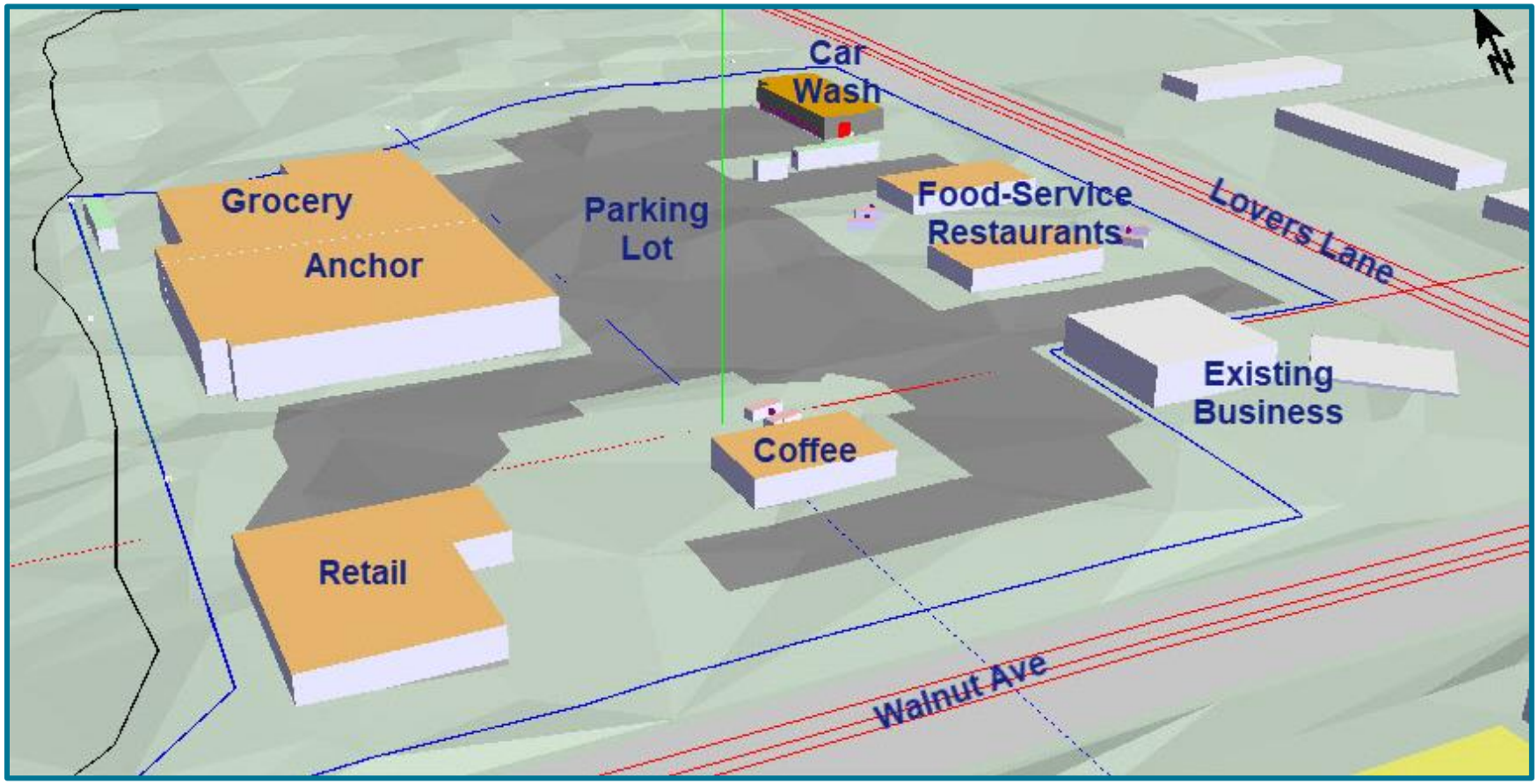


Figure 12: Project Daytime (L_d) Sound Level Contours, Plan View

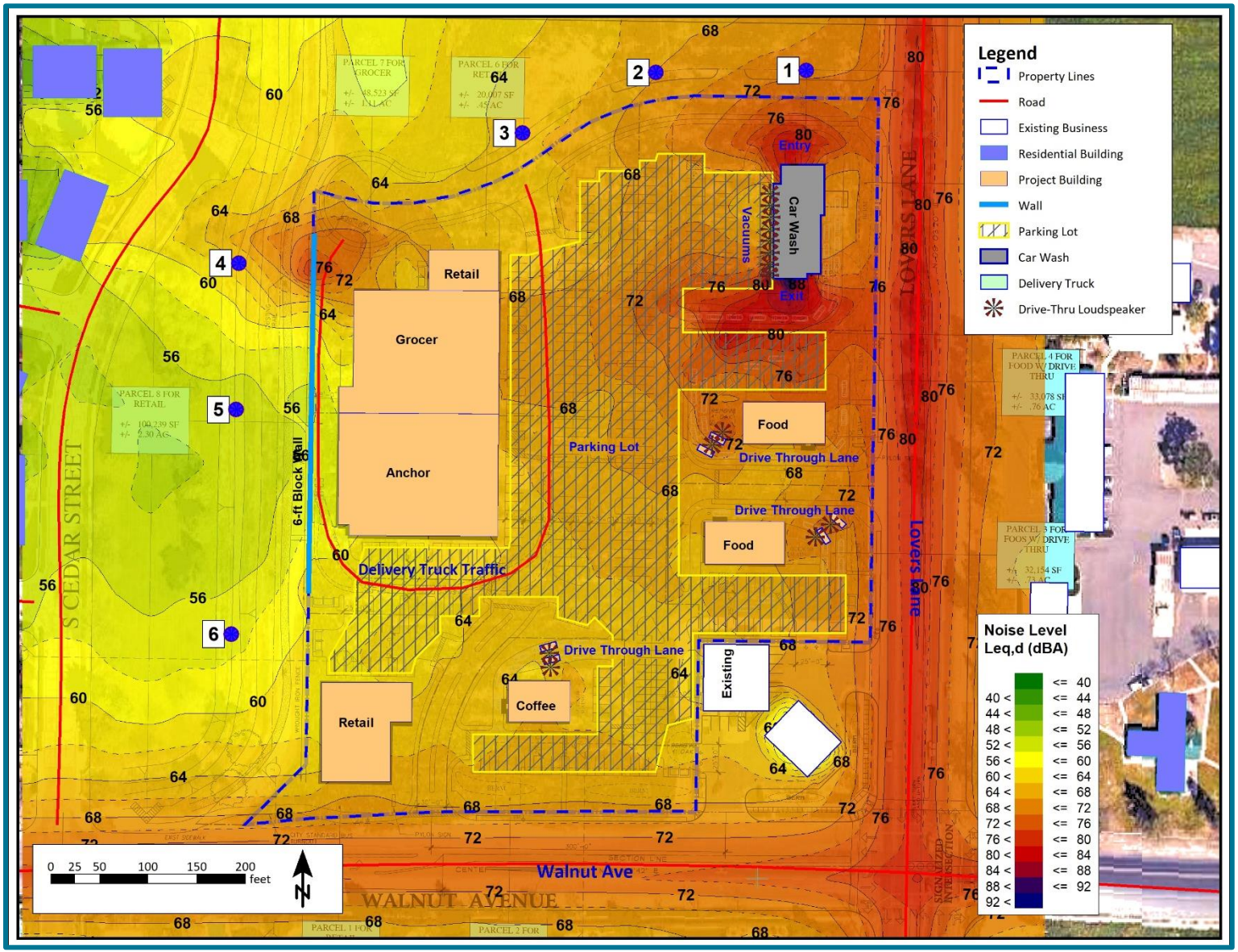


Figure 13: Project Nighttime (L_n) Sound Level Contours, Plan View

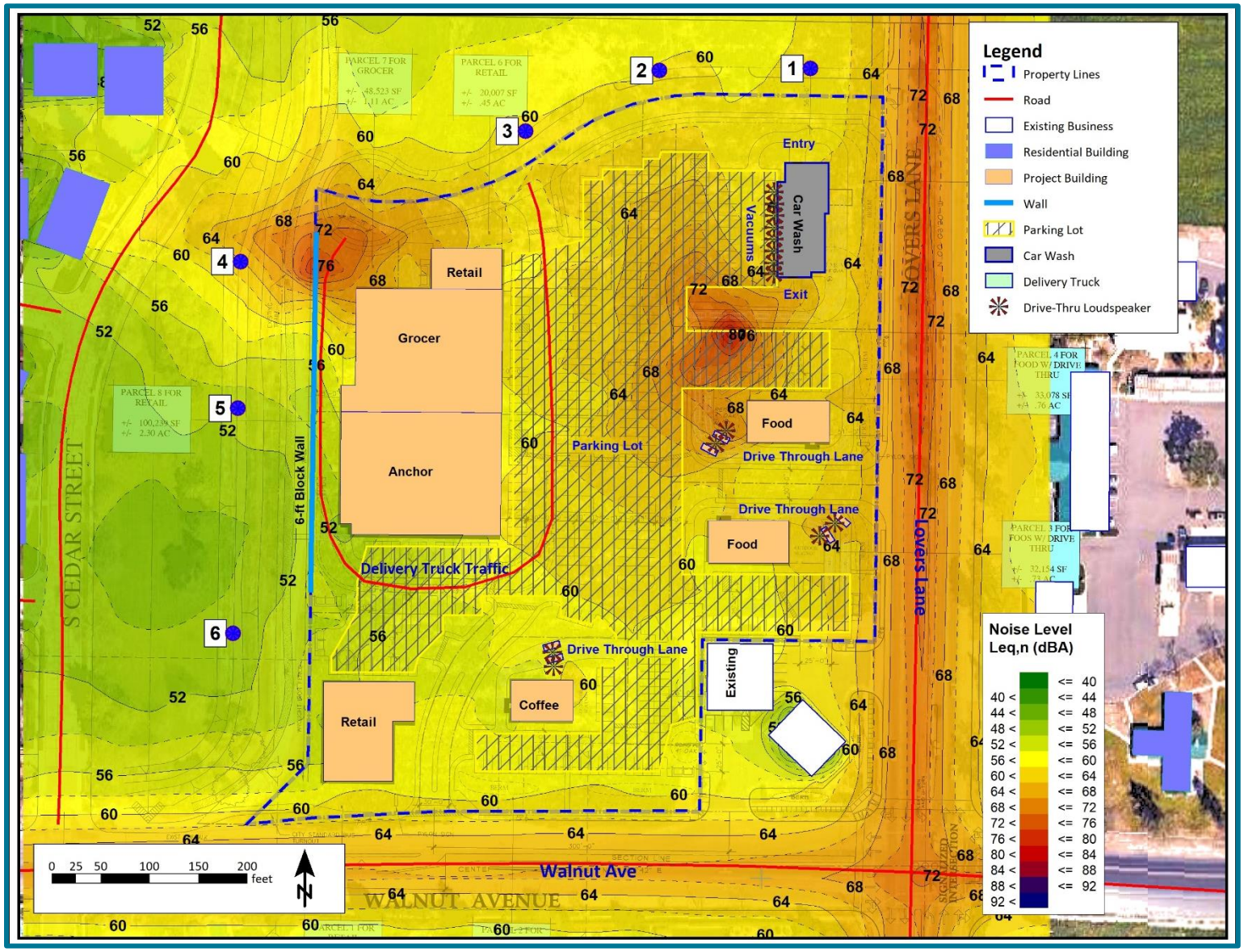
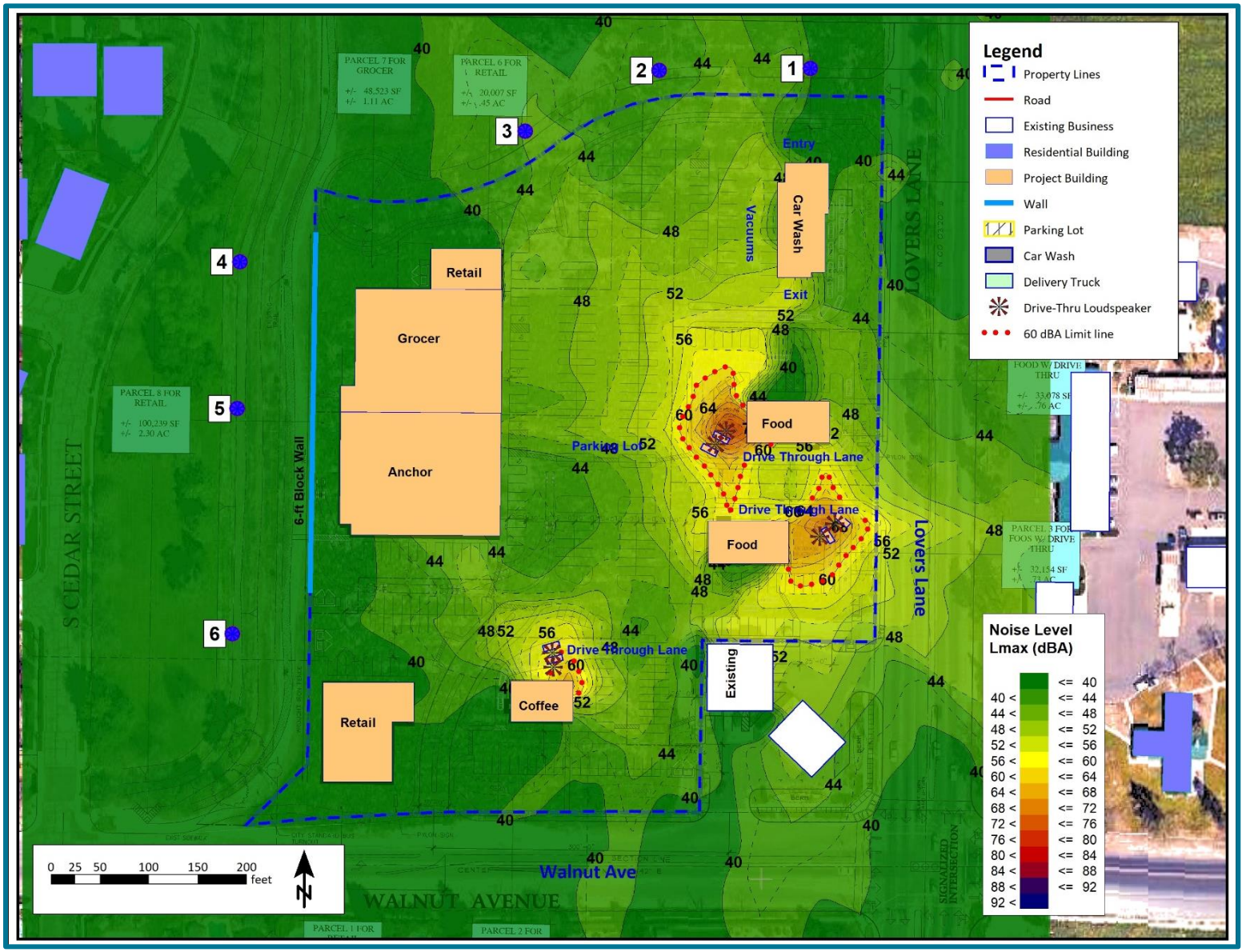


