REGULAR MEETING
OF THE MADERA CITY COUNCIL

205 W. 4th Street, Madera, California 93637

NOTICE AND AGENDA

Wednesday, March 16, 2016
6:00 p.m.

Council Chambers
City Hall

CALL TO ORDER

ROLL CALL: **Mayor Robert L. Poythress**
Mayor Pro Tem Charles F. Rigby
Council Member Andrew J. Medellin
Council Member Donald E. Holley
Council Member Derek O. Robinson Sr.
Council Member William Oliver

INVOCATION: Pastor Barry Benard, Westside Christian Fellowship

PLEDGE OF ALLEGIANCE:

PUBLIC COMMENT:

The first fifteen minutes of the meeting are reserved for members of the public to address the Council on items which are within the subject matter jurisdiction of the Council. Speakers shall be limited to three minutes. Speakers will be asked to identify themselves and state the subject of their comment. If the subject is an item on the Agenda, the Mayor has the option of asking the speaker to hold the comment until that item is called. Comments on items listed as a Public Hearing on the Agenda should be held until the hearing is opened. The Council is prohibited by law from taking any action on matters discussed that are not on the Agenda, and no adverse conclusions should be drawn if the Council does not respond to public comment at this time.

PRESENTATIONS

1. Presentation of the Tire Derived Grant Award
2. Proclamation Recognizing March as Youth Art Month

A. WORKSHOP

There are no items for this section.

B. CONSENT CALENDAR

B-1 Minutes – There are no minutes for consideration.

B-2 Information Only – Warrant Disbursement Report

B-3 Weekly Water Conservation Report – 2/29/16-3/6/16 (Report by Dave Randall)

B-4 Consideration of a Resolution Approving the Release of an Indemnity Agreement, Authorizing the Mayor to Execute the Release and Authorizing the City Clerk to Cause the Release to be Recorded (Report by Chris Boyle)

B-5 Consideration of a Resolution Approving the Award of Contract for Commercial Water Meter Installation Improvement Project, City Project No. W 16-01 in the Amount of $1,345,395 to West Valley Construction Company, Inc., Authorizing Construction Contingencies of Up to 25% and Construction Inspection and Management of Up to 10%, Authorizing the Mayor to Execute the Contract on Behalf of the City (Report by Keith Helmuth)

B-6 Consideration of a Resolution Approving an Amended Application for Transportation Development Act - Local Transportation Fund for Fiscal Year 2015/16 with Fiscal Year 2014/15 Carryover Balances (Report by Keith Helmuth)

B-7 Consideration of a Resolution Authorizing Submittal of a CUCP Agreement/Declaration of Status to the California Unified Certification Program (CUCP) and Authorizing the City Administrator to Execute the Letter Agreement (Report by Dave Randall)

B-8 Consideration of a Resolution Approving the Agreement to Purchase Tax-Defaulted Property from Madera County for Parcels 006-441-015 and 006-440-022 for Use on City of Madera River Trail Projects (Report by Keith Helmuth)

C. HEARINGS, PETITIONS, BIDS, RESOLUTIONS, ORDINANCES, AND AGREEMENT

C-1 A Noticed Public Hearing and Consideration of Introduction of an Ordinance Prezoning Approximately 18.96 Acres Located at the Northwest Corner of Tozer Street (Road 28) and South A Street to the PF (Public Facilities) Zone District

And

Consideration of Adoption of a Resolution Amending the General Plan Land Use Designation on Approximately 18.96 Acres Located at the Northwest Corner of Tozer Street (Road 28) and South A Street from the MD (Medium Density) to the P&SP (Public and Semi-Public) Land Use Designation in Support of the Construction of an Elementary School (Report by Chris Boyle)

C-2 Public Hearing and Consideration of a Resolution of the City Council Confirming Special Assessments for Delinquent Administrative Fines (Report by Brent Richardson)

C-3 Second Reading and Consideration of Adoption of an Ordinance Amending Subsection E of §2-2.305 of Title II of the Madera Municipal Code Relating to Civil Service and Exceptions to the Competitive Service (Report by Wendy Silva)

C-4 Public Hearing and Consideration of a Resolution Nominating a Council Member as a Candidate for Appointment to the San Joaquin Valley Air Pollution Control District Governing Board (Report by Sonia Alvarez)

D. WRITTEN COMMUNICATIONS

There are no items for this section.

E. ADMINISTRATIVE REPORTS

E-1 Consideration of a Resolution Approving an Agreement with the County of Madera to Temporarily Provide Water to the Parkwood Water System and Authorizing the Mayor to Execute the Agreement (Report by Dave Randall)

E-2 Progress Report by Solid Waste Division of the 2nd Half of the Calendar Year 2015 (Report by Ron Prestridge)

F. COUNCIL REPORTS

G. CLOSED SESSION

There are no items for this section.

ADJOURNMENT – Next regular meeting April 6, 2016

- Please silence or turn off cell phones and electronic devices while the meeting is in session.
- Regular meetings of the Madera City Council are held the 1st and 3rd Wednesday of each month at 6:00 p.m. in the Council Chambers at City Hall.
- Any writing related to an agenda item for the open session of this meeting distributed to the City Council less than 72 hours before this meeting is available for inspection at the City of Madera Office of the City Clerk, 205 W. 4th Street, Madera, California 93637 during normal business hours.
- The meeting room is accessible to the physically disabled, and the services of a translator can be made available. Request for additional accommodations for the disabled, signers, assistive listening devices, or translators needed to assist participation in this public meeting should be made at least seventy two (72) hours prior to the meeting. Please call the Human Resources Office at (559) 661-5401. Those who are hearing impaired may call 711 or 1-800-735-2929 for TTY Relay Service.
- Questions regarding the meeting agenda or conduct of the meeting, please contact the City Clerk's office at (559) 661-5405.
- Para asistencia en Español sobre este aviso, por favor llame al (559) 661-5405.

I, Sonia Alvarez, City Clerk for the City of Madera, declare under penalty of perjury that I posted the above agenda for the regular meeting of the Madera City Council for March 16, 2016, near the front entrances of City Hall at 3:00 p.m. on March 11, 2016.

Sonia Alvarez

Sonia Alvarez, City Clerk

Return to Agenda

Agenda: 3/16/16
Presentation

City of Madera Proclamation

Youth Art Month

WHEREAS art, in its many forms, constitutes an important part of the Madera community and adds to the human development of area youth; and

WHEREAS, art education reaches different types of learners and engages them more fully in the education process; and

WHEREAS, art education contributes powerful benefits to all elementary, middle, and secondary students including, but not limited to:

1. Development of creative problem-solving and critical thinking abilities,
2. Sensitivity to beauty, order and other expressive qualities,
3. A deeper understanding and connection to cultural values and beliefs, and
4. Reinforcement and bringing to life the skills learned in other subjects areas; and

WHEREAS the Madera County Arts Council heralds its support of youth art each March with a show of visual art pieces created by youth displayed at the Circle Gallery in Madera; and

WHEREAS the City of Madera joins the Madera County Arts Council in recognizing the significance of youth art education; and

WHEREAS the City of Madera's Parks & Community Services Department is honored to partner with the Madera County Arts Council to increase youth exposure to art education opportunities.

NOW THEREFORE, BE IT RESOLVED THAT THE MAYOR AND THE CITY COUNCIL OF THE CITY OF MADERA PROCLAIM THE COUNCIL'S support to the Madera County Arts Council as they attempt to strengthen art education in the schools, parks, and youth programming in Madera County; urges all citizens to take interest in and give full support to quality school art programs for youth; and declares that the month of March 2016 be observed as **YOUTH ART MONTH** throughout the City.

_____ _____

Robert L. Poythress, Mayor
City of Madera

Date

Return to Agenda

Madera City Council Agenda 3/16/16
Agenda Item B-1

There are no minutes for consideration.

Return to Agenda

City of Madera

Council Meeting Of March 16th, 2016
Agenda Item No. B-2

Memorandum To: The Honorable Mayor,
City Council and City Administrator

From: Office of the Director of Finance

Subject: Listing of Warrants Issued

Date: 03/16/2016

Attached, for your information, is the register of the warrants for the City of Madera covering obligations paid during the period of:

February 23rd, 2016 to March 7th, 2016

Each demand has been audited and I hereby certify to their accuracy and that there were sufficient funds for their payment.

General Warrant:	203102-203259	$	1,028,198.95
Wire Transfer	Union Bank Payroll and Taxes	$	570,781.62
Wire Transfer	SDI	$	1,680.56
Wire Transfer	Cal Pers	$	460,605.97