Figure 14: Maximum (L_{max}) Sound Level Contours for Drive Through Loudspeakers



9 Appendix

9.1 Characteristics of Sound

When an object vibrates, it radiates part of its energy as acoustic pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 to 140 dBA. Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. Because of the physical characteristics of noise transmission and of noise perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 56 below presents the subjective effect of changes in sound pressure levels.

Table 5: Sound Level Change Relative Loudness/Acoustic Energy Loss[13]

Change in Level	Relative Loudness	Acoustic Energy Loss
0 dB	Reference	0%
- 3 dB	Just Perceptible Change	50%
- 5 dB	Readily Perceptible Change	67%
- 10 dB	Half as Loud	90%
- 20 dB	1/4 as Loud	99%
- 30 dB	1/8 as Loud	99.9%

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as spreading loss. Generally, sound levels from a point source will decrease by 6 dBA for each doubling of distance. Sound levels for a highway line source vary differently with distance because sound pressure waves propagate along the line and overlap at the point of measurement. A closely spaced, continuous line of vehicles along a roadway becomes a line source and produces a 3 dBA decrease in sound level for each doubling of distance. However, experimental evidence has shown that where sound from a highway propagates close to "soft" ground (e.g., plowed farmland, grass, crops, etc.), a more suitable drop-off rate to use is not 3.0 dBA but rather 4.5 dBA per distance doubling (FHWA 2010).

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. The L_{eq} is the most common parameter associated with such measurements. The L_{eq} metric is a single-number noise descriptor that represents the average sound level over a given period of time. For example, the L50 noise level is the level that is exceeded 50 percent of the time. This level is also the level that is exceeded 30 minutes in an hour. Similarly, the L02, L08 and L25 values are the noise levels that are exceeded 2, 8, and

[13] Highway Traffic Noise Analysis and Abatement Policy and Guidance, U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, June 1995.

25 percent of the time or 1, 5, and 15 minutes per hour. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, State law requires that, for planning purposes, an artificial dB increment be added to quiet-time noise levels in a 24-hour noise descriptor called the CNEL or L_{dn}. This increment is incorporated in the calculation of CNEL or L_{dn}, described earlier.

9.2 Terminology/Glossary

A-Weighted Sound Level (dBA)
The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made. A-weighting de-emphasizes the low and very high frequency components of the sound in a manner similar to the response of the average human ear. A-weighted sound levels correlate well with subjective reactions of people to noise and are universally used for community noise evaluations.

Air-borne Sound
Sound that travels through the air, differentiated from structure-borne sound.

Ambient Sound Level
The prevailing general sound level existing at a location or in a space, which usually consists of a composite of sounds from many sources near and far. The ambient level is typically defined by the L_{eq} level.

Background Sound Level
The underlying, ever-present lower-level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as Traffic, typically make up the background. The background level is generally defined by the L90 percentile noise level.

Community Noise Equivalent Level (CNEL)
The L_{eq} of the A-weighted noise level over a 24-hour period with a 5-dB penalty applied to noise levels between 7 p.m. and 10 p.m. and a 10-dB penalty applied to noise levels between 10 p.m. and 7 a.m. CNEL is similar to L_{dn}.

Day-Night Sound Level (DNL or L_{dn})
The L_{eq} of the A-weighted noise level over a 24-hour period with a 10-dB penalty applied to noise levels between 10 p.m. and 7 a.m. L_{dn} is similar to CNEL.

Decibel (dB)
The decibel is a measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

DBA or dB(A)
A-weighted sound level. The ear does not respond equally to all frequencies, and is less sensitive at low and high frequencies than it is at medium or speech range frequencies. Thus, to obtain a single number representing the sound level of a noise containing a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and

high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are dBA. The A-weighted sound level is also called the noise level.

Energy Equivalent Level (L_{eq})
Because sound levels can vary markedly in intensity over a short period of time, some method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, one describes ambient sounds in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq} . In this report, an hourly period is used.

Field Sound Transmission Class (FSTC)
A single number rating similar to STC, except that the transmission loss values used to derive the FSTC are measured in the field. All sound transmitted from the source room to the receiving room is assumed to be through the separating wall or floor-ceiling assembly.

Noise Reduction (NR)
Noise reduction is the difference between outdoor sound level and indoor sound level. It is not identical to Sound Transmission Class.

Outdoor-Indoor Transmission Class (OITC)
A single number classification, specified by the American Society for Testing and Materials (ASTM E 1332 issued 1994), that establishes the A-weighted sound level reduction provided by building facade components (walls, doors, windows, and combinations thereof), based upon a reference sound spectrum that is an average of typical air, road, and rail transportation sources. The OITC is the preferred rating when exterior façade components are exposed to a noise environment dominated by transportation sources. Once built, as much as a 5-point reduction in Apparent Outside-Inside Transmission Class (OITC) from the original, as-designed OITC may be expected.

Percentile Sound Level, Ln
The noise level exceeded during *n* percent of the measurement period, where *n* is a number between 0 and 100 (e.g., L10 or L90)

Sound Transmission Class (STC)
STC is a single number rating, specified by the American Society for Testing and Materials, which can be used to measure the sound insulation properties for comparing the sound transmission capability, in decibels, of interior building partitions for noise sources such as speech, radio, and television. It is used extensively for rating sound insulation characteristics of building materials and products.

Structure-Borne Sound
Sound propagating through building structure. Rapidly fluctuating elastic waves in gypsum board, joists, studs, etc.

Sound Exposure Level (SEL)
SEL is the sound exposure level, defined as a single number rating indicating the total energy of a discrete noise-generating event (e.g., an aircraft flyover) compressed into a 1-second time duration. This level is handy as a consistent rating method that may be combined with other SEL and L_{eq} readings to provide a complete noise scenario for measurements and predictions.

However, care must be taken in the use of these values since they may be misleading because their numeric value is higher than any sound level which existed during the measurement period.

Subjective Loudness Level
In addition to precision measurement of sound level changes, there is a subjective characteristic which describes how most people respond to sound:

- A change in sound level of 3 dBA is *barely perceptible* by most listeners.
- A change in level of 6 dBA is *clearly perceptible*.
- A change of 10 dBA is perceived by most people as being *twice* (or *half*) as loud.

9.3 SoundPLAN® Acoustics Software

SoundPLAN®, the software used for this acoustic analysis, is an acoustic ray-tracing program dedicated to the prediction of noise in the environment. Noise emitted by various sources propagates and disperses over a given terrain in accordance with the laws of physics. The software calculates sound attenuation of environmental noise, even over complex terrain, uneven ground conditions, and with complex obstacles. Up to three reflections for each noise source are taken into account to closely and accurately predict real-world acoustics. Worldwide, governments and engineering associations have created algorithms to calculate acoustical phenomena to standardize the assessment of physical scenarios. Accuracy has been validated in published studies to be + / - 2.7 dBA with an 85% confidence level, for a wide variety of large-scale models and situations.

9.4 ISO 9613-2

For industrial and other noise sources besides road traffic, SoundPLAN calculates the sound field in accordance with ISO 9613-2 “Acoustics - Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation.” The standard states that “this part of ISO 9613 specifies an engineering method for calculating the attenuation of sound during propagation outdoors, in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions favorable to propagation from sources of known sound emissions. These conditions are for downwind propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night.” The uncertainty of calculations with this method are +/-1 dB for sources less than 10m in height and within 1000m of the receiver.

9.5 Traffic Noise Model (TNM)

The Federal Highway Administration Traffic Noise Model (TNM), implemented into the SoundPLAN® software, was used for the road traffic sound level modeling in this study. TNM contains the following components:

1. Modeling of five standard vehicle types, including automobiles, medium trucks, heavy trucks, buses, and motorcycles, as well as user-defined vehicles.
2. Modeling both constant- and interrupted-flow traffic using a field-measured database.
3. Modeling effects of different pavement types, as well as the effects of graded roadways.
4. Sound level computations based on a one-third octave-band database and algorithms.
5. Graphically-interactive noise barrier design and optimization.

6. Attenuation over/through rows of buildings and dense vegetation.
7. Multiple diffraction analysis.
8. Parallel barrier analysis.
9. Contour analysis, including sound level contours, barrier insertion loss contours, and sound-level difference contours.

These components are supported by a scientifically founded and experimentally calibrated acoustic computation methodology, as well as a flexible database, made up of over 6000 individual pass-by events measured at forty sites across the country.

Attachment A: Drive-Through Speaker Characteristics

Traffic Evaluation And

Vehicle Miles Traveled Assessment

for the Hub Project

Visalia, California

DRAFT REPORT

November 2024

Prepared for:
Greg Nunley
1878 N. Mooney Blvd., Suite J
Tulare, CA 93274

Prepared by:
C2 Consult Corp
1401 Wewatta St., Suite 516
Denver, Co 80202

Charles Clouse, Principal

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CHAPTER 1 – INTRODUCTION

Study Purpose

The Hub Project is located in Visalia, California and occupies approximately 8.3 acres. The Project is located on the northwest corner of the intersection of Lovers Lane at Walnut Avenue. The Hub is proposed to include both retail/commercial and possibly office land uses. **Figure 1** shows a vicinity map of the area around the development site. **Figure 5** shows the Hub site plan. This report evaluates the potential short-term changes in traffic.

Study Area and Scope of Work

The City of Visalia requested the following items to be evaluated as part of this traffic evaluation.

Intersections

The study shall assess the following intersections which are shown in **Figure 2**.

1) Walnut at Pinkham (signalized)
2) Walnut at McAuliff (4-way stop)
3) Lovers Lane at Tulare (signalized)
4) Lovers Lane at K Street (1-way stop)

Scenarios

The study will include the following scenarios:

1) Existing
2) Existing plus The Hub Project
3) Existing plus The Hub Project (mitigated, if necessary)
4) 2029 Conditions
5) 2029 Conditions plus The Hub Project
6) 2029 Conditions plus The Hub Project (mitigated, if necessary)

In addition to level of service assessments at the study intersections, an evaluation of proposed driveways located on Walnut Avenue and Lovers Lane will be completed. This evaluation will focus on sizing left-turn pocket assessment for eastbound Walnut at Lovers Lane and southbound Lovers Lane at Walnut. These will be compared into relationship to proposed northbound left turn and eastbound left turn lanes into the Project's driveways.

The second scenario will focus on the 2029 evaluation of the projected conditions at the study intersections. Using data supplied by the Tulare County Association of Governments Regional Traffic Model, peak hour turn movements will be estimated for the intersections. This information will be evaluated for level of service and will establish the 2029 conditions without the Hub Project. Peak hour signal warrants will be completed for those locations projected to operate below the City's level of service standard. This 2029 baseline data will be used to assess the changes brought about by the completion of the Hub Project. The 2029 plus the Hub traffic volumes will be assessed for level of service. At those locations where sub-standard levels are found, mitigation measures will be evaluated.

The City of Visalia also requested that existing transit, bicycle and pedestrian facilities in the near proximity of the project will be describe in the study.

Analysis Methodology

All level of service analyses performed for this study conform to the practices of the *Highway Capacity Manual*, and were done using the traffic analysis software HCS (unsignalized and (signalized). For signalized intersections, this software allows for optimization of signal timings to minimize traffic delay at each intersection. This process can result in different signal cycle lengths for both the AM and PM peak hours of a given analysis scenario and may also vary between different scenarios. This optimization somewhat reflects traffic agency procedure whereby intersection signal cycle lengths are adjusted for differing traffic conditions and times, based on counts of existing traffic volume.

For analysis purposes, HCM defines six levels of service for various facility types. The six levels are given letter designations ranging from "A" to "F", with "A" representing the best operating conditions and "F" the worst. Quantifiable measures of effectiveness that best describe the quality of operation on the subject facility type are used to determine the facilities level of service. For the case of both signalized and unsignalized intersections, the quantifiable measure of effectiveness is average control delay.[1]

Control delay for two-way stop-controlled (TWSC) intersections, which have stop signs on only the minor street approaches, is on a per-vehicle basis and is computed for the stop-controlled, minor-street movements and major street left turn movements only, because major-street through movements are theoretically in continual free-flow conditions and therefore experience no delay. Since there is no aggregation of delay for a TWSC intersection, there is no level of service for an intersection as a whole, but only levels of service for individual minor-street and major-street left turn movements.

The following table shows level of service ratings and their corresponding ranges of average control delay for both signalized and unsignalized intersections. For signalized intersections, it also contains a general description of traffic flow associated with each level of service.

[1] Control delay, according to the *2010 Highway Capacity Manual*, page 16-1, includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay.

INTERSECTION LEVEL OF SERVICE DESCRIPTIONS			Allowable Delay	
			Signalized	Unsignalized[1]
Level of Service	**Conditions**	**Signalized Intersection Description**	**Delay (sec/veh)**	**Delay (sec/veh)**
"A"	Free Flow	*Users experience very low delay. Progression is favorable and most vehicles do not stop at all.*	≤10.0	≤10.0
"B"	Stable Operations	*Vehicles travel with good progression. Some vehicles stop, causing slight delay.*	>10.0 – 20.0	>10.0 – 15.0
"C"	Stable Operations	*Higher delays result from fair progression. A significant number of vehicles stop, although many continue to pass through the intersection without stopping.*	>20.0 to 35.0	>15.0 – 25.0
"D"	Approaching Unstable	*Congestion is noticeable. Progression is unfavorable, with more vehicles stopping rather than passing through the intersection.*	>35.0 – 55.0	>25.0 – 35.0
"E"	Unstable Operations	*Traffic volumes are at capacity. Users experience poor progression and long delays.*	>55.0 – 80.0	>35.0 – 50.0
"F"	Forced Flow	*Intersection's capacity is oversaturated, causing poor progression and unusually long delays.*	>80.0	>50.0

Source: Chapters 16 and 18, Highway Capacity Manual, Transportation Research Board.
[1]Unsignalizedintersections include TWSC and AWSC

Level of service for each study intersection in the various analysis scenarios are summarized in tables throughout the report. For signalized intersections, the level of service rating shown represents the overall level of service for the intersection as a whole. For stop-controlled intersections, the level of service rating shown is for each individual traffic movement (excluding major-street through movements) instead of the entire intersection.

Level of Service Standard

The City of Visalia policy is to maintain Level of Service of "D," as defined in the Highway Capacity Manual (published by the Transportation Research Board of the National Research Council), as the minimum desirable service level at which arterial streets, collector streets and their intersections should operate.

Traffic Model

For the purposes of evaluating the Hub impacts, the Tulare County Association of Governments (TCAG) Regional Traffic Model was used to estimate future traffic in the 2029 horizon year. The Regional Traffic Model was selected after consultation with the City of Visalia. This tool provides the best and most reasonable evaluations in Tulare County as it can provide baseline traffic data for baseline and with Project conditions. This model is also used for long range multi-modal transportation planning, community circulation element preparation and air quality analysis. This

allows the Hub Project to be evaluated in the context of both Visalia and regional long-range plans and programs.

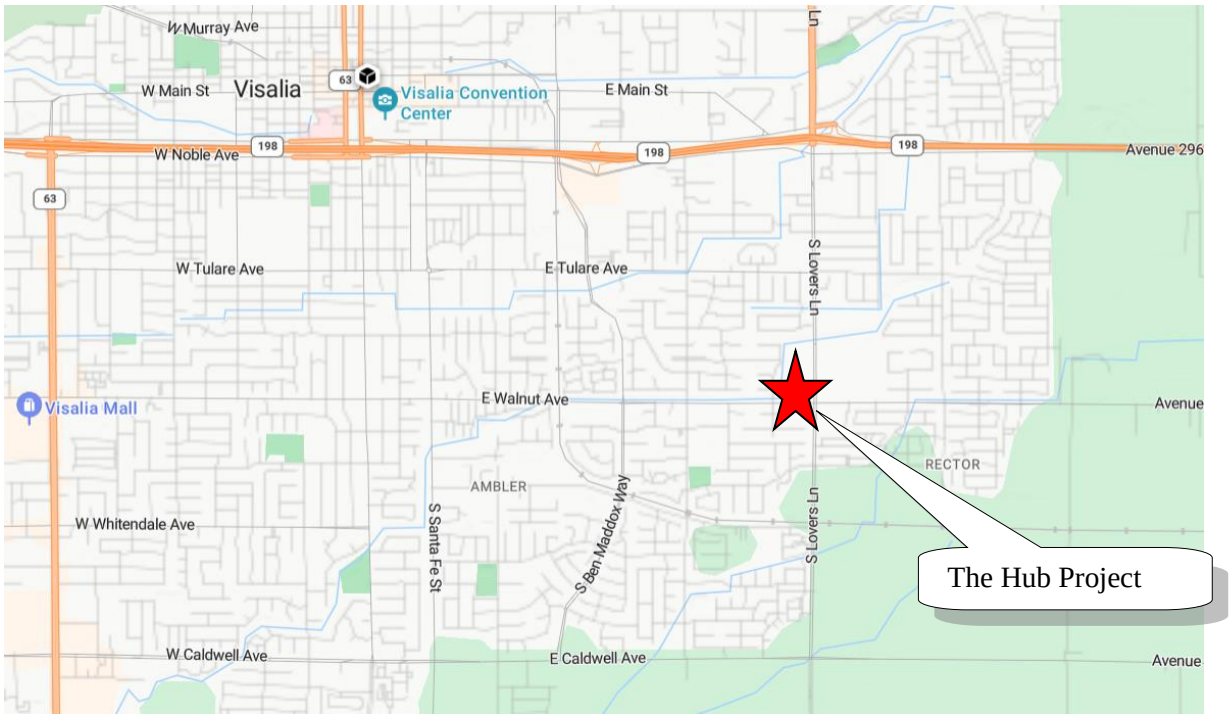


FIGURE 1: Vicinity Map

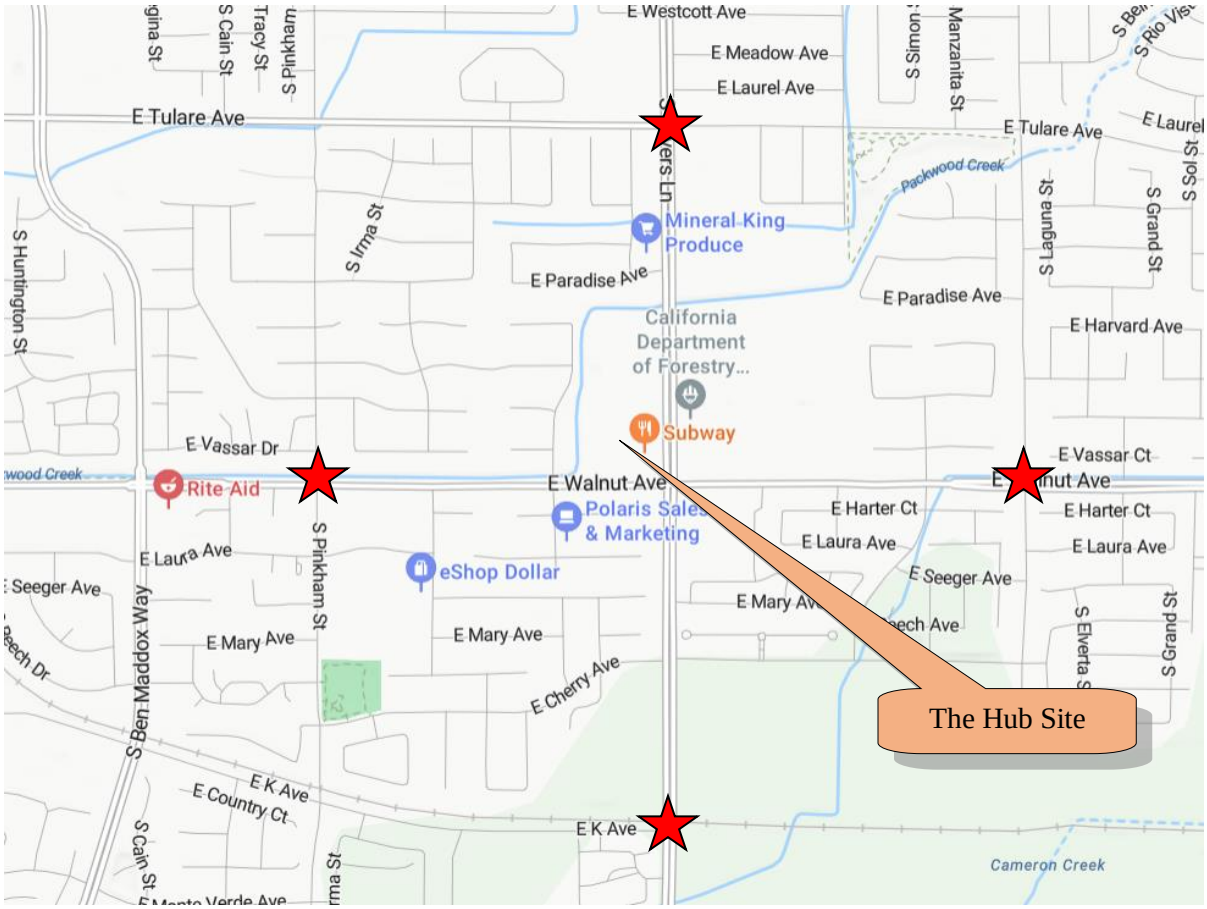


FIGURE 2: Project Location

CHAPTER 2 – EXISTING CONDITONS

Roadways

Lovers Lane
This street is a four-lane street with traffic signals at the intersection of Walnut Avenue and Tulare Avenues. The intersection of Lovers Lane at K Road is controlled by a stop sign on the K Road approach. The street is designated as an Arterial in the City General Plan and is currently posted as a 55 mile per hour speed zone south of K Road and 50 mile per hour north of Cherry Street.

It should be noted that two road improvement projects are currently programmed by the City which will introduce improvements to both Lovers Lane as well as Walnut Avenue. The first project will complete traffic signal modifications at Lovers Lane and Walnut Avenue to accommodate east/westbound four lanes. The estimated cost of this project is $2,000,000. The second project will construct a landscape median between Caldwell Ave and Walnut Avenue. The estimated cost: of these improvements is $745,000.