Respectfully submitted,

Tim Przybyla
Financial Services Director

CITY OF MADERA
REGISTER OF AUDITED DEMANDS FOR BANK #1-UNION BANK GENERAL ACCOUNT
March 7th, 2016

CHECK	PAY DATE	ISSUED TO	DESCRIPTION	AMOUNT
203102	2/25/2016	ORTIZ ABRAHAM AND ORITZ CRISTINA	Utility Billing Credit Refund	134.16
203103	2/25/2016	THE BANK OF NEW YORK MELLON	2006 SPECIAL TAX BONDS 12/01/15-11/30/16	2,098.80
203104	2/25/2016	ALLWAYS TOWING	TOWING SERVICES	470.00
203105	2/25/2016	AT&T	01/16 CALNET 3 SVS 9391026389	1,509.19
203106	2/25/2016	AT&T	01/16 CALNET 3 SVS 9391026405	332.64
203107	2/25/2016	AT&T	01/16 CALNET 3 SVS 9391026410	1,619.63
203108	2/25/2016	AT&T	01/16 CALNET 3 SVS 9391031564	1,400.16
203109	2/25/2016	PRAYTOR & SON EXPERT PLUMBING	VIDEO INSPECTION	165.00
203110	2/25/2016	ADHARA SYSTEMS, INC.	ENGINEERING SVS PAVEMENT SURVEY/ANALYSIS	35,350.00
203111	2/25/2016	ALL VALLEY ADMINISTRATORS	ADMIN FEES FOR FEBRUARY 2016	114.00
203112	2/25/2016	ALL VALLEY ADMINISTRATORS	MEDICAL & CHILD CARE EXP 02/26/2016 PR	688.30
203113	2/25/2016	ALLIED ELECTRIC MOTOR SERVICE	RELAYS FOR INFLUENT PUMP	79.75
203114	2/25/2016	BLUE SHIELD OF CALIFORNIA	CITY PAID BLUE SHIELD MARCH 2016	252,910.39
203115	2/25/2016	BRIDGE STORE	ALTERNATIVE PAY STATION SVS JAN 2016	704.00
203116	2/25/2016	BSN SPORTS	SPORTS FIRST AID KITS	97.29
203117	2/25/2016	CALIFORNIA DEPARTMENT OF JUSTICE	JANUARY 2016 BLOOD ALCOHOL ANALYSIS	1,169.00
203118	2/25/2016	CALIFORNIA FORENSIC INSTITUTE	PRE-EMPLOYMNET PSYCH EXAM	400.00
203119	2/25/2016	CALIFORNIA SURVEYING AND DRAFTING SUPPLY	WIDE FORMAT PAPER	63.32
203120	2/25/2016	CHACON, CHERYL	REIMB FOR TRAINING SESSION/DINNER	30.00
203121	2/25/2016	COLONIAL LIFE & ACCIDENT INSURANCE CO	E700482-3 FOR 2/26/2016 PAYROLL	1,042.48
203122	2/25/2016	COMCAST	02/14- 03/13 SVS 8155500320092096	126.89
203123	2/25/2016	CONCENTRA MEDICAL CENTERS	DOT TESTING	37.00
203124	2/25/2016	ADMINISTRATIVE SOLUTIONS INC.	FUNDS ON DEPOSIT FOR MEDICAL CLAIMS	40,000.00
203125	2/25/2016	SIMMONS BRUCE	Utility Billing Credit Refund	208.86
203126	2/25/2016	WARNOCK CATHI	Utility Billing Deposit Refund	75.79
203127	2/25/2016	TERRY RUTH	Utility Billing Deposit Refund	18.93
203128	2/25/2016	SCHLEICH DEBORAH M	Utility Billing Credit Refund	20.52
203129	2/25/2016	VILLALOVOS MARIA GUALDALUPE	Utility Billing Credit Refund	183.18
203130	2/25/2016	DELGADO NARCISO AND VERONICA	Utility Billing Credit Refund	180.22
203131	2/25/2016	SEKHON SATWANT SINGH	Utility Billing Credit Refund	198.66
203132	2/25/2016	HUERTA LAWRENCE	Utility Billing Credit Refund	237.63
203133	2/25/2016	MEZA ELVIA	Utility Billing Credit Refund	83.71
203134	2/25/2016	SUPPLE REBECCA OR CITY OF MADERA	Utility Billing Deposit Refund	123.99
203135	2/25/2016	ZEPEDA MIGUEL	Utility Billing Deposit Refund	67.11
203136	2/25/2016	ROMERO ESTEVAN OR CITY OF MADERA	Utility Billing Credit Refund	97.38
203137	2/25/2016	CABALLERO TIFFANY	Utility Billing Deposit Refund	130.46
203138	2/25/2016	MOLNAR IMOGENE	Utility Billing Credit Refund	45.01
203139	2/25/2016	TORRE DEBRA	Utility Billing Credit Refund	227.22
203140	2/25/2016	RUIZ MAGDALENO GARCIA	Utility Billing Credit Refund	221.38
203141	2/25/2016	JACOBS JR JAMES	Utility Billing Credit Refund	35.19
203142	2/25/2016	CHIARADIA KATHRYN	Utility Billing Credit Refund	97.88
203143	2/25/2016	BROWN TIFFANY OR CITY OF MADERA	Utility Billing Credit Refund	48.72
203144	2/25/2016	EUFRACIO YESENIA OR CITY OF MADERA	Utility Billing Credit Refund	150.54
203145	2/25/2016	MARTINEZ JUAN OR CITY OF MADERA	Utility Billing Credit Refund	150.40
203146	2/25/2016	RODRIGUEZ MARIA	Utility Billing Credit Refund	150.40
203147	2/25/2016	STATON STACEY OR CITY OF MADERA	Utility Billing Credit Refund	104.12
203148	2/25/2016	VALDEZ JESUS F OR CITY OF MADERA AND AVALOS NOEMI	Utility Billing Credit Refund	150.36
203149	2/25/2016	BERRY DAVID WAYNE	Utility Billing Credit Refund	113.64
203150	2/25/2016	AWAN NASAR ANWAR	Utility Billing Credit Refund	124.04
203151	2/25/2016	ZINC FINANCIAL	Utility Billing Credit Refund	177.85
203152	2/25/2016	KLAIR JASPAL C/O JACQUE AND COMPANY	Utility Billing Deposit Refund	68.23
203153	2/25/2016	ALVAREZ ELIEZER	Utility Billing Credit Refund	144.92
203154	2/25/2016	MONTAGNA MARIO C/O NEWTON PROPERTY MANAGEMENT	Utility Billing Deposit Refund	62.91
203155	2/25/2016	VERDUZCO EVERARDO	Utility Billing Credit Refund	83.95
203156	2/25/2016	4IMPRINT	WATER CONSERVATION	2,278.33
203157	2/25/2016	FRESNO COUNTY ECONOMIC OPPTY. COMMISSION	JANUARY 2016 SR SITE/KITCHEN SUPPLIES	85.46
203158	2/25/2016	FRESNO REPROGRAPHICS	KNOX PARK PLANS	304.38
203159	2/25/2016	GEIL ENTERPRISES, INC.	FEBRUARY 2016 JANITORIAL SVS	8,386.27
203160	2/25/2016	GONZALEZ, FELIX	REIMBURSEMENT FOR DAMAGED PANTS	54.10
203161	2/25/2016	GRANTED SOLUTIONS	GRANT ADMINISTRATOR SVS 02/01- 02/15/16	2,750.00