Walnut Avenue
The street is a two-lane city street that is currently posted as a 50 mile per hour speed zone west of Lovers Land and a 55 mile per hour speed zone east of Lovers Lane. The street is designated as an Arterial in the City's General Plan.

Tulare Avenue
Is a two-lane city street which is designated as a collector street in the City's General Plan. The street is currently posted as a 40 mile per hour speed zone.

K Road
Is a two-lane city street which is designated as a collector street in the City's General Plan. The street is currently an unposted 55 mile per hour speed zone.

Pinkham Street
Is a two-lane city street which is designated as a collector street in the City's General Plan. The street is currently posted as a 40 mile per hour speed zone.

McAuliff Street
Is a two-lane city street which is designated as a collector street in the City's General Plan. The street is currently an unposted 55 mile per hour speed zone.

Traffic Counts

According to the Institute of Transportation Engineers' *Traffic Impact Analyses for Site Development*, the overall purpose of a traffic impact study is to determine the project impacts that are likely to occur to the surrounding street system. In order to accomplish this, analysts need to determine what occurs when the peak of the project generated traffic is combined with the peak of the surrounding street traffic. The publication states that "peak periods [of adjacent streets and highways] are generally the weekday morning (7-9 a.m.) and evening (4-6 p.m.) peak hours, although local area characteristics occasionally result in other peaks (e.g., at major shopping or recreational centers).

On October 15, 2024, National Data & Surveying Services completed traffic counts between 7am and 9am and 4pm and 6pm at the designated intersections. That traffic data suggested that the peak hours were generally from 7:30 to 8:30am and from 4:30 to 5:30pm. The existing AM and PM traffic counts at the study intersection are shown in **Figure 3**.

Existing Conditions (2024)

Existing levels of service at the study intersection were assessed using the current lane configurations and using the existing weekday peak hour traffic volumes (shown in **Figure 3**). Level of service for existing conditions is summarized in **Table 1**. Calculations for the existing conditions are included in **Appendix A.**

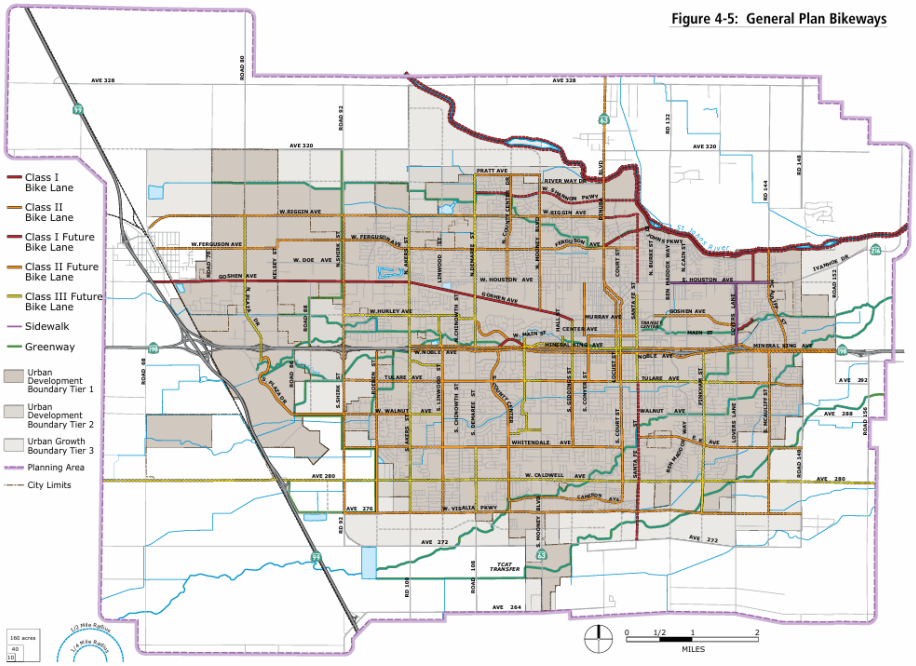
Table 1:
Existing Conditions
Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Vehicle Delay	LOS	Vehicle Delay	LOS
Walnut at Pinkham (signal)	25.6	C	25.8	C
Walnut at McAuliff (stop signs)	9.0	A	11.9	B
Lovers Ln at Tulare (signal)	19.6	B	24.1	C
Lovers Ln at K Rd (stop sign)				
Eastbound approach	11.0	B	11.5	B
Northbound approach	0.7	A	0.5	A
Southbound approach	0.1	A	0.2	A

Based on the existing conditions assessment, all four intersections are currently operating above the City of Visalia's level of service standard of "D".

Bicycles

The City of Visalia Bikeway Plan (2011) is intended to guide bikeway policies, programs and facility improvements to improve safety, comfort and convenience for all bicyclists in the community. The City's Bike Plan proposes a number of bike paths and bike lanes to be developed in the future. The following describes the existing and planned bike facilities surrounding the Hub Project Site.



Lovers Lane
There are no bike facilities planned for this street.

Walnut Avenue
There are no bike facilities planned for this street.

Tulare Avenue
The City Bike Plan proposes Class II and Class III bike lanes along this portion of Tulare Avenue.

K Road
The City Bike Plan proposes Class III bike lanes along this portion of K Road.

Pincham Street
The City Bike Plan proposes Class II bike lanes along this portion of Pinkham Street.

McAuliff Street
This street currently is striped for Class II bike lanes.

Transit
The City of Visalia operates Visalia Transit which provides service within the community as well as to and from Tulare, Exeter, Farmersville and Goshen. Visalia Transit currently operates 14 fixed-routes along with a seasonal shuttle to Sequoia National Park. On-demand services are also provided within the service area for door-to-door trips.

The hours of operation are Monday through Friday from 6:00am to 9:30pm and on Saturday and Sunday from 8:00am to 6:30pm. The service does not operate on New Year's Day, Easter, Memorial Day, Independence Day, Thanksgiving and Christmas Day. Limited service is provided on President's Day, Labor Day, Christmas Eve and New Year's Eve.

Regular general fare is $1.75 and the discount senior fares are available for $0.85.

One route, Route 9, provides fixed route service to the Hub Project along Walnut Avenue. Weekday service is provided every 45 minutes, while weekend service is provided every hour and a half. A bus stop is located on the north side of Walnut Avenue in front of the existing mini-mart just west of Lovers Lane and one located on the south side of the street at the intersection of Cedar Court at Walnut Avenue. As part of the Hub Project, a new bus stop will be built by the developer along Walnut Avenue at the northeast corner of Walnut at Cedar. This bus stop will provide enhanced westbound access for the Hub Project as well as the surrounding neighborhoods.

Figure 4 shows the relationship of the Hub Project to Route 9.