203162	2/25/2016 J'S COMMUNICATIONS	JAN- MAR 2016 SERVICE AGREEMENT	4,707.00
203163	2/25/2016 JOHNSON REAL ESTATE APPRAISAL	INSPECTION	1,200.00
203164	2/25/2016 LANGUAGE LINE SERVICES, INC.	INTERPRETATION SVS	38.79
203165	2/25/2016 LIEBERT CASSIDY WHITMORE	LEGAL FEES	1,853.31
203166	2/25/2016 M A C E A	FEBRUARY 2016 MONTHLY DUES	25.00
203167	2/25/2016 CITY OF MADERA	MISAPPLIED PMT TO AR ACCT 06049	896.69
203168	2/25/2016 M.C.E.A.	FEBRUARY 2016 MONTHLY DUES	425.00
203169	2/25/2016 MADERA CLEANERS & LAUNDRY	YOUTH CENTER FLOOR MAT SVS	32.30
203170	2/25/2016 MADERA COUNTY TREASURER	DECEMBER 2015 PARKING PENALTIES	94.50
203171	2/25/2016 MADERA IRRIGATION DISTRICT	GROUND WATER JPA OCT 1-DEC 31 2015	715.50
203172	2/25/2016 M P O A	FEBRUARY 2016 MONTHLY DUES	14,344.16
203173	2/25/2016 MADERA PRIVATE SECURITY PATROL	SECURITY SVS	87.50
203174	2/25/2016 MADERA PUMPS, INC.	REPAIRS ON WELL #18	18,062.68
203175	2/25/2016 MADERA TRIBUNE	PK59 KNOX PARK AD FOR BID	510.84
203176	2/25/2016 MADERA UNIFIED SCHOOL DISTRICT	FACILITY USE	60.00
203177	2/25/2016 MADERA UNIFORM & ACCESSORIES	UNIFORM ACCESSORIES	57.19
203178	2/25/2016 MADERA VETERINARY CENTER	VET SERVICES	142.37
203179	2/25/2016 METRO UNIFORM	UNIFORM ACCESSORIES	179.00
203180	2/25/2016 MID VALLEY DISPOSAL INC.	WASTE DISPOSAL SVS JANUARY 2016	291,592.01
203181	2/25/2016 N.P.C.-ORCHARD TRUST COMPANY	PLAN #340227-01 FOR 02/26/2016 PAYROLL	5,908.33
203182	2/25/2016 N.P.C.-ORCHARD TRUST COMPANY	PLAN #340227-02 FOR 02/26/2016 PAYROLL	2,794.80
203183	2/25/2016 O'DELL ENGINEERING, INC.	CENTENNIAL PARK PLAYGROUND DESIGN	3,168.00
203184	2/25/2016 OFFICE DEPOT	BUILDING DATE STAMP	53.99
203185	2/25/2016 OPERATING ENGINEERS, LOCAL #3	FEBRUARY 2016 MONTHLY DUES	4,884.00
203186	2/25/2016 P G AND E	02/16 SVS 1619119913-8	134.00
203187	2/25/2016 ARNOLD, DAVID	TURF REPLACEMENT REBATE	327.75
203188	2/25/2016 RIVERA, ARIEL	CANCELLATION REFUND	400.00
203189	2/25/2016 CRAIG, ELAINE MARIE	CAT TRAP DEPOSIT REFUND	30.00
203190	2/25/2016 PECK'S PRINTERY	BUSINESS CARDS	259.20
203191	2/25/2016 PHOENIX GROUP INFO SYS	CITATIONS DECEMBER 2015	181.80
203192	2/25/2016 PIERCE CONSTRUCTION	ASPHALT PATCHING	129,539.19
203193	2/25/2016 PIERCE CONSTRUCTION	ASPHALT PATCHING	3,363.75
203194	2/25/2016 PRESORT CENTER OF FRESNO, LLC.	12/15 UB NEWSLETTER	7,333.51
203195	2/25/2016 Principal Life Insurance Company	MARCH 2016 DENTAL BILL	16,601.14
203196	2/25/2016 CENTER FOR EDUCATION & EMPLOYMENT LAW	ONE YEAR SUBSCRIPTION	159.00
203197	2/25/2016 QUAD-KNOPF ENGINEERING	LOVE'S EIR 11/08/15- 01/30/16	7,633.20
203198	2/25/2016 RBC CAPITAL MARKETS	REMARKETING AGREEMENT 11/02- 01/31/16	758.15
203199	2/25/2016 REGENCE BLUECROSSS BLUESHIELD OF UTAH	CITY PD RETIREE PRES BILL 03/16 CHUMLEY	124.60
203200	2/25/2016 STATE WATER RESOURCES CONTROL BOARD	T2 WATER TREATMENT CERT RENEWAL- HOLLIER	60.00
203201	2/25/2016 Superior Vision Inc	MARCH 2016 VISION PLAN	2,384.10
203202	2/25/2016 TAMARACK PEST CONTROL	FEBRUARY 2016 PEST CONTROL SVS	450.00
203203	2/25/2016 TESEI PETROLEUM INC.	VEHICLE FUEL	553.00
203204	2/25/2016 THRIVE FITNESS	FEBRUARY 2016 MONTHLY DUES	81.00
203205	2/25/2016 TRI-SIGNAL INTEGRATION, INC.	FIRE EXTINGUISHER SVS	90.63
203206	2/25/2016 VANTAGEPOINT TRANSFER AGENTS-457	PLAN #302351 CONTRIBS FOR 02/26/16 PR	19,491.38
203207	2/25/2016 VERIZON WIRELESS	COUNCIL IPAD DATA PLAN JAN 11- FEB 10	5,504.27
203208	2/25/2016 ZEE MEDICAL SERVICE CO.	SUPPLIES	50.39
203209	3/3/2016 GARCIA ANTONIO	Utility Billing Credit Refund	175.56
203210	3/3/2016 GARCIA JESUS	Utility Billing Credit Refund	209.59
203211	3/3/2016 BUSHEY, SHAWN	HOTEL ROOM CHARGE REIMBURSEMENT	259.36
203212	3/3/2016 GREENE GEOFFREY AND VALERIE	CLOSED UB ACCT-402 WAWONA CT	47.85
203213	3/3/2016 HAYDU, ROGER	REFUND OF OVERPAYMENT	48.48
203214	3/3/2016 AT&T	02/16 CALNET 3 SVS 9391020514	1,372.46
203215	3/3/2016 AT&T	02/16 CALNET 3 SVS 9391031574	3,787.48
203216	3/3/2016 AT&T	01/16 CALNET 3 SVS 9391031576	338.00
203217	3/3/2016 AUTRY, MATT	PER DIEM CANINE LIABILITY 360	118.00
203218	3/3/2016 BSK ASSOCIATES	PERMIT COMPLIANCE	39.00
203219	3/3/2016 BENCHMARK COMMUNITIES, LLC.	REFUND OF OVERPAYMENT	203.45
203220	3/3/2016 CENTRISYS CORP.	CENTRIFUGE MAINTENANCE PARTS	927.70
203221	3/3/2016 CHIARAMONTE, GIACHINO	PER DIEM CPCA SYMPOSIUM	108.00
203222	3/3/2016 COMCAST	02/22- 03/21 SVS 8155500320322006	86.10
203223	3/3/2016 COMCAST	CITY INTERNET CONNECTION 02/16- 03/14/16	1,520.00
203224	3/3/2016 DIAMOND COMMUNICATIONS	ALARM MONITOR	115.00
203225	3/3/2016 LAWSON, DINO	PER DIEM CPCA SYMPOSIUM	108.00
203226	3/3/2016 ELECTRONIC DATA SOLUTIONS	ANNUAL TECH SUPPORT	250.00

203227	3/3/2016 FIRE SAFETY SOLUTIONS, LLC	FIRE PROTECTION ENG SVS 02/15- 02/29/16	8,925.00
203228	3/3/2016 FOSS, DAN	PER DIEM CANINE LIABILITY 360	118.00
203229	3/3/2016 FRAZIER, STEVE	PER DIEM CPCA SYMPOSIUM	108.00
203230	3/3/2016 UNITY IT	CONSULTING/TECH SERVICES	1,625.00
203231	3/3/2016 GEIL ENTERPRISES, INC.	JANITORIAL SVS	71.10
203232	3/3/2016 HAYNES, EUGENE G.	MILEAGE REIMBURSEMENT	182.04
203233	3/3/2016 GRANTED SOLUTIONS	GRANT ADMINISTRATOR SVS 02/16- 02/29/16	2,750.00
203234	3/3/2016 HERTZ EQUIPMENT RENTAL	WATER TRUCK RENTAL	1,583.28
203235	3/3/2016 LEAGUE OF CALIFORNIA CITIES	LOCC DIVISION MEETING 2/11/16	25.00
203236	3/3/2016 LINCOLN FINANCIAL	LIFE & LTD INSURANCE MARCH 2016	7,265.10
203237	3/3/2016 MADERA COUNTY E D C	REGISTRATION FEE CALED	495.00
203238	3/3/2016 MADERA TRIBUNE	W16-01 COMMERCIAL WATER METERS AD	505.88
203239	3/3/2016 ONTRAC	OVERNIGHT SHIPPING	28.72
203240	3/3/2016 PACIFIC GAS & ELECTRIC	01/16 SVS 9920095153-3	25,052.87
203241	3/3/2016 P G AND E	02/16 SVS 7949615676-5	1,282.69
203242	3/3/2016 RAMIREZ-FLORES, ANTONIO	REFUND BOND FOR ENCROACHMENT PERMIT 4900	500.00
203243	3/3/2016 FORTNER, RICKY LYNN	CAT TRAP DEPOSIT REFUND	28.00
203244	3/3/2016 CRUZ, ELIZABETH	PARK CANCELLATION REFUND	140.00
203245	3/3/2016 BAILEY, BARBARA	DEPOSIT REFUND	100.00
203246	3/3/2016 DELLONE, DARYL	DEPOSIT REFUND	175.00
203247	3/3/2016 AVISON CONSTRUCTION INC	DEPOSIT REFUND	1,386.43
203248	3/3/2016 LODUCA, FRANK	DEPOSIT REFUND	1,664.45
203249	3/3/2016 DE LA PAZ, NOE	DEPOSIT REFUND	50.00
203250	3/3/2016 PLYMALE, SEAN	PER DIEM CANINE LIABILITY 360	118.00
203251	3/3/2016 PRAXAIR DISTRIBUTION, INC.	CYLINDER DEMURRAGE	502.51
203252	3/3/2016 PRECISION CIVIL ENGINEERING, INC	GATEWAY/CENTRAL SIDEWALKS ENG SVS	1,590.00
203253	3/3/2016 PRESORT CENTER OF FRESNO, LLC.	CURBSIDE EVENT AD	2,014.20
203254	3/3/2016 RANDALL, DAVE	PER DIEM LEAGUE OF CALIFORNIA CITIES	96.00
203255	3/3/2016 SILVA AUTO GROUP	FORD TRANSIT	44,859.10
203256	3/3/2016 TESEI PETROLEUM, INC.	FUEL	416.26
203257	3/3/2016 TESEI PETROLEUM INC.	FUEL CHARGES 02/11/16- 02/20/16	7,707.75
203258	3/3/2016 UNION BANK OF CALIFORNIA	SVS FOR PERIOD NOV 1 TO JAN 31, 2016	875.00
203259	3/3/2016 WOODWORTH, STEVE	PER DIEM CALBO ANNUAL BUSINESS MEETING	717.78
		Bank # 1 - Union Bank General Account Total	1,028,198.95

Return to Agenda

REPORT TO CITY COUNCIL

MEETING DATE: March 16, 2016

AGENDA ITEM NUMBER: B-3

Approved By:

PUBLIC WORKS DIRECTOR

CITY ADMINISTRATOR

SUBJECT: Weekly Water Conservation Report – February 29th – March 6th

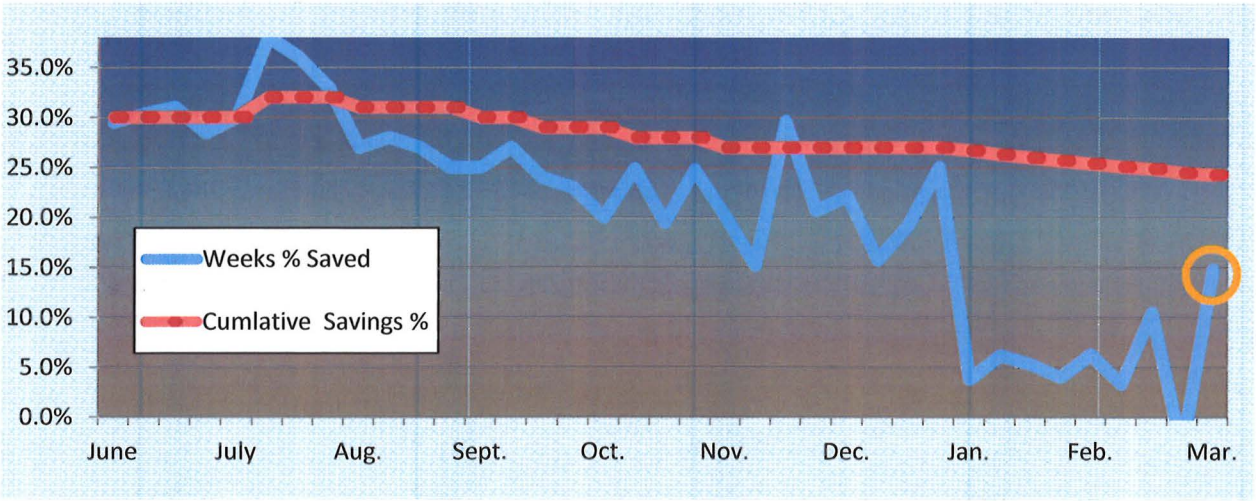
RECOMMENDATION: Staff recommends that the Council review the attached weekly report of water conservation activities and progress in reducing residential water consumption.