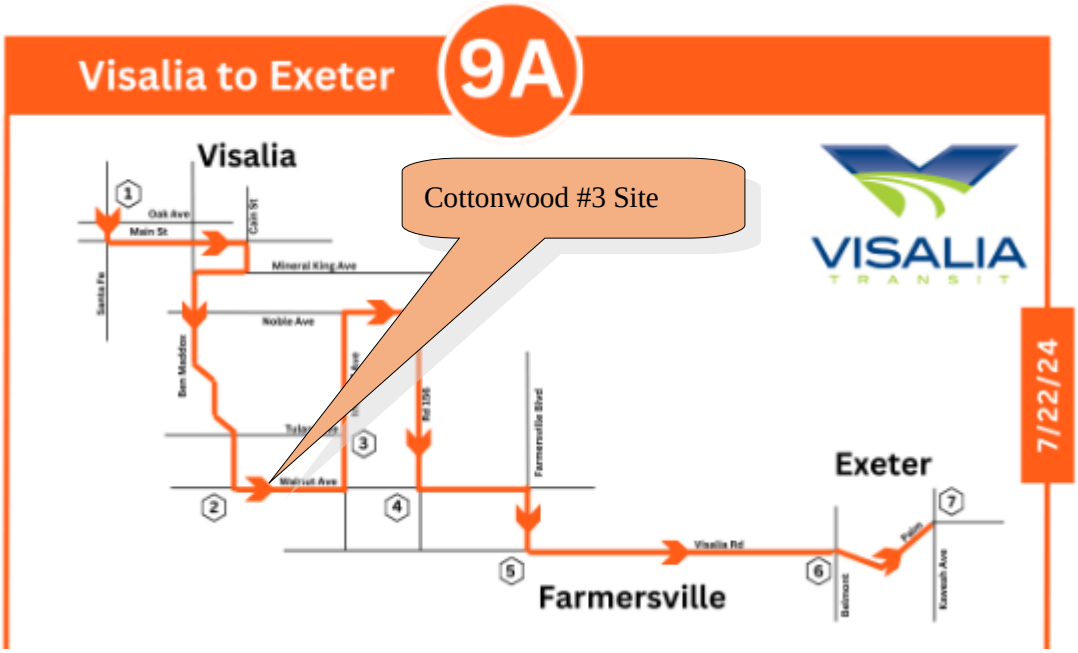


FIGURE 4: Visalia Transit Route Map

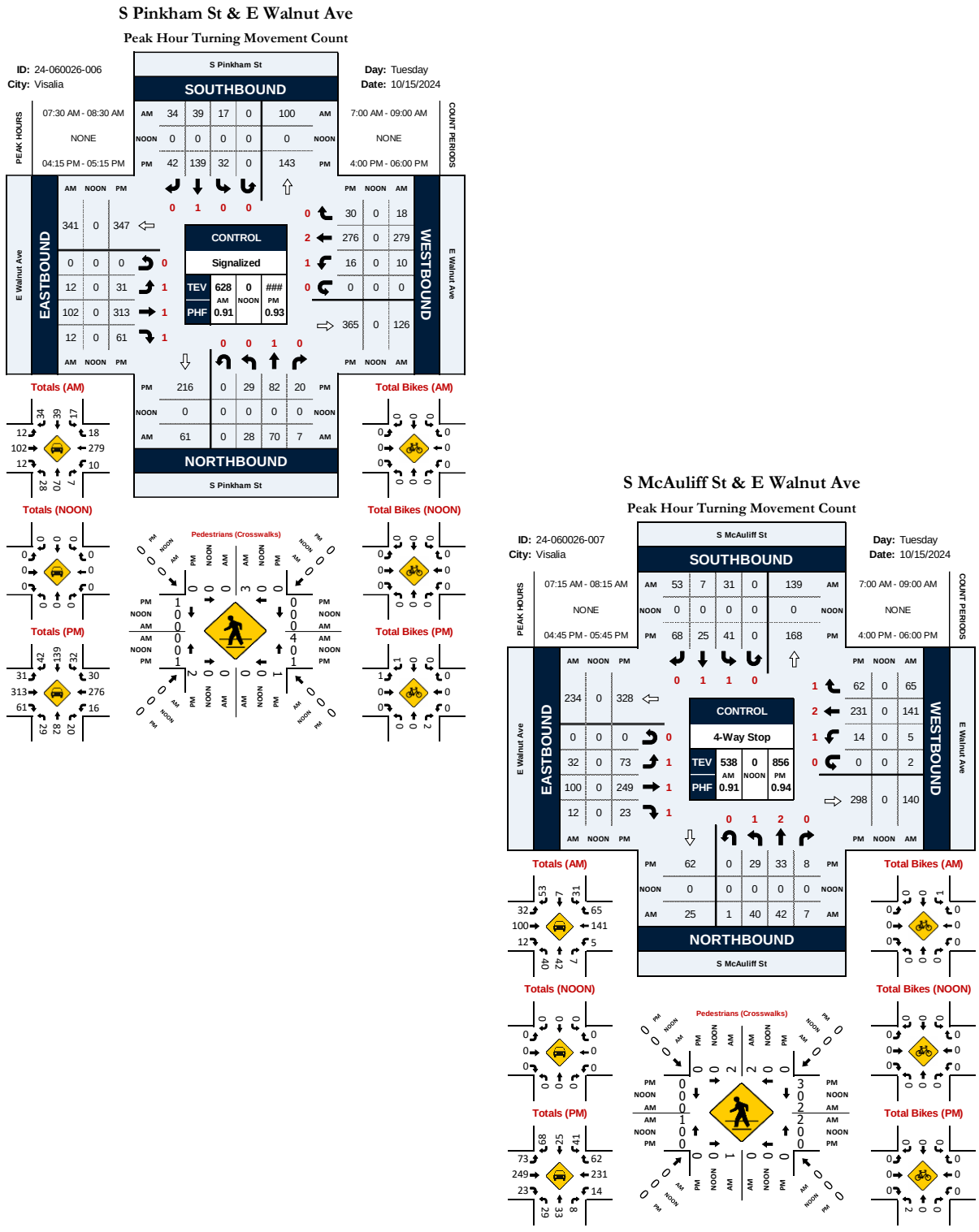


FIGURE 3: Existing Traffic Counts

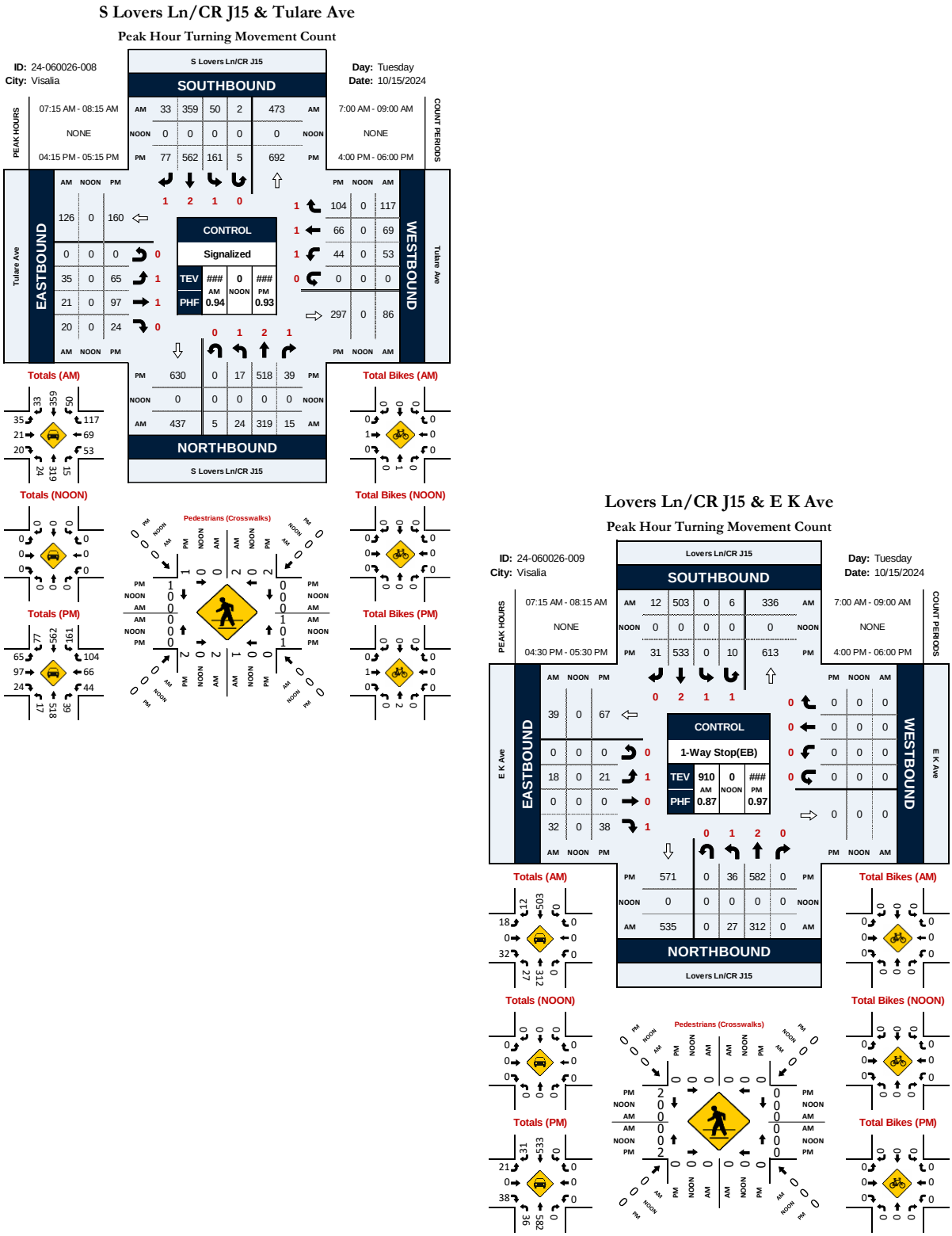


FIGURE 3: Existing Traffic Counts

CHAPTER 3 – PROJECT DESCRIPTION

The Hub is proposed as a retail/commercial center with possible office land uses. The Project is to be located on the northwest corner of the intersection of Lovers Lane at Walnut Avenue. The site is approximately 8.3 acres. As currently visioned, the Hub Project will include a grocery store, a health club, potentially office space, retail uses, a drive-thru coffee shop, two drive-thru fast food restaurants and a car wash.

Figure 5 shows the proposed site plan. Access will be provided through a single driveway on Walnut Avenue and a driveway on Lovers Lane. The Project site will have medians on both Lovers Lane and Walnut Avenue. The Lovers Lane median currently exists, while the Hub Project will construct the median along Walnut Avenue between Lovers Lane and Cedar Street to the west. The Hub Project will also introduce a new cul-de-sac street on the northern boundary of the site. The driveway on Walnut is proposed to be serviced with a right-in and right-out driveway along with an eastbound left turn lane built into the new median. This median opening would be constructed to prohibit exiting traffic turn left onto Walnut Avenue. The existing median in Lovers Lane is proposed to be modified to provide for only a northbound left turn movement into the new cul-de-sac street.

Figure 6 shows the proposed Walnut Avenue Median layout and Figure 7 provides additional details for the layout along Walnut Avenue.

Project Trip Generation

New trips generated by the Hub Project were estimated using the Institute of Transportation Engineer's *Trip Generation Manual.* This publication provides average rates of trip generation for different land uses and relates these to dwelling units (residential). Trip generation rates are provided for weekdays along with the proportion of trips that are inbound or outbound from the development. The resulting Project trip generation is shown in **Table 2**. These trips represent the total volumes entering or exiting the Project site. They do not represent total new trips, which are described in the following section.

Table 2
The Hub
Trip Genreation

Land Use	Sq. ft.	Land Use Code	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
				Enter	Exit	Enter	Exit
Grocery	18,500	850	2,082	31	22	99	99
Anchor (Health club)	19,900	492	-	13	13	48	37
Office/Retail	9,800	821	662	11	6	25	26
Retail	2,800	821	189	3	2	7	8
Coffee w/drive thru	2,450	937	1,307	107	103	48	48
Food w/drive-thru	3,250	934	1,519	74	71	56	51
Food w/drive-thru	3,250	934	1,519	74	71	56	51
Car Wash	4,765	948	-	-	-	39	39
Totals	**64,715**		**7,278**	**313**	**288**	**378**	**358**

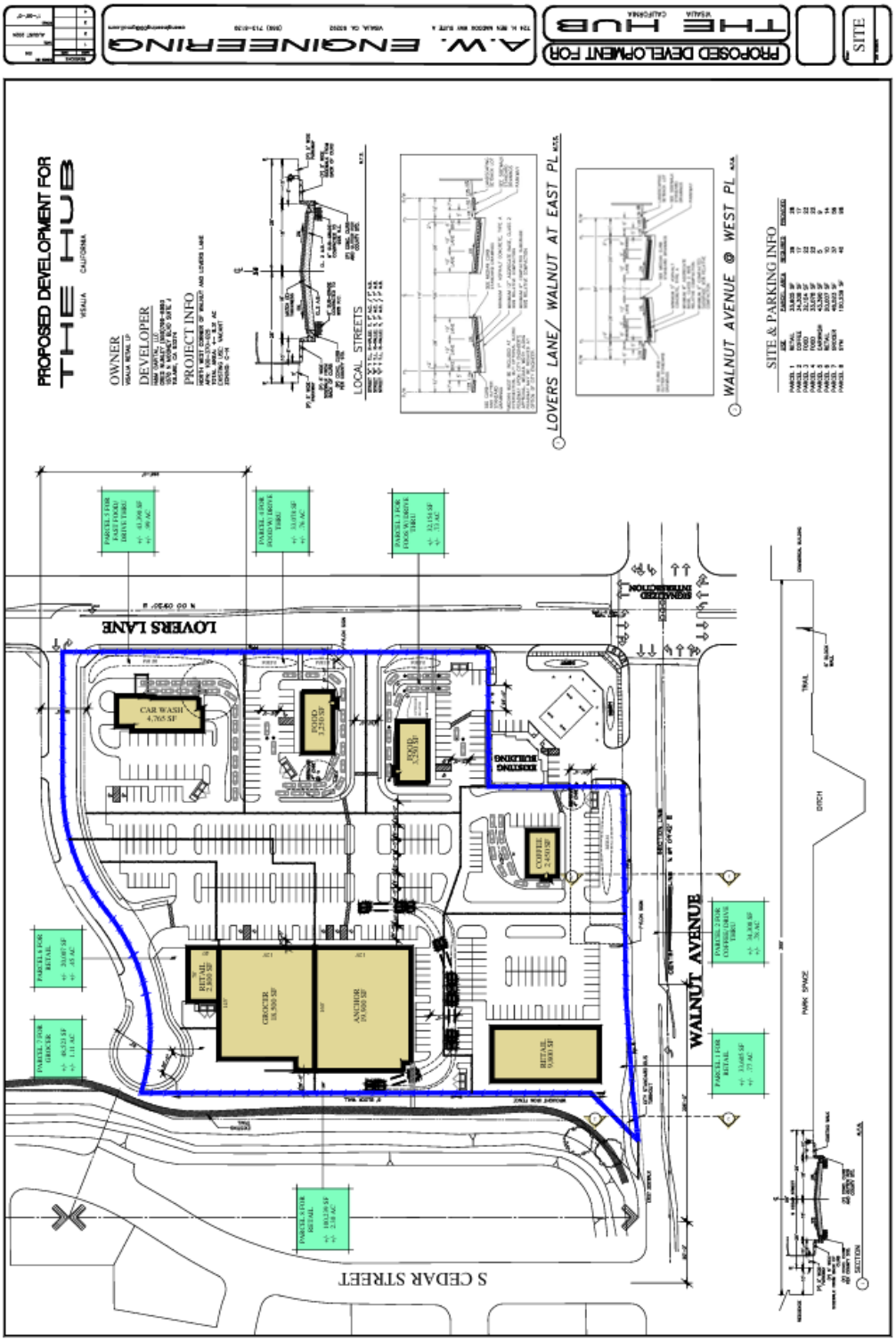


FIGURE 5: The Hub Project

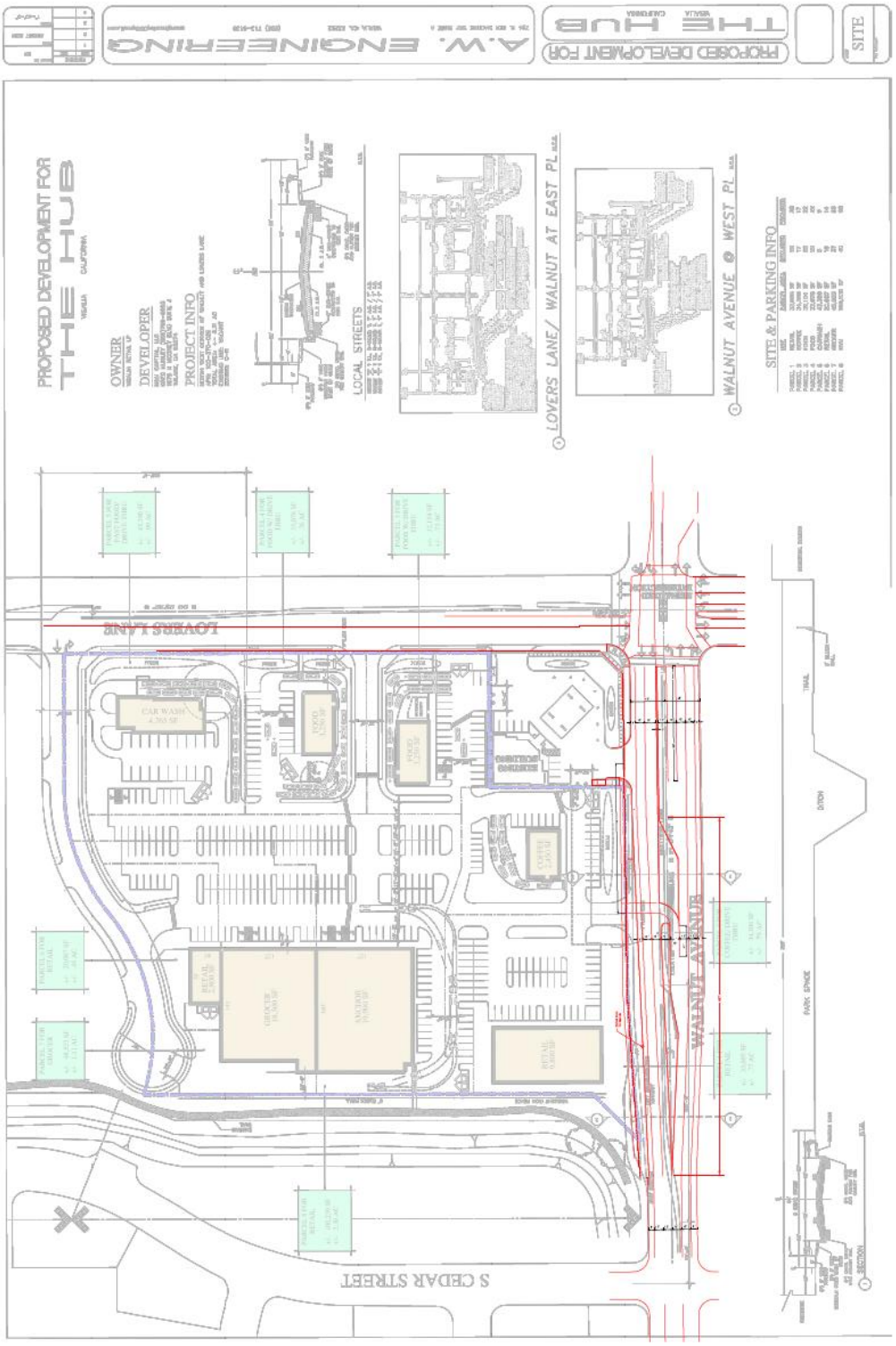


FIGURE 6: Walnut Avenue Median Proposal

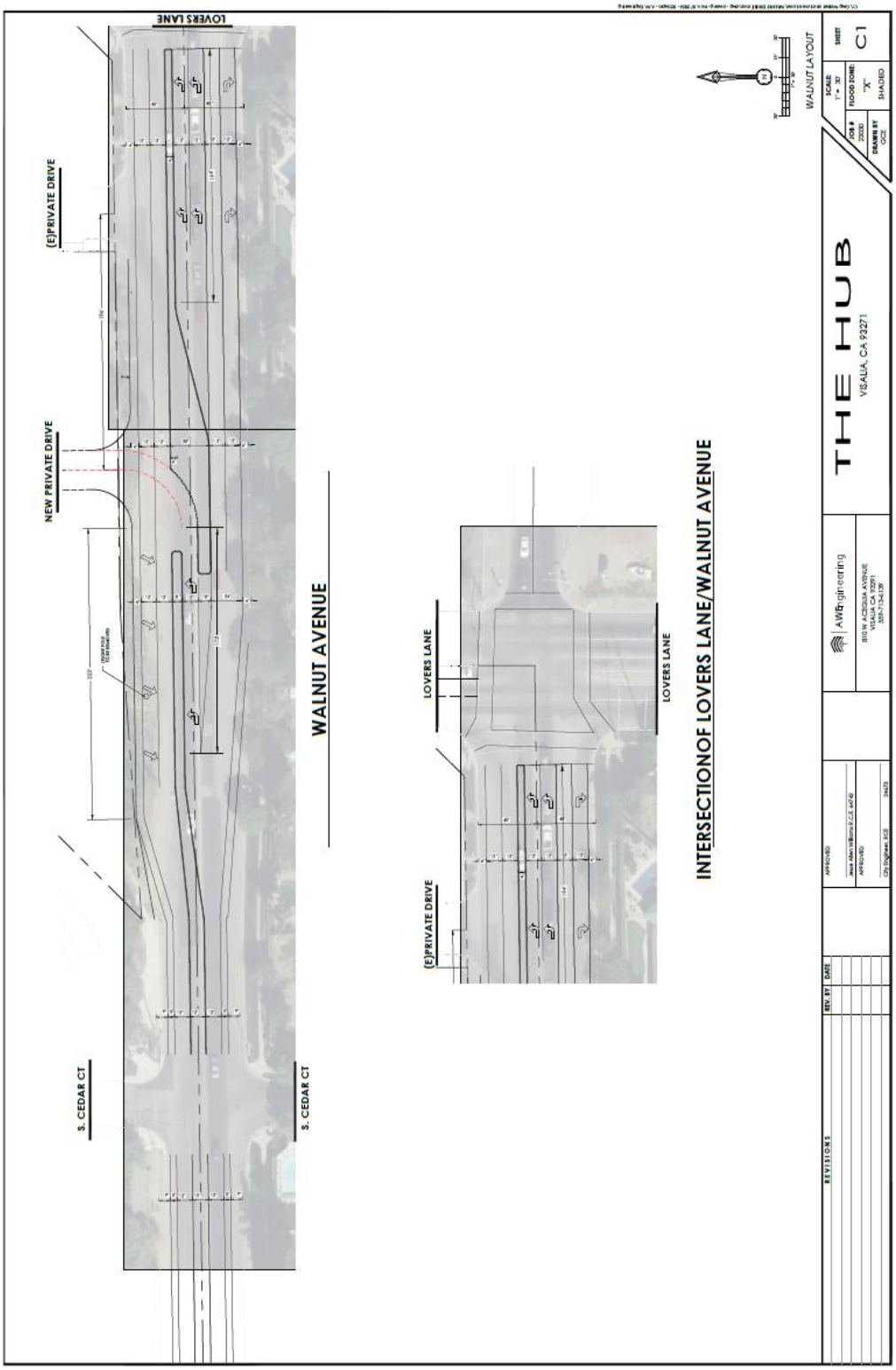


FIGURE 7: Walnut Avenue Layout Diagram

Project Pass-by Trips

Pass-by trips refer to traffic that is present on a roadway adjacent to a land use project for reasons other than accessing the project and that enters the project. The ITE Trip Generation Manual, defines pass-by trips as an intermediate stop on the way from an origin to a primary trip destination without route diversion. The Trip Generation Manual provides guidance on potential pass-by trips for selected land uses (generally, retail and commercial). This guidance is in the percentage of pass-by trips made to and from a particular land use.

Table 3
The Hub
Application of Pass-by Trips

Land Use	Land Use Code	AM Peak Hour %	PM Peak Hour %	AM Peak Hour Trips		PM Peak Hour Trips	
				Enter	Exit	Enter	Exit
Grocery	850	0%	24%	31	22	75	75
Anchor (Health club)	492	0%	0%	13	13	48	37
Office/Retail	821	0%	40%	11	6	15	16
Retail	821	0%	40%	3	2	4	5
Coffee w/drive thru	937	90%	98%	11	10	1	1
Food w/drive-thru	934	50%	55%	37	36	25	23
Food w/drive-thru	934	50%	55%	37	36	25	23
Car Wash	948	0%	0%	-	-	39	39
Totals				**143**	**124**	**233**	**218**

Table 3 shows the estimated AM and PM peak hour pass-by percentage for each of the proposed land uses for the Hub Project. It should be noted that pass-by percentages are limited and some are available for only PM peak hours, some not at all and some for both AM and PM peak hours. Applying the ITE pass-by rates, the Hub's estimated additional (new) vehicle trips are 267 new trips in the AM peak hour and 451 new trips in the PM peak hour. The balance of the Project's trips shown in Table 2 will come from the existing traffic volumes along both Walnut Avenue and Lovers Lane. Figure 8 shows the estimated driveway volumes which include pass-by traffic.

Project Trip Distribution

The Hub Project distribution was developed from existing volumes of traffic surrounding the site. These percentages were used to distribute project trips to the driveways. **Table 4** shows the trip distribution for both AM and PM peak hour trips to and from the Hub Project. The distribution of the Hub Project trips will be limited to only those additional trips added as a result of the Project. Pass-by trips will remain in the existing traffic streams at the study intersections and are accounted for in the existing traffic counts.

Table 4
The Hub
Trip Distribution (percentage)

Peak Hour	**AM**		**PM**	
Direction	In	Out	In	Out
North	39%	27%	33%	31%
South	30%	39%	32%	31%
East	21%	11%	17%	19%
West	11%	23%	19%	18%
	100%	100%	100%	100%

Project Trip Assignment

The specific project trip assignments at the intersections are shown in **Figure 9.** The assignments have been completed to reflect existing traffic volumes in the surrounding intersections.

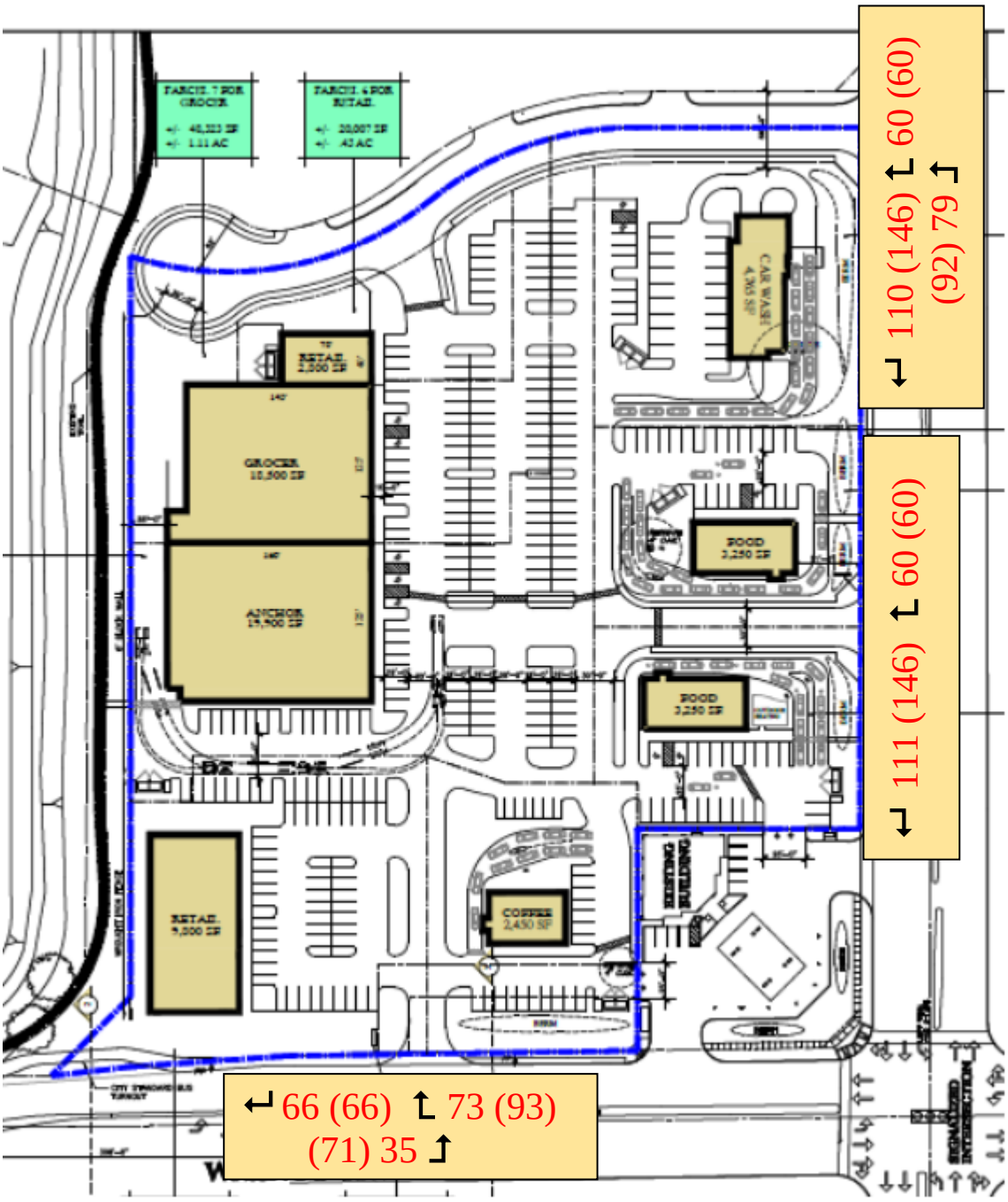
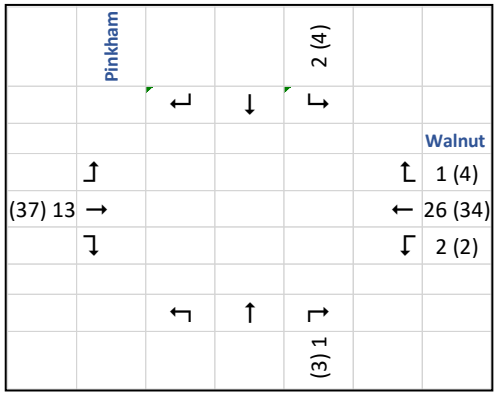
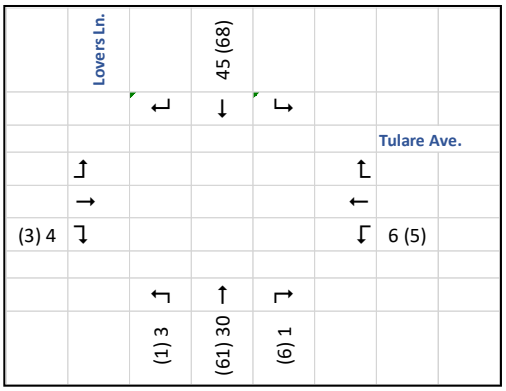