SUMMARY/ DISCUSSION: The State has extended the water conservation measure thru October of 2016. The State has changed some of the rules regarding how the conservation goals are set and we will be at 26%. The watering schedule will go back to two days a week on April 1st; customers will be notified in the utility billings and in a press release at the end of this month.

Below is the most current water conservation data.

Weekly	Monthly	Cumulative
February-March 29th – 6th	March 1st–31st	June 1 March 6th
15%	15%	24%

Below is the weekly and cumulative water conservation including the latest data.



Enforcement			
100	**Public Contacts**	**9**	**1st offenses ($75)**
1	**Verbal warning**	**0**	**2nd offenses ($250)**
26	**Correction Notices**	**0**	**3rd or more offense ($500)**

FINANCIAL IMPACT:

The expenses for implementing and administering these water conservation activities occur within the Water Fund and do not impact the General Fund.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

The proposed action is not specifically addressed as part of the Plan, but is not in conflict with it and is sympathetic of the underlying principals of the 2025 Plan.

Return to Agenda

COUNCIL MEETING OF:
March 16, 2016

AGENDA ITEM NUMBER:
B–4

REPORT TO THE CITY COUNCIL

Approved By:

PLANNING MANAGER

CITY ADMINISTRATOR

SUBJECT:

Consideration of a resolution approving the release of an Indemnity Agreement, authorizing the Mayor to execute the release and authorizing the City Clerk to cause the release to be recorded.

RECOMMENDATION:

Staff recommends that the City Council adopt a resolution approving the release of an Indemnity Agreement, authorizing the Mayor to execute the release and authorizing the City Clerk to cause the release to be recorded.

DISCUSSION:

General Plan Amendment 2007-06, Rezone 2007-12 and Site Plan Review 2007-47 were approved by the City Council on January 16, 2008. The entitlements affected twenty-one (21) parcels of land that cumulatively encompassed 4.6 acres, hereafter referred to as the project site. General Plan Amendment 2007-06 changed the General Plan land use designation for the project site from C (Community Commercial) to MD (Medium Density Residential). Rezone 2007-12 changed the zoning on the project site from the C-1 (Light Commercial) to the R-2-S (Medium Density Residential) Zone District. The "S" suffix indicated special conditions were applied to the development of all parcels within the project site. Site Plan Review 2007-47 implemented the development of one parcel within the project site, consistent with the special conditions called out in the R-2-S zoning.

As part of the City's standard requirements, an indemnity agreement between the developer and the City was entered into which ensured that the developer would bear the burden of defending any legal challenges associated with the City's approval of the project. Ultimately, the applicant never moved forward with constructing the approved project, and today the City is in the process of returning the area to the original land use designation and zoning. As such, the City may record documents that release the indemnity agreement.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

The recommended action is largely a housekeeping matter, releasing the indemnity agreement from all parcels within the project site. Therefore, adoption of the recommended resolution is

consistent with Vision Actions 115.1 and 115.2, which call for viable economic development and increased retail outlets.

FISCAL IMPACTS:

There are no fiscal impacts associated with the recommended action.

REFERENCE MATERIALS:
Resolution
Release of Indemnity Agreement

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA APPROVING THE RELEASE OF AN INDEMNITY AGREEMENT, AUTHORIZING THE MAYOR TO EXECUTE THE RELEASE, AND AUTHORIZING THE CITY CLERK TO CAUSE THE RELEASE TO BE RECORDED.

WHEREAS, the City of Madera approved various applications and entitlements in support of General Plan Amendment 2007-06, Rezone 2007-12 and Site Plan Review 2007-47 ("the Project") in January of 2008; and

WHEREAS, in conjunction with the City's approval of the Project, the City entered into an Indemnity Agreement with project developers Ms. Laura Brandon, Ms. Nancy Meyers, and Mr. R. Allen Baraldi, to ensure that the developers would bear the burden of defending any legal challenges associated with the City's approval of the Project; and

WHEREAS, no legal challenges were made relative to the City's approval of the Project and the developer's obligations under the Indemnity Agreement are complete; and

WHEREAS, the Indemnity Agreement is a recorded document, tied to the parcels involved with the Project; and

WHEREAS, the City and the developers, mutually desire the recordation of documents with the County Recorder sufficient to release the Indemnity Agreement.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY finds, orders and resolves as follows:

1. The above recitals are true and correct.

2. A Release of Indemnity Agreement for the Project, attached hereto and incorporated herein by reference, is hereby approved.

3. The Mayor is hereby authorized to execute the release.

4. The City Clerk is hereby authorized to cause to be recorded the Release of Indemnity Agreement.

5. This resolution is effective immediately upon adoption.

* * * * * * *

RECORDING REQUESTED BY:
WHEN RECORDED MAIL TO:

City of Madera
205 W. Fourth Street
Madera CA 93637

Attention: City Clerk

Fee Waived Per Section 27383 of the Government Code

Space Above This Line For Recorder's Use

RELEASE OF INDEMNITY AGREEMENT

The City of Madera hereby gives notice that the certain Indemnity Agreement entered in to by and between Ms. Laura Brandon, Ms. Nancy Meyers, and Mr. R. Allen Baraldi, (the "Applicants") and the City of Madera on January 13, 2008 and recorded in favor of the City of Madera and against the real property described below, that was recorded on January 23, 2008 as Document No. 2008002204, official records of Madera County, California, is hereby released.

The property subject to this Release of Indemnity Agreement is located in the City of Madera, County of Madera, State of California, and is described as follows:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF MADERA, COUNTY OF MADERA, STATE OF CA AND IS DESCRIBED AS FOLLOWS:

SEE ATTACHED LEGAL DESCRIPTION

DATED: This_____Day of_____, 2016.

CITY OF MADERA

By:_____
Robert L. Poythress, Mayor

ATTACH NOTARY ACKNOWLEDGEMENT

RELEASE OF INDEMNITY AGREEMENT

LEGAL DESCRIPTION

Real property situated in the County of Madera, State of California, more particularly described as follows:

Lots 17 through 32 in Block 26 of Lankershim Addition to the Town, now City of Madera, according to the map entitled, "Map of Lankershim Colony and Addition to the Town of Madera & c.," filed and recorded in the office of the County Recorder of the County of Fresno, State of California, February 5, 1889, in the Vol. 4 of Maps, at page 31.
APN#s 011-102-006, 007, 008, 009, 010, 011, and 012

And

Lots 5 through 16 in Block 27 of Lankershim Addition to the Town, now City of Madera, according to the map entitled, "Map of Lankershim Colony and Addition to the Town of Madera & c.," filed and recorded in the office of the County Recorder of the County of Fresno, State of California, February 5, 1889, in the Vol. 4 of Maps, at page 31.
APN#s 011-101-002, 003, 004, 006, and 007

And

Lots 17 through 32 in Block 30 of Lankershim Addition to the Town, now City of Madera, according to the map entitled, "Map of Lankershim Colony and Addition to the Town of Madera & c.," filed and recorded in the office of the County Recorder of the County of Fresno, State of California, February 5, 1889, in the Vol. 4 of Maps, at page 31.
APN#s 014-142-008, 009, 010, 011, 012, 013, 014, and 017

And

APN# 011-141-001 in Block 29 of Lankershim Addition to the Town, now City of Madera.

Return to Agenda

REPORT TO CITY COUNCIL

Approved By:

Department Director

City Administrator

Council Meeting of March 16, 2016

Agenda Item Number B-5

SUBJECT: **CONSIDERATION OF A RESOLUTION APPROVING THE AWARD OF CONTRACT FOR THE COMMERCIAL WATER METER INSTALLATION IMPROVEMENT PROJECT, CITY PROJECT NO. W 16-01 IN THE AMOUNT OF $1,345,395 TO WEST VALLEY CONSTRUCTION COMPANY, INC., AUTHORIZING CONSTRUCTION CONTINGENCIES OF UP TO 25% AND CONSTRUCTION INSPECTION AND MANAGEMENT OF UP TO 10%, AUTHORIZING THE MAYOR TO EXECUTE THE CONTRACT ON BEHALF OF THE CITY**

RECOMMENDATION:

1. That the City Council approves Resolution No. 16-__ approving:
   a. The award of the contract for Commercial Water Meter Installation Project, City Project No. W 16-01.
   b. The authorization of construction contingencies of up to 25%.
   c. The authorization of 10% for construction inspection and management.
   d. The authorization for the Mayor to execute the contract on behalf of the City.

SUMMARY:

The City of Madera is well into its planned installation of water meters at all locations where an automatic read water meter does not currently exist. This program includes residential, commercial and industrial uses throughout the City. This project will complete installation of meters where none exists. Staff is investigating meters that do not have automatic read features to determine costs and feasibility of upgrading existing meters by contract.

The City has completed the installation of approximately 12,600 water meters on conventional single family residential water service connections and many multifamily, commercial and industrial water service connections since this effort began in 2010.