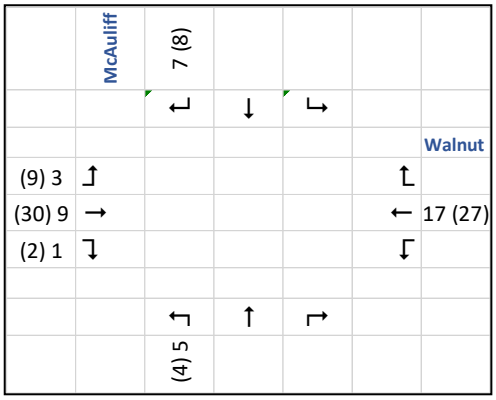
FIGURE 8: Trip Assignment at Driveways & Cul-de-sac Entrances



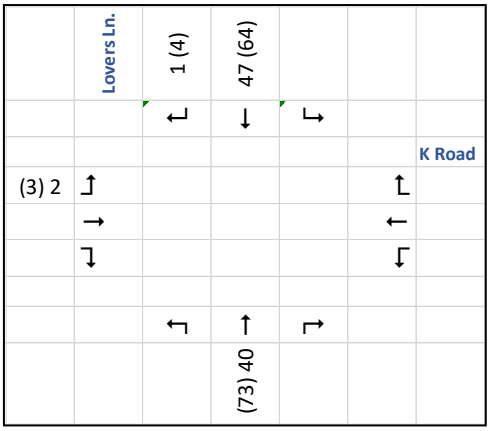
Walnut at Pinkham



Lovers at Tulare



Walnut at McAuliff



Lovers at K Road

FIGURE 9: Trip Assignment at Study Intersections

CHAPTER 4 – CONDITIONS WITH PROJECT

The conditions with trips generated from the Hub Project were assessed by adding the Project's trips to the existing traffic volumes which are shown in **Figure 3**. The Project's trip assignment is shown in **Figure 9**, which were added to the existing volumes to estimate the existing plus Project volumes. The combined peak hour traffic volumes used for this assessment are shown in **Figure 10**. The lane configurations at the intersection with the completion of the Hub Project were assumed to remain the same as existing. The Level of Service Calculations for the Existing plus the Project can be seen in **Appendix B.**

Table 5
Existing PLUS the Hub Project Conditions
Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Vehicle Delay	LOS	Vehicle Delay	LOS
Walnut at Pinkham (signal)	20.7	C	25.8	C
Walnut at McAuliff (stop signs)	9.4	A	13.1	B
Lovers Ln at Tulare (signal)	19.4	B	23.8	C
Lovers Ln at K Rd (stop sign)				
Eastbound approach	11.4	B	12.2	B
Northbound approach	0.6	A	0.5	A
Southbound approach	0.1	A	0.2	A

Based on the Existing plus Hub Project conditions assessment as shown in **Table 2**, the intersections are projected to operate above the City's level of service target standard of D.

Opening Day Project Mitigation

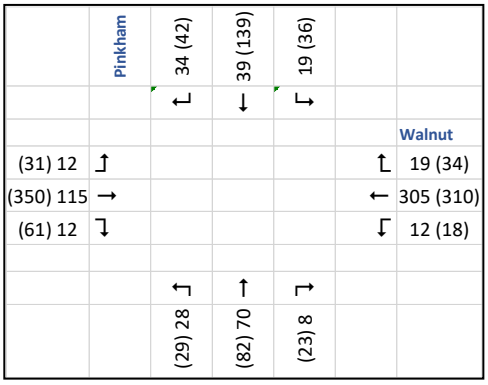
With the level of service predictions shown in Table 2 the Hub Project should be limited to the standard improvements along the frontages with Lovers Lane and Walnut Avenue. This includes median improvements on Lovers Lane as well as the introduction of a median in Walnut Avenue between Cedar Street and Lovers Lane. It should be noted that as part of the improvements along Walnut Avenue the Hub Project will construct a bus turn out near the Walnut at Cedar intersection.

Payment of City Impact Fee

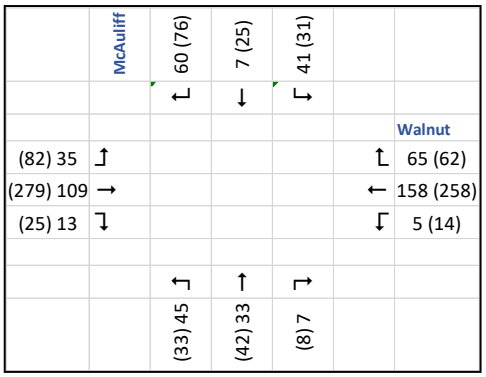
The Hub Project will contribute to the overall circulation system through the payment of the City's Traffic Impact Fee. This fee will be used to fund and construct street improvements throughout the City including the programmed improvements along Walnut Avenue as described in the City's Capital improvement Program. Based on the current fee structure the Hub Project is estimated to contribute approximately $1.2 million to this City fund.

Table 6
The Hub Project
Transportation Impact Fee
(estimated)

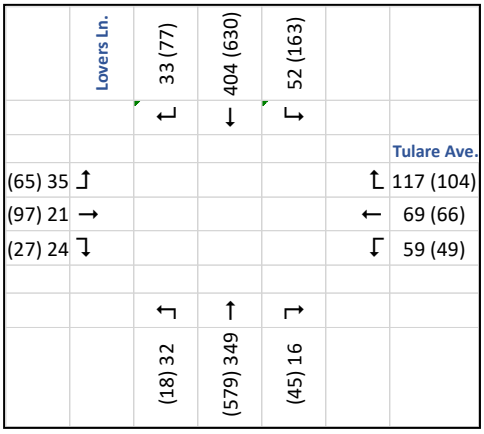
Commercial - Gen Retail Rate (per 1,000sf)		$18,735
Total Square Footage		64,715
	Total Fee	**$1,212,436**



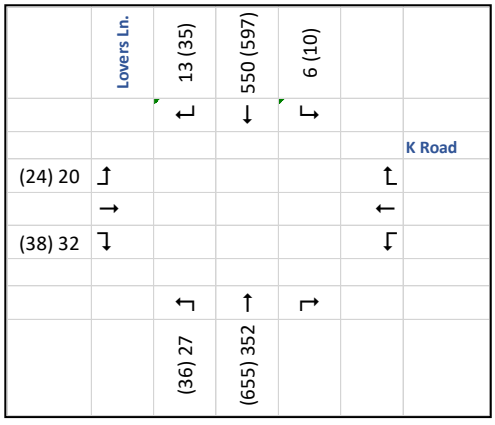
Walnut at Pinkham



Walnut at McAuliff



Lovers at Tulare



Lovers at K Road

FIGURE 10: Existing Plus the Hub Traffic Counts

Median Left Turn Lanes

The City of Visalia has requested additional information regarding the potential traffic demand that is projected to use the median breaks along Walnut Avenue and Lovers Lane to access the Hub Project site. Reference is made to the Caltrans Highway Design Manual (2022), Chapter 400 – Intersections at Grade, 405.2 Left-turn Channelization, Section 2 (e) Storage Length – At unsignalized intersections, storage length may be based on the number of turning vehicles likely to arrive in an average 2-minute period during the peak hour. At a minimum, space for 2 vehicles should be provided at 25 feet per vehicle. If the peak hour truck traffic is 10 percent or more, space for at least one passenger car and one truck should be provided.

Using this guidance, the following discussion reviews potential traffic demand at each of the three project site driveways or access street.

Walnut Avenue Driveway Median Left Turn Lane

This location will be governed by the lack of a traffic signal regulating the approach traffic. This will result in uncontrolled arrivals. The demand is estimated to total 71 eastbound PM peak hour turns entering the Hub site. Assuming a uniform arrival rate over this peak hour, a vehicle per minute would be entering the turn pocket. Using the guidance, in a 2-minute period, 2 vehicles would arrive. Additionally, assuming one delivery truck arrives during that time, the following formula would yield the estimated left turn pocket storage requirements:

2 vehicles x 25 feet/vehicle + 1 truck x 50 feet/truck = 100 feet of storage

As proposed, the median left turn lane shown on Walnut Avenue is approximately 175 feet in length.

Cul-de-sac Median Left Turn Lane

This location will be governed by the traffic signal located at Lovers Lane and Walnut Avenue, which will regulate the approach traffic. This will result in controlled arrivals. The demand is estimated to total 92 northbound PM peak hour turns entering the Hub site. Assuming a traffic signal cycle length of 100 seconds, a total of 36 signal cycles will be completed every hour. Using the number of cycles and assuming a uniform arrival rate, the resulting vehicle arrivals would be approximately 2.6 vehicles per signal cycle. For calculation purposes assume 3 and applying the guidance, in a 2-minute period, 6 vehicles would arrive. Additionally, assuming one delivery truck arrives during that time, the following formula would yield the estimated left turn pocket storage requirements:

6 vehicles x 25 feet/vehicle + 1 truck x 50 feet/truck = 200 feet of storage

The proposed the median left turn lane shown on Lovers Lane which would serve the new cul-de-sac should be designed with a minimum of this length with special consideration of the existing southbound left turn lane at the intersection of Lovers Lane at Walnut Avenue and the existing northbound left turn lane located in Lovers Lane north of the site

CHAPTER 5 – 2029 CONDITIONS

The third assessment requested by the City of Visalia is an evaluation 5-years in the future. The 2029 conditions analysis was developed beginning with output from the Tulare County Association of Governments' Regional Traffic Model. A 2029 traffic model run was completed and those projected traffic volumes were used to estimate growth rates at the study intersections. Table 8 shows the 5-year growth rate estimates using the 2024 traffic counts collected in October 2024 and the projected 2029 segment volumes from the Traffic Model. Three of the four study intersections show a growth rate of between 27% and 64%, while one intersection (Walnut at McAuliff) shows a negative growth in the Traffic Model. Assuming this is an anomaly, an assumed growth rate of 25% was used for this location. Figure 11 shows the projected turn movements at the study intersections.

Table 8
2029 Growth Rates
from TCAG Model Growth Rates
based on PM peak hour volumes

	Existing	2029	Growth	%
Lovers at Tulare	574	731	157	27%
Lovers at K	574	835	261	45%
Walnut at Pinkham	322	527	205	64%
Walnut at McAuliff	345	205	-140	-41%

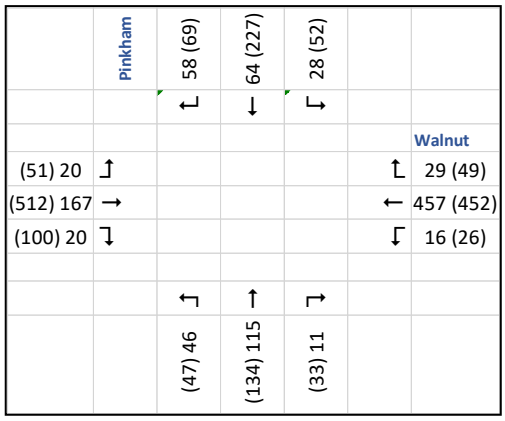
It should be noted that the City of Visalia has a street improvement project programmed on Walnut Avenue at its intersection with Lovers Lane. That project is planned to modify the existing traffic signal to accommodate additional east and westbound bound lanes. It is anticipated that this project will be completed by 2029.

The 2029 conditions were assessed using the future traffic volumes which are shown in **Figure 11**. The existing lane configurations at the intersections were assumed to remain the same in 2029. The Level of Service Calculations for the 2029 conditions in **Appendix D.**

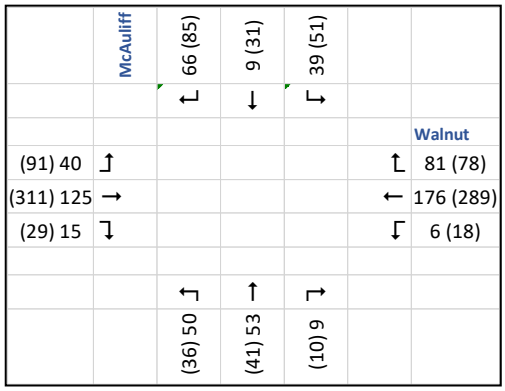
Based on the 2029 traffic volumes and the existing lane configurations at the study intersections the future conditions assessment is shown in **Table 8**, Based on those evaluations the study intersections are projected to operate above the City's level of service target standard of D.

Table 8
2029 Conditions
Level of Service

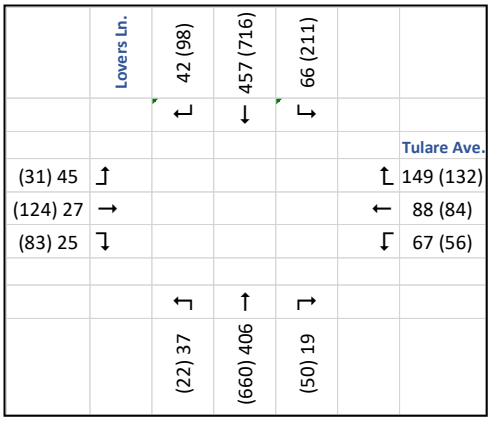
Intersection	AM Peak Hour		PM Peak Hour	
	Vehicle Delay	LOS	Vehicle Delay	LOS
Walnut at Pinkham (signal)	23.9	C	37.8	D
Walnut at McAuliff (stop signs)	9.9	A	15.3	C
Lovers Ln at Tulare (signal)	20.6	C	30.1	C
Lovers Ln at K Rd (stop sign)				
Eastbound approach	13.0	B	14.2	B
Northbound approach	0.8	A	0.6	A
Southbound approach	0.1	A	0.3	A



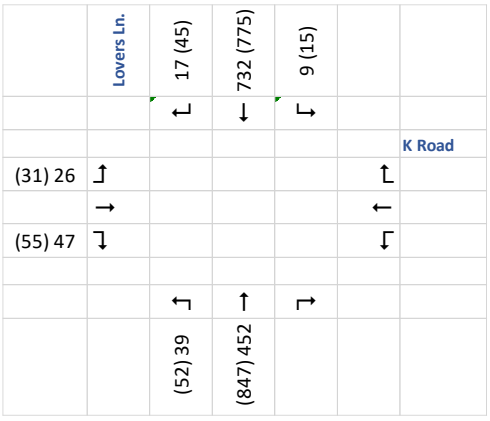
Walnut at Pinkham



Walnut at McAuliff



Lovers at Tulare



Lovers at K Road

FIGURE 11: 2029 Traffic Counts (estimated)

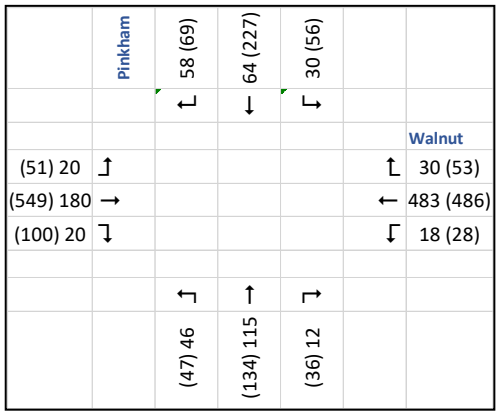
CHAPTER 6 – 2029 CONDITIONS WITH PROJECT

The 2029 conditions with the Hub Project were assessed by adding the Project's trips to the projected traffic volumes which were shown in **Figure 11**. The Project's trip assignment as shown in **Figure 9**, were added to these volumes and the resulting 2029 with the Hub Project volumes are shown in **Figure 12**. The lane configurations at the intersections were assumed to remain the same as existing. The Level of Service Calculations for the 2029 plus the Project can be seen in **Appendix E.**

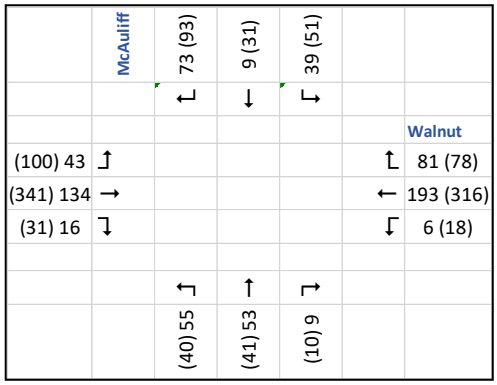
Based on the 2029 plus Hub Project conditions assessment as shown in **Table 9**, the intersections are projected to operate above the City's level of service target standard of D.

Table 9
2029 PLUS the Hub Project Conditions
Level of Service

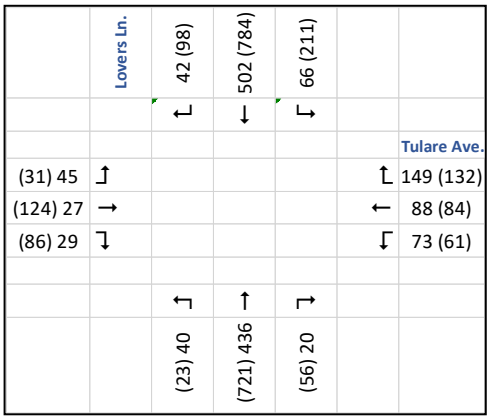
Intersection	AM Peak Hour		PM Peak Hour	
	Vehicle Delay	LOS	Vehicle Delay	LOS
Walnut at Pinkham (signal)	23.7	C	39.3	D
Walnut at McAuliff (stop signs)	10.2	B	17.8	C
Lovers Ln at Tulare (signal)	20.5	C	30.2	C
Lovers Ln at K Rd (stop sign)				
Eastbound approach	13.6	B	15.2	C
Northbound approach	0.7	A	0.6	A
Southbound approach	0.1	A	0.3	A



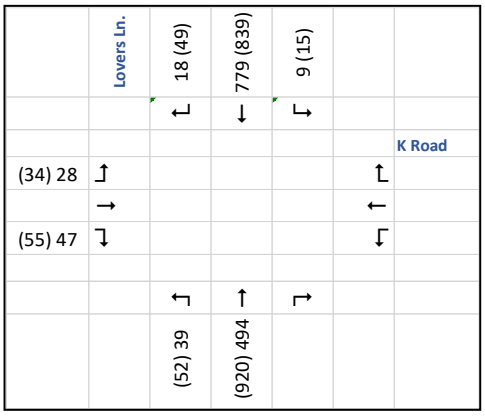
Walnut at Pinkham



Walnut at McAuliff



Lovers at Tulare



Lovers at K Road

FIGURE 12: 2029 PLUS the Hub Project Traffic Counts

CHAPTER 7 – VEHICLE MILES TRAVELLED ASSESSMENT

On March 2021 the City of Visalia issued guidelines to assist in Implementing Vehicle Miles Traveled Thresholds in the California Environmental Quality Act as required by SB 743. Pursuant to the City of Visalia Guidelines, the City has determined that the Hub Project is exempt from the requirement of a vehicle mile travelled evaluation.

Appendix A
Existing Conditions
Level of Service Calculations

Appendix B
Existing Plus the Hub Project Conditions Level of Service Calculations

Appendix C
TCAG Regional Traffic Model – 2029 Year Traffic with and without the Hub Project

S

Steven L Ingoldsby

To me, Roberto

Charley,

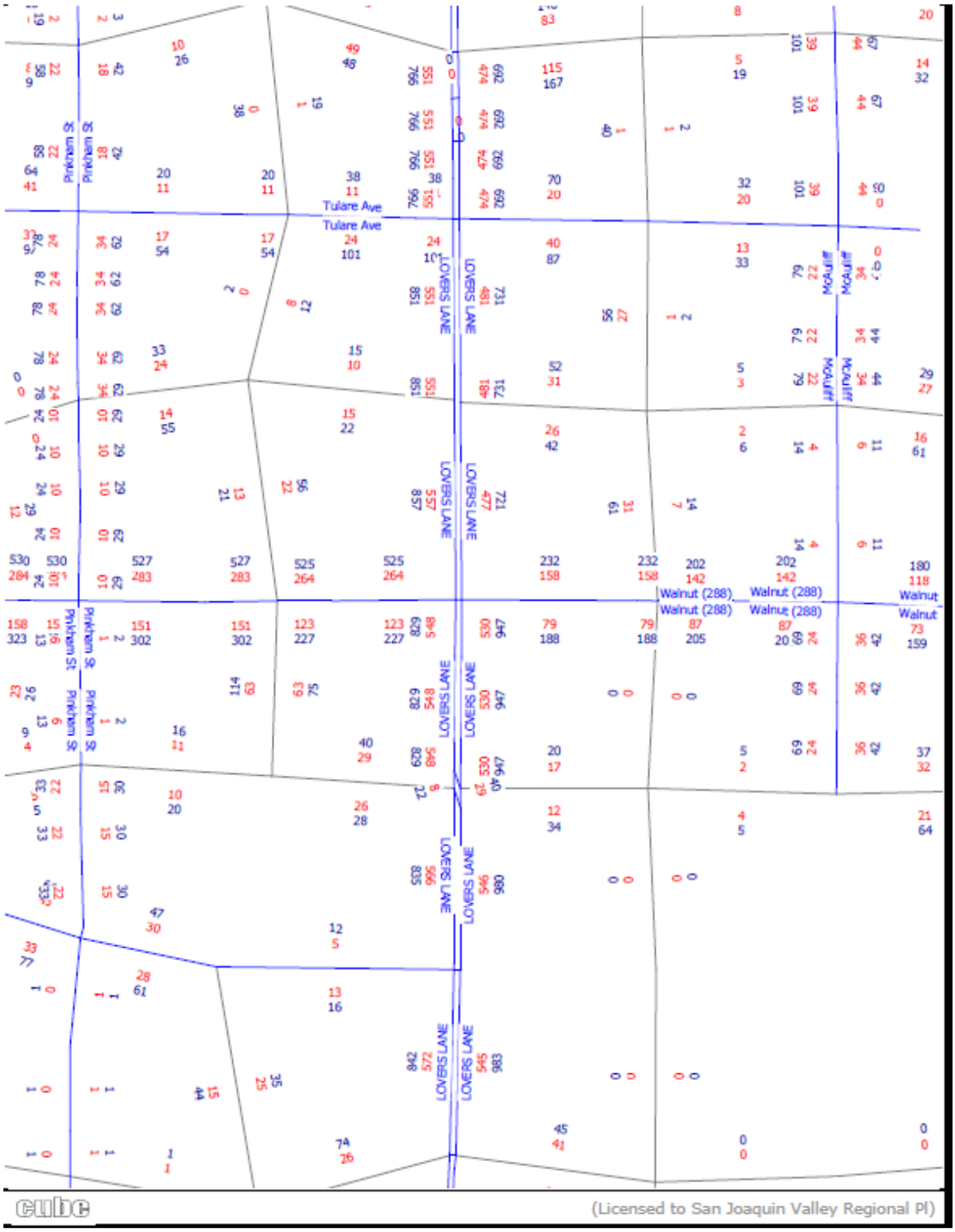
Attached are the results from the models runs. The two files are 2029 No Project and 2029 with the Hub Project. The scenario with the Hub Project was run with the fratar post process and the Select Link volumes are posted.

A01_Vol is red and P01_Vol is purple for the no project model run.
A01_Vol_SL1 is red and P01_Vol_SL1 is purple for the Hub Project model run.

Please let me know if you have any questions.

Regards,

Steven Ingoldsby
Senior Regional Planner
Tulare County Association of Governments
singoldsby@tularecag.ca.gov
559-623-0450



TCAG's 2029 Traffic Model Run WITHOUT the Hub Project

Appendix D
2029 Conditions
Level of Service Calculations

Appendix E
2029 Conditions with the Hub Project Level of Service Calculations