There are approximately 717 multi-family, commercial and industrial services that currently do not have water meters. Commercial water meters have been required for buildings constructed since 1972. However there are many sites that do not have meters installed. The first contract for commercial and industrial water meters in 2014 installed 69 water meters to "test the waters". There are approximately 673 commercial/industrial water service connections remaining that do not currently have water meters and that are included in this current project. The water service connections range in size from 1 inch to 8 inches in diameter. The meters installed will utilize the City's water meter reading Flex Net system. The system allows the meters to be read electronically through wireless transmission of the consumption data. The meters will provide staff with accurate meter readings and water use data. The meters will also meet State requirements for billing water use based on consumption. This project will make a significant and long-term investment in the City's infrastructure which will allow for future expansion and provide the tools necessary for water conservation.

Within the private gated communities approximately 44 of the 465 private residential lots chose not to participate in the installation of water meters with previous projects. Staff continues to communicate with residents and Home Owners Associations of the private subdivisions and hopes to include those water meters with this project as well by change order. If they continue to be non-responsive to our request to install water meters at their property, they are subject to recently adopted City code that requires installation of a meter prior to new service requests, building permits or other entitlements being granted. They are also subject to administrative/code enforcement and potentially the costs with installing a meter and other ancillary costs at such time it becomes mandatory.

DISCUSSION:

The work, in general, consists of installation of water meters in accordance with City standards and Automatic Meter Reading System (AMRS). The project will install water meter, meter box, Flexnet transmitter and all associated piping and fittings at various locations throughout the City.

SITUATION:

The "Notice Inviting Bids" was duly noticed. Plans and specifications were distributed to local building exchanges and made available to contractors and sub-contractors. The plans and specifications were also posted on EBidBoard.com, a projects listing service for contractors.

On March 8, 2016, the City received three (3) bids. The bidders and bid amounts are as listed below:

West Valley Construction Company, Inc.	$1,345,395.00
Dawson-Mauldin Construction, Inc.	$ 1,515,702.00
JT2, Inc., dba Todd Companies	$ 1,539,567.00
Engineers estimate	$1,556,050.00

All bids were checked for accuracy with the bidding requirements of the specifications, and for validity of licenses and bid security. West Valley Construction Company, Inc. submitted the lowest responsive and responsible bid that meets the contract requirements.

All bids including the low bid are below the Engineer's Cost Estimate. Therefore, it is recommended that Council award this project to West Valley Construction Company, Inc.

Due to the varying conditions at each service that are unknown and based on experiences on previous water meter projects, it is further recommended to increase allowable project contingencies from 10% to 25%. Costs to install the aforementioned meters within the gated community and any other unmetered locations discovered during the project are included in these contingencies.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

Strategy 434 – Water Quality and Usage: Ensure continued water supplies to meet the demands of all Maderans through innovative reclamation, conservation and education on water-use.
Action 434.1 – Increase water-usage monitoring through meter reading and water-patrol to increase conservation.

FINANCIAL IMPACT:

This agreement will be financed by monies received from the sale of bonds for this purpose and set aside in the FY 2010/11 CIP budget in account #2905-5097. There is no impact to the City's General Fund.

RESOLUTION NO. 16-__

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA, APPROVING THE AWARD OF CONTRACT FOR COMMERCIAL WATER METER INSTALLATION IMPROVEMENT PROJECT, CITY PROJECT NO. W 16-01, IN THE AMOUNT OF $1,345,395 TO WEST VALLEY CONSTRUCTION COMPANY, INC., AUTHORIZING CONSTRUCTION CONTINGENCIES OF UP TO 25% AND CONSTRUCTION INSPECTION AND MANAGEMENT OF UP TO 10%, AUTHORIZING THE MAYOR TO EXECUTE THE CONTRACT ON BEHALF OF THE CITY

WHEREAS, The Engineering Department advertised a solicitation for bids for Commercial Water Meter Installation Improvement Project City Project No. W 16-01; and

WHEREAS, Sealed bids were received on March 8, 2016, and opened by the City Engineer.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY finds orders and resolves as follows:

1. The above recitals are true and correct.
2. The City Council has reviewed and considered all of the information presented including the report to the City Council from the Engineering Department.
3. The City finds that West Valley Construction Company, Inc. is the lowest responsible and responsive bidder.
4. The contract, a copy of which is on file in the office of the City Clerk and referred to for particulars, for the Commercial Water Meter Installation Improvement Project, City Project No. W 16-01, in the amount of $1,345,395 with West Valley Construction Company, Inc. is approved.
5. Authorizes Construction Contingencies of up to 25% as approved by the City Engineer and Construction Inspection and Management of up to 10%.
6. The Mayor is authorized to execute the contract on behalf of the City.
7. This Resolution is effective immediately upon adoption.

****

AGREEMENT

THIS AGREEMENT, made this **16th** day of **March**, 2016, between the City of Madera, hereinafter called "**OWNER",** and **West Valley Construction Company, Inc**, doing business as (an individual), or (a partnership), or (a corporation), hereinafter called **"CONTRACTOR"**.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The **CONTRACTOR** shall commence and complete all **WORK** required for the "**Commercial Water Meter Installation Improvement Project Madera, California City of Madera Project No. W 16-01**"

2. The **CONTRACTOR** shall furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the **WORK** described herein.

3. The **CONTRACTOR** shall commence the **WORK** required by the **CONTRACT DOCUMENTS** within 10 calendar days after the date of the **NOTICE TO PROCEED** and will complete the same within the time period set forth in the **CONTRACT DOCUMENTS**. The **CONTRACTOR** shall submit a Payment Bond and Performance Bond in the amount of $ 1,345,395.00, each and Insurance Certificates as specified in the **CONTRACT DOCUMENTS** prior to commencing any WORK.

4. The **CONTRACTOR** agrees to perform all of the **WORK** described in the **DOCUMENTS** for the unit and lump sum prices set forth in the Bid Schedule.

5. The term **"CONTRACT DOCUMENTS"** means and includes the following:

(A) Advertisement for Bids
(B) Information for Bidders
(C) Bid Proposal
(D) Bid Bond
(E) Agreement
(F) Payment Bond
(G) Performance Bond
(H) Insurance Requirements for Contractors
(I) General Conditions
(J) Special Conditions
(K) State Standard Plans and Specifications ISSUE MAY 2010
(L) PLANS and SPECIFICATIONS prepared or issued by CITY OF MADERA,entitled "**Commercial Water Meter Installation Improvement Project Madera, California City of Madera Project No. W 16-01" dated January 2016.** Project Plans prepared or issued by the City of Madera Engineering Department, Explanation of Bid Items, Technical Specifications, City of Madera Standard Specifications and Drawings

Addenda Nos. 1, dated February 11, 2016
Addenda Nos. 2, dated March 1, 2016

Addenda Nos. _____, dated _____

6. In the event the **CONTRACTOR** does not complete the **WORK** within the time limit specified herein or within such further time as authorized, the **CONTRACTOR** shall pay to the **OWNER** liquidated damages in the amount **of Four Hundred Dollars ($400.00)** per day for each and every calendar day delay in finishing the **WORK** beyond the completion date so specified.

7. The **OWNER** will pay to the **CONTRACTOR** in the manner and at such times as set forth in the General Conditions such amounts as required by the **CONTRACT DOCUMENTS**. For any moneys earned by the **CONTRACTOR** and withheld by the **OWNER** to ensure the performance of the Contract, the **CONTRACTOR** may, at his request and expense, substitute securities equivalent to the amount withheld in the form and manner and subject to the conditions provided in Division 2, Part 5, Section 22300 of the Public Contract Code of the State of California.

8. In the event of a dispute between the **OWNER** and the **CONTRACTOR** as to an interpretation of any of the specifications or as to the quality or sufficiency of material or workmanship, the decision of the **OWNER** shall for the time being prevail and the **CONTRACTOR**, without delaying the job, shall proceed as directed by the **OWNER** without prejudice to a final determination by negotiation, arbitration by mutual consent or litigation, and should the **CONTRACTOR** be finally determined to be either wholly or partially correct, the **OWNER** shall reimburse him for any added costs he may have incurred by reason of work done or material supplied beyond the terms of the contract as a result of complying with the **OWNER'S** directions as aforesaid. In the event the **CONTRACTOR** shall neglect to prosecute the work properly or fail to perform any provisions of the **CONTRACT**, the **OWNER**, after three days written notice to the **CONTRACTOR**, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due to the **CONTRACTOR**, subject to final settlement between the parties as in this paragraph herein above provided.

9. Attention is directed to Section 1735 of the Labor Code, which reads as follows:

"No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical conditions, marital status, or sex of such persons except as provided in Section 12940 of the Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for by violation of this chapter".

10. In accordance with the provisions of Article 5, Chapter I, Part 7, Division 2 (commencing with Section 1860) and Chapter 4, Part I, Division 4 (commencing with Section 3700) of the Labor Code of the State of California, the **CONTRACTOR** is required to secure the payment of compensation to his employees and shall for that purpose obtain and keep in effect adequate Worker's Compensation Insurance.

The undersigned **CONTRACTOR** is aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against Liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions before commencing the performance of the **WORK** of this Agreement.

11. The **CONTRACTOR** shall comply with Part 7, Chapter I, Article 2, Section 1775 of the Labor Code of the State of California. The **CONTRACTOR** shall, as a penalty to the **OWNER**, forfeit fifty dollars ($50.00) for each calendar day, or portion thereof, for each workman paid less than the prevailing rates for such work or craft in which such workman is employed for any public work done under the Contract by him or by any **SUBCONTRACTOR** under him. The difference between such prevailing wage rates and the amount paid to each workman for each calendar day or portion thereof for which each workman was paid less than a prevailing wage rate, shall be paid to each workman by the **CONTRACTOR**.

12. The **CONTRACTOR** shall comply with Part 7, Chapter I, Article 2, Section 1776 of the Labor Code of the State of California. The **CONTRACTOR** shall keep and require that all **SUBCONTRACTORS** keep accurate payroll records showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice worker or other employee employed by him in connection with public work. Such payroll records shall be certified and shall be available for inspection at all reasonable hours at the principal office of the **CONTRACTOR** by the **OWNER**, its officers and agents and to the representatives of the Division of Labor Law Enforcement of the State Department of Industrial Relations. In the event of non-compliance with the requirements of Section 1776, the **CONTRACTOR** shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the **CONTRACTOR** must comply. Should non-compliance still be evident after the ten (10) day period, the **CONTRACTOR** shall, as a penalty to the **OWNER** forfeit twenty-five dollars ($25.00) for each calendar day, or portion thereof, for each worker until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

13. Attention is directed to the provisions in Sections 1777.5 and 1777.6 of the Labor Code concerning the employment of apprentices by the **CONTRACTOR** or any **SUBCONTRACTOR** under him. It is the **CONTRACTOR'S** responsibility to ensure compliance by both itself and all **SUBCONTRACTORS**.

Section 1777.5 provides, in part, as follows:

The **CONTRACTOR** or **SUBCONTRACTOR**, if he is covered by this section, upon the issuance of the approval certificate, or if he has been previously approved in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeyman stipulated in the apprenticeship standards. Upon proper showing by the **CONTRACTOR** that he employs apprentices in the craft or trade in the State on all of his/her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by a journeyman, or in the land surveyor classification, one apprentice for each five journeyman, the Division of Apprenticeship Standards may grant a certification exempting the **CONTRACTOR** from the one (1) to five (5) hourly ratio as set forth in this section. This section shall not apply to contracts of general **CONTRACTORS** or to contracts of specialty contractors not bidding for work through a general or prime **CONTRACTOR**, when the contracts of general **CONTRACTORS**, or those specialty **CONTRACTORS** involve less than thirty thousand dollars ($30,000). Any work performed by a journeyman in excess of eight hours per day or forty (40) hours per week shall not be used to calculate the hourly ratio required by this section.

Apprenticeable craft or trade, as used in this section, shall mean a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the Apprenticeship Council. The joint apprenticeship committee shall have the

discretion to grant a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting a **CONTRACTOR** from the 1 to 5 ratio set forth in this section when it finds that any one of the following conditions is met:

(a) In the event unemployment for the previous three month period in such area exceeds an average of 15 percent, or

(b) In the event the number of apprentices in training in such area exceeds a ratio of 1 to 5, or

(c) If there is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either (1) on a statewide basis, or (2) on a local basis, or

(d) If assignment of an apprentice to any work performed under a public works contract would create a condition which should jeopardize his life or the life, safety, or property of fellow employees, or the public at large or if the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.

When such exemptions are granted to an organization which represents **CONTRACTORS** in a specific trade from the 1 to 5 ratio on a local or statewide basis the member **CONTRACTORS** will not be required to submit individual applications for approval to local joint apprenticeship committees, provided they are already covered by the local apprenticeship standards.

The **CONTRACTOR** is required to make contributions to funds established for the administration of apprenticeship programs if he employs registered apprentices or journeymen in apprenticeable trade on such contracts and if other **CONTRACTORS** on the public work site are making such contributions. The **CONTRACTOR**, and any **SUBCONTRACTOR** under him, shall comply with the requirements of Sections 1777.5 and 1777.6 of the Labor Code in the employment of apprentices. Information relative to number of apprentices, identifications, wages, hours of employment and standards of working conditions shall be obtained from the Division of Apprenticeship Standards. Consult the white pages of your telephone directory under California, State of, Industrial Relations, Apprenticeship Standards, for the telephone number and address of the nearest office. Willful failure by the **CONTRACTOR** to comply with the provisions of Sections 1777.5 will subject the **CONTRACTOR** to the penalties set forth in Section 1777.7 of the Labor Code.

14. Pursuant to California Labor Code Section 1813, eight hours in any one calendar day and forty (40) hours in any calendar week shall be the maximum hours any workman is required or permitted to work, except in cases of extraordinary emergency caused by fires, flood, or danger to life and property. The **CONTRACTOR** doing the work, or his duly authorized agent, shall file with **OWNER** a report, verified by his oath, setting forth the nature of the said emergency, which report shall contain the name of said worker and the hours worked by him on the said day, and the **CONTRACTOR** and each **SUBCONTRACTOR** shall also keep an accurate record showing the names and actual hours worked of all workers employed by him in connection with the work contemplated by this Agreement, which record shall be open at all reasonable hours to the inspection of the **OWNER**, or its officer or agents and to the Chief of all Division of Labor Statistics and Law Enforcement of the Department of Industrial Relations, his deputies or agents; and it is hereby further agreed that said **CONTRACTOR** shall forfeit as a

penalty to the **OWNER** the sum of Twenty-Five Dollars ($25.00) for each laborer, workman or any **SUBCONTRACTOR** under him for each calendar day during which such laborer, workman or mechanic is required or permitted to labor more than eight (8) hours in violation of this stipulation.

Overtime and shift work may be established as a regular procedure by the **CONTRACTOR** with reasonable notice and written permission of the **OWNER.** No work other than overtime and shift work established as a regular procedure shall be performed between the hours of 6:00 P.M. and 7:00 A.M. nor on Saturdays, Sundays or holidays except such work as is necessary for the proper care and protection of the work already performed or in case of an emergency.

CONTRACTOR agrees to pay the costs of overtime inspection except those occurring as a result of overtime and shift work established as a regular procedure. Overtime inspection shall include inspection required during holidays, Saturdays, Sundays and weekdays. Costs of overtime inspection will cover engineering, inspection, general supervision and overhead expenses which are directly chargeable to the overtime work. **CONTRACTOR** agrees that **OWNER** shall deduct such charges from payments due the **CONTRACTOR.**

15. The **CONTRACTOR** shall comply with Division 2, Chapter 4, Part 1 of the Public Contract Code relating to subletting and subcontracting, specifically included but not limited to Sections 4104, 4106, and 4110, which by this reference are incorporated into this Agreement as though fully set forth herein.

16. The **CONTRACTOR** and the **OWNER** agree that changes in this Agreement or in the work to be done under this Agreement shall become effective only when written in the form of a supplemental agreement or change order and approved and signed by the **OWNER** and the **CONTRACTOR**. It is specifically agreed that the **OWNER** shall have the right to request any alterations, deviations, reductions or additions to the contract or the plans and specifications or any of them, and the amount of the cost thereof shall be added to or deducted from the amount of the contract price aforesaid by fair and reasonable valuations thereof.

This contract shall be held to be completed when the work is finished in accordance with the original plans and specifications as amended by such changes. No such change or modification shall release or exonerate any surety upon any guaranty or bond given in connection with this contract.

17. **CONTRACTOR** will indemnify and defend the **OWNER** against and hold it harmless from all and any liability for damages on account of injury to persons or damages to property resulting from or arising out of or in any way connected with the performance by **CONTRACTOR** of the Agreement and reimburse the **OWNER** for all costs, expenses and loss incurred by it in consequence of any claims, demands, and causes of action which may be brought against it arising out of the performance by **CONTRACTOR** of this Agreement. **CONTRACTOR** shall furnish the **OWNER** with a certificate of an insurance carrier of adequate insurance coverage on this undertaking with limits of at least:

$1,000,000 for bodily injury to each person,
$1,000,000 for bodily injuries on each occurrence, and
$1,000,000 for property damage on each occurrence.

The Certificate of Insurance will state the contractual liability assumed under this paragraph is covered and shall provide that thirty (30) days notice of cancellation or reduction in coverage shall be given the **OWNER**.

The Certificate of Insurance shall be issued in triplicate to the City of Madera and all officers and employees of said agency while acting within the course and scope of their duties and responsibilities.

Insurance policies shall name the City of Madera as additional insured. The insurance provider shall furnish Owner with **ISO form Accord 25 and endorsement form CG 20 10 10 01 and endorsement form CG 20 37 10 01 or equivalent, subject to the approval of the City's Risk Manager.**

See Section "INSURANCE REQUIREMENTS FOR CONTRACTOR", pages 39-50 of the Contract Documents, for additional details as they pertain to the provision of insurance.

18. Amendments- Any changes to this Agreement requested by either City or **West Valley Construction Company, Inc.** may only be effected if mutually agreed upon in writing by duly authorized representatives of the parties hereto. This Agreement shall not be modified or amended or any rights of a party to it waived except by such writing.

19. Termination.

A. This Agreement may be terminated at any time by either party upon fifteen (15) calendar days written notice. In the event the Agreement is terminated by either party, **West Valley Construction Company, Inc.** shall be compensated for services performed to the date of termination based upon the compensation rates and subject to the maximum amounts payable agreed to together with such additional services performed after termination which are authorized in writing by the City representative to wind up the work performed to date of termination.

B. City may immediately suspend or terminate this Agreement in whole or in part by written notice where, if in the determination of City, there is:

1. An illegal use of funds by **West Valley Construction Company, Inc.**;
2. A failure by **West Valley Construction Company, Inc.** to comply with any material term of this Agreement;
3. A substantially incorrect or incomplete report submitted by **West Valley Construction Company, Inc.** to City.

In no event shall any payment by City or acceptance by **West Valley Construction Company, Inc.** constitute a waiver by such party of any breach of this Agreement or any default which may then exist on the part of either party. Neither shall such payment impair or prejudice any remedy available to either party with respect to such breach or default. City shall have the right to demand of **West Valley Construction Company, Inc.** the repayment to City of any funds disbursed to **West Valley Construction Company, Inc.** under this Agreement which, as determined by the appropriate court or arbitrator, were not expended in accordance with the terms of this Agreement.

Notice of termination shall be mailed to the City:

City of Madera
205 W. 4th Street
Madera, Ca 93637

To the Contractor **West Valley Construction Company, Inc.**

Notices. All notices and communications from the **West Valley Construction Company, Inc.** shall be to City's designated Project Manager or Principal-In-Charge. Verbal communications shall be confirmed in writing. All written notices shall be provided and addressed as soon as possible, but not later than thirty (30) days after termination.

20. Compliance With Laws- City shall comply with all Federal, State and local laws, ordinances, regulations and provisions applicable in the performance of City's services.

Wherever reference is made in this Agreement to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards or codes current on the effective date of this Agreement shall apply, unless otherwise expressly stated.

21. Attorneys' Fees/Venue- In the event that any action is brought to enforce the terms of this Agreement, the party found by the court to be in default agrees to pay reasonable attorneys' fees to the successful party in an amount to be fixed by the Court. The venue for any claim being brought for breach of this Agreement shall be in Madera County or as appropriate in the U.S. District Court for the Eastern District of California, located in the City of Madera.

22. Governing Law- The laws of the State of California shall govern the rights and obligations of the parties under the Agreement, including the interpretation of the Agreement. If any part of the Agreement is adjudged to be invalid or unenforceable, such invalidity shall not affect the full force and effect of the remainder of the Agreement.

23. City's Authority- Each individual executing or attesting to this Agreement on behalf of the City hereby covenants and represents: (i) that he or she is duly authorized to execute or attest and deliver this Agreement on behalf of such corporation in accordance with a duly adopted resolution of the corporation's articles of incorporation or charter and bylaws; (ii) that this Agreement is binding upon such corporation; and (iii) that Contractor is a duly organized and legally existing municipal corporation in good standing in the State of California.

24. Contractor's Legal Authority - Each individual executing or attesting this Agreement on behalf of **West Valley Construction Company, Inc.** hereby covenants and represents: (i) that he or she is duly authorized to execute or attest and deliver this Agreement on behalf of such corporation in accordance with such corporation's articles of incorporation or charter and by-laws; (ii) that this Agreement is binding upon such corporation; and (iii) that **West Valley Construction Company, Inc.** is a duly organized and legally existing corporation in good standing in the State of California.

25. Remedies for Default. Failure by a party to perform any term, condition or covenant required of the party under this Agreement shall constitute a "default" of the offending party under this Agreement. In the event that a default remains uncured for more than ten (10) days following receipt of written notice of default from the other party, a "breach" shall be deemed to have occurred. Any failure or delay by a party in asserting any of its rights and remedies as to any default shall not operate as a waiver of any default or of any rights or remedies associated with a default.

26. Sole Agreement- This instrument constitutes the sole and only Agreement between City and **West Valley Construction Company, Inc.** in connection to the Project and correctly sets forth the obligations of the City and **West Valley Construction Company, Inc** to each other as of its date. Any Agreements or representations in connection with the Project, not expressly set forth in this instrument are null and void.

27. Assignment-Neither the **West Valley Construction Company, Inc.** nor City will assign its interest in this Agreement without the written consent of the other.

28.During the performance of this Agreement, the Contractor assures that no otherwise qualified person shall be excluded from participation or employment, denied program benefits, or be subjected to discrimination based on race, color, national origin, sex, age, or handicap, under any program or activity funded by this contract, as required by Title VI of the Civil Rights Act of 1964, Title I of the Housing and Community Development Act of 1974, as amended, and the Age Discrimination Act of 1975, and all implementing regulations.

29 This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in THREE copies, each of which shall be deemed an original on the date first above written.

City of Madera
Herein Called OWNER

By: _____
Robert L. Poythress, Mayor

APPROVE AS TO FORM:

_____
Brent Richardson, City Attorney

ATTEST:

_____
Sonia Alvarez, City Clerk

BY: _____
Herein Called CONTRACTOR

BY: _____

_____
Federal Tax I.D. No.

_____
Contractor License Number

_____
DIR Registration Number

NOTE: This Notary Acknowledgment on the following page is required for verification of Contractor's signature.

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)

County of _____)

On _____, 2016 before me, _____
(insert name and title of officer)

Personally appeared_____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

Return to Agenda

REPORT TO CITY COUNCIL

Approved By:

Department Director

City Administrator

Council Meeting of March 16, 2016
Agenda Item Number B-6

SUBJECT: CONSIDERATION OF A RESOLUTION APPROVING AN AMENDED APPLICATION FOR TRANSPORTATION DEVELOPMENT ACT - LOCAL TRANSPORTATION FUNDS FOR FY 2015/16 WITH FY 2014/15 CARRYOVER BALANCES

RECOMMENDATION:

That the City Council approves a resolution:

1. Approving an Amended Application for Transportation Development Act (TDA) - Local Transportation Fund (LTF) for FY 2015/16 with FY 2014/15 Carryover Balances.

2. Authorizing the City Engineer to execute the amended application and submit to Madera County Transportation Commission (MCTC) for approval and adoption.

SUMMARY:

The Madera City Council approved Resolution No. 15-93 on June 3, 2015 for the use of Local Transportation Funds (LTF) as required by MCTC. This amended LTF application reflects the inclusion of the carryover balances from FY 2014/15, and the mid-year budget amendments approved by council on March 2, 2016.

The amended application is required for proper accounting of the City's claim for expenditures of the LTF in FY 2015/16. The amendment to the LTF application is prepared and submitted to MCTC annually after prior year final expenses and claims have been processed, and the excess prior year funds and carryover balances have been confirmed by MCTC.

DISCUSSION:

LTF applications are prepared for funds apportioned to the City of Madera, County of Madera and City of Chowchilla by the MCTC based on population pursuant to the Transportation Development Act (TDA). Changes to this application by the local agency can be made through an amended application at any time. The original application was prepared to reflect the proposed expenditures for the coming fiscal year using only the allocation of funds provided by MCTC in June, and as required by statute. The amended application includes new revenue amounts and prior year carryover balances.

The Amended LTF Application will include funding for programs and projects approved by City Council on June 3, 2015 and the carryover balances of LTF from FY 2014/15 for use by ongoing projects and programs included in the City's 2015/16 Capital Improvement Program (CIP).

The amended application is also required for proper accounting of the City's claim for expenditures of the Local Transportation Fund (LTF) in FY 2015/16.

FINANCIAL IMPACT:

There is no adverse fiscal impact to the City's General Fund. The LTF is used to support Capital Improvement Program transportation related projects.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

Action 126 – This project supports the strategy for providing clean attractive streets that are safe and aesthetically pleasing.

Multi-modal Transportation: Strategy 121 – Develop a city-wide multi-modal transportation plan to ensure safe, affordable and convenient transportation modes for residents and businesses within Madera.

Including Sub-strategies:

121.1 – Provide needs assessment including all forms of transportation.

121.2 – Update the Master Transportation Plan.

121.11 - Investigate or delineate standards for enhanced transit facilities.

121.12 – Include expansion goals in Master Plan.

RESOLUTION NO. 16 - _____

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA, APPROVING AN AMENDED APPLICATION FOR TRANSPORTATION DEVELOPMENT ACT - LOCAL TRANSPORTATION FUND FOR FISCAL YEAR 2015/16 WITH FISCAL YEAR 2014/15 CARRYOVER BALANCES AND AUTHORIZING THE CITY ENGINEER TO EXECUTE THE APPLICATION

WHEREAS, the City Council approved Resolution No. 15-93 on June 3, 2015; and

WHEREAS, the Transportation Development Act (TDA), Local Transportation Fund (LTF) is annually allocated by the Madera County Transportation Commission (MCTC) pursuant to the Transportation Development Act; and

WHEREAS, the City of Madera prepares an application outlining the intended uses for the TDA-LTF funds each year and the application may be amended as needed; and

WHEREAS, the unexpended balances of LTF funds in FY 2014/15 must be added to the FY 2015/16 application for proper accounting purposes; and

WHEREAS, the amended TDA-LTF Application with the actual 2014/15 carryover balances provided by MCTC is submitted to the City Council for its consideration.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY, finds, orders and resolves as follows:

1. The above recitals are true and correct.

2. The Amended Application for Transportation Development Act-Local Transportation Fund for Fiscal Year 2015/2016, with FY 2014/15 Carryover Balances, attached hereto, is approved.

3. The City Engineer is authorized to execute the Amended TDA-LTF Application and submit it to the MCTC for adoption.

4. This resolution is effective immediately upon adoption.

* * * * * * *

Application Number: _____

Date of Submission: _____

MADERA COUNTY TRANSPORTATION COMMISSION

Application for Transportation Development Act, Article 8 Funds

Local Transportation Fund (LTF)

Fiscal Year 2015/2016 Amended with 2014/2015 Carryover Balances

Applicant Agency, Address, and Project Director:
City of Madera, 205 W. Fourth Street, Madera, CA 93637 - Keith B. Helmuth, City Engineer

This form is to be used when making an application to use TDA funds for Public Transportation Services, Transportation Planning Services, Pedestrian and Bicycle Facility Construction, and Street and Road Projects. All projects submitted must be included in the Regional Transportation Plan. MCTC is required to make a finding that "No unmet public transportation needs exist" in the county before this application can be approved.

FUNDING REQUEST:

Transportation Services Section 99400 (c):

1. Name of Service, Contractor:	MAX, Dial-A-Ride, Intermodal	$ 337,000.00
2. Name of Service, Contractor:		$
3. Name of Service, Contractor:		$
4. Name of Service, Contractor:		$
5. Name of Service, Contractor:		$
	TOTAL:	$ 337,000.00

Pedestrian and Bicycle Facilities Section 99400 (a):

Project Name, if applicable

1.	Miscellaneous Pedestrian/Bicycle Facilities	$ 33,000.00
2.	Fresno River Trail Projects	$ 117,163.00
3.		$
	TOTAL:	$ 150,163.00

Transportation Planning Services Section 99402:

MCTC regional transportation planning activities on behalf of member agencies (Circulation Studies, Traffic Counts, System Route Studies, Bike Lane Planning, General Data Collection, etc.)		$ 48,912.00
Local Agency transportation planning activities (or Contracted Services)		$
Additional planning project or contracted transportation planning work		$
	TOTAL:	$ 48,912.00

Street and Road Projects Section 99402:

TDA, Article 8 Funds Requested for Street Maintenance		$ -
TDA, Article 8, Other Road and Street Improvement Projects		$ 3,576,475.06
	TOTAL:	$ 3,576,475.06
	GRAND TOTAL:	$ **4,112,550.06**

The Standard Assurances Form has been attatched to this application (initial here) _____

Submitted By:

_____

Keith B. Helmuth, City Engineer Date

Approved by MCTC:

_____

Patricia Taylor, Executive Director Date

Note:
TDA funds may be used to cover actual expenses during the fiscal year of the application only. Should carryover funds occur, MCTC should be notified

Return to Agenda

REPORT TO CITY COUNCIL

MEETING DATE: March 16, 2016

AGENDA ITEM NUMBER: B-7

Approved By:

for PUBLIC WORKS DIRECTOR

CITY ADMINISTRATOR

SUBJECT: Consideration of a Resolution Authorizing Submittal of a CUCP Agreement/Declaration of Status to the California Unified Certification Program (CUCP) and Authorizing the City Administrator to execute the letter agreement.

RECOMMENDATION: It is recommended that the Council approves the attached resolution authorizing the City of Madera's participation in a unified statewide DBE certification program and authorizing the City Administrator to execute an agreement and declaration to participate as a non-certifying member in the Unified Certification Program under federal DOT regulations

SUMMARY: As mandated by the United States Department of Transportation in 49 CFR Part 26 issued February 2, 1999 regarding participation by Disadvantaged Business Enterprises in U.S. Department of Transportation Programs, all recipients of federal financial assistance must participate in a statewide unified certification program.

Since issuance of the Final Rule, the State of California/Department of Transportation Civil Rights Program staff has been leading a team effort among all governmental entities within California to develop and implement a California UCP.

DISCUSSION: The concept behind a unified certification program is "one-stop shopping" for all firms applying for Disadvantaged Business Enterprise (DBE) certification; i.e., a potential DBE applicant need only apply once for DBE certification. All USDOT recipients throughout the state will honor the DBE certification.

Each recipient of federal financial assistance shall choose to become either a "certifying" UCP member or a "non-certifying" UCP member. All recipients that elect to become certifying UCP members agree to maintain and continue with processes involved in a DBE certification program by collecting and maintaining certification application files, conducting site visits,

making certification decisions and handling appeals and challenges. Certifying UCP members agree to utilize the California UCP-approved DBE Certification Application Form.

A non-certifying agency adheres to all aspects of the USDOT DBE program, except it does not perform DBE certification activities. A non-certifying member accepts all firms certified as a DBE by a certifying member. Accordingly, the DBEs listed on the CUCP DBE directory are eligible to participate on all USDOT funded contracts administered by a CUCP participant.

Because CalTrans has the largest DBE certification program in the State, they have agreed to serve as the California UCP DBE Database Manager for all DBE certifications made by certifying UCP members, including the electronic DBE database.

FINANCIAL IMPACT: There will be no financial impact to the General Fund.

MADERA VISION 2025: Compliance with the United States Department of Transportation's requirement of participating in a statewide unified certification program, protects the City's DOT grant funding, thereby promoting the following Vision 2025 strategy:

Strategy #121: Multi-modal transportation – Develop a city-wide multi-modal transportation plan to ensure safe, affordable and convenient transportation modes for residents and businesses within Madera.

RESOLUTION NO. 16-____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA, AUTHORIZING SUBMITTAL OF A CUCP AGREEMENT/DECLARATION OF STATUS TO THE CALIFORNIA UNIFIED CERTIFICATION PROGRAM (CUCP) AND AUTHORIZING THE CITY ADMINISTRATOR TO EXECUTE THE LETTER AGREEMENT

WHEREAS, the United States Department of Transportation (USDOT) has mandated under 49 CFR Part 26 that all recipients of federal financial assistance must participate in a statewide unified certification program; and

WHEREAS, the City of Madera currently receives federal financial assistance from the United States Department of Transportation; and

WHEREAS, the California State Department of Transportation (Caltrans) has the largest DBE certification program in the State and has agreed to serve as the California UCP DBE Database Manager for all DBE certifications.

WHEREAS, Caltrans requires that local agency recipients of funds from USDOT must submit a CUCP Agreement/Declaration of Status in order to become a member of the CUCP; and

WHEREAS, the City has prepared the CUCP Agreement/Declaration of Status and identified as a non-certifying member of the CUCP.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY resolves, finds, determines and orders as follows:

1. The above recitals are true and correct.
2. The CUCP Agreement/Declaration of Status is hereby approved.
3. The City Administrator is hereby authorized to execute the Letter of Agreement/Declaration of Status
4. The City is hereby authorized to submit the Letter of Agreement/Declaration of Status to the California Unified Certification Program.
5. This resolution is effective immediately upon adoption.

****

CUCP AGREEMENT/DECLARATION OF STATUS LETTER

TO: CALIFORNIA UNIFIED CERTIFICATION PROGRAM (CUCP)

FROM: Madera, City of, **(Recipient)**

Address: 205 West Fourth Street, Madera, CA 93637

Recipient hereby acknowledges and agrees that:

(1) As a recipient of Federal Financial Assistance from the U.S. Department of Transportation (DOT), Recipient has an established Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26.

(2) By this Letter, Recipient officially becomes a signatory to the Memorandum of Agreement (MOA) for the establishment of a Unified Certification Program among all U.S. DOT recipients in California, as approved by the Secretary of Transportation on March 13, 2002, and amended on March 24, 2003.

(3) In accordance with said MOA, Recipient hereby makes a declaration to become either a Certifying CUCP Member or a Non-Certifying CUCP Member.

(a) A Certifying CUCP Member maintains DBE certification processes including reviewing DBE applications, conducting site visits and making decisions on DBE status; processing annual updates; maintaining DBE certification files; and conducting appeal and third party challenge hearings. A Certifying CUCP Member is responsible for providing certification information and updates for inclusion in the DBE Database.

(b) A Non-Certifying CUCP Member does not process DBE certifications for inclusion in the DBE Database.

(4) CUCP Members may be requested to contribute funds to support the CUCP.

(5) All CUCP Members will accept the DBE status of firms included in the DBE Database for use in their contracting activities.

Based on the foregoing, Recipient hereby declares its status as:

_____ **A CERTIFYING CUCP MEMBER**

__X__ **A NON-CERTIFYING CUCP MEMBER**

Recipient may change its status upon submission of a new Declaration Letter to the Chair of the CUCP.

DATE:_____

_____
(Signature of Recipient Agency Official)

David Tooley, City Administrator
(Name and Title)

Participation in CUCP acknowledged:

Date
(Secretary, California Unified Certification Program)

Date
(Chair, California Unified Certification Program)

Return to Agenda

REPORT TO CITY COUNCIL

Approved By:

Department Director

City Administrator

Council Meeting of March 16, 2016
Agenda Item Number B-8

SUBJECT: CONSIDERATION OF A RESOLUTION APPROVING THE AGREEMENT TO PURCHASE TAX-DEFAULTED PROPERTY FROM MADERA COUNTY FOR PARCELS 006-441-015 AND 006-440-022 FOR USE ON CITY OF MADERA RIVER TRAIL PROJECTS.

RECOMMENDATION:

1. That the City Council approves Resolution No. 16-___

   a. Approving the agreement to purchase tax-defaulted property from Madera County.
   b. Authorizing the City Mayor to execute the agreement and submit to Madera County.

SUMMARY:

A concrete Class I bike lane and ADA compliant extension of the existing pedestrian trail along the north bank of the Fresno River at Schnoor Avenue will be constructed as part of the following projects:

- Schnoor Avenue Undercrossing, North Bank project and,
- The Fresno Rivertrail North Bank, Schnoor Avenue to the MID Canal Phase I.

The construction of these projects will require the acquisition of land (Outlot 'A') located along the Fresno River bank on the North West corner of Schnoor Avenue and the Fresno River and extend westerly to the MID Canal. See attachment A.

HISTORY:

The land acquisition consists of two parcels of land for a total of approximately 8.33 acres. The land is zoned for Resource Conservation and Open Space district uses. The current property owner is willing to donate the two parcels to the City. However, each parcel is delinquent on property taxes. The County of Madera is owed $23,683.16 on parcel no. 006-440-022 and $21,386.52 on parcel no. 006-441-015 for a total of $45,069.68. The property is currently listed on the County's tax sale list. Under this situation, the property owner has not been able to donate the land for use as a trail and the City cannot purchase the portions of Outlot 'A' that are necessary for the trail without either paying the full tax amount due or making an alternative offer through the presentation of the attached agreement for consideration by the County.

SITUATION:

The acquisition of Outlet 'A' is an essential step for the progression of the trail project. Without portions of the two parcels that make up Outlot 'A', the projects cannot move forward into construction. The City Counsel previously authorized staff to make an offer of $4,320 to the County of Madera for Outlot 'A'. This consists of an offer of $1,835 for parcel 006-441-015 and $2,485 for parcel 006-440-022. See agreement attached.

The agreement attached will be submitted to the County of Madera which begins the following process;

- The Madera County Counsel will review the agreement.
- The properties will be removed from the current tax sale listing offering.
- A resolution for the County Board of Supervisors Packet will be created.
- Tax collector records will be adjusted and finalized based on the offer for the properties.

The Madera County Board of Supervisors must accept the City's offer in order to finalize the agreement to purchase the tax defaulted property. This process may take up to 60 days.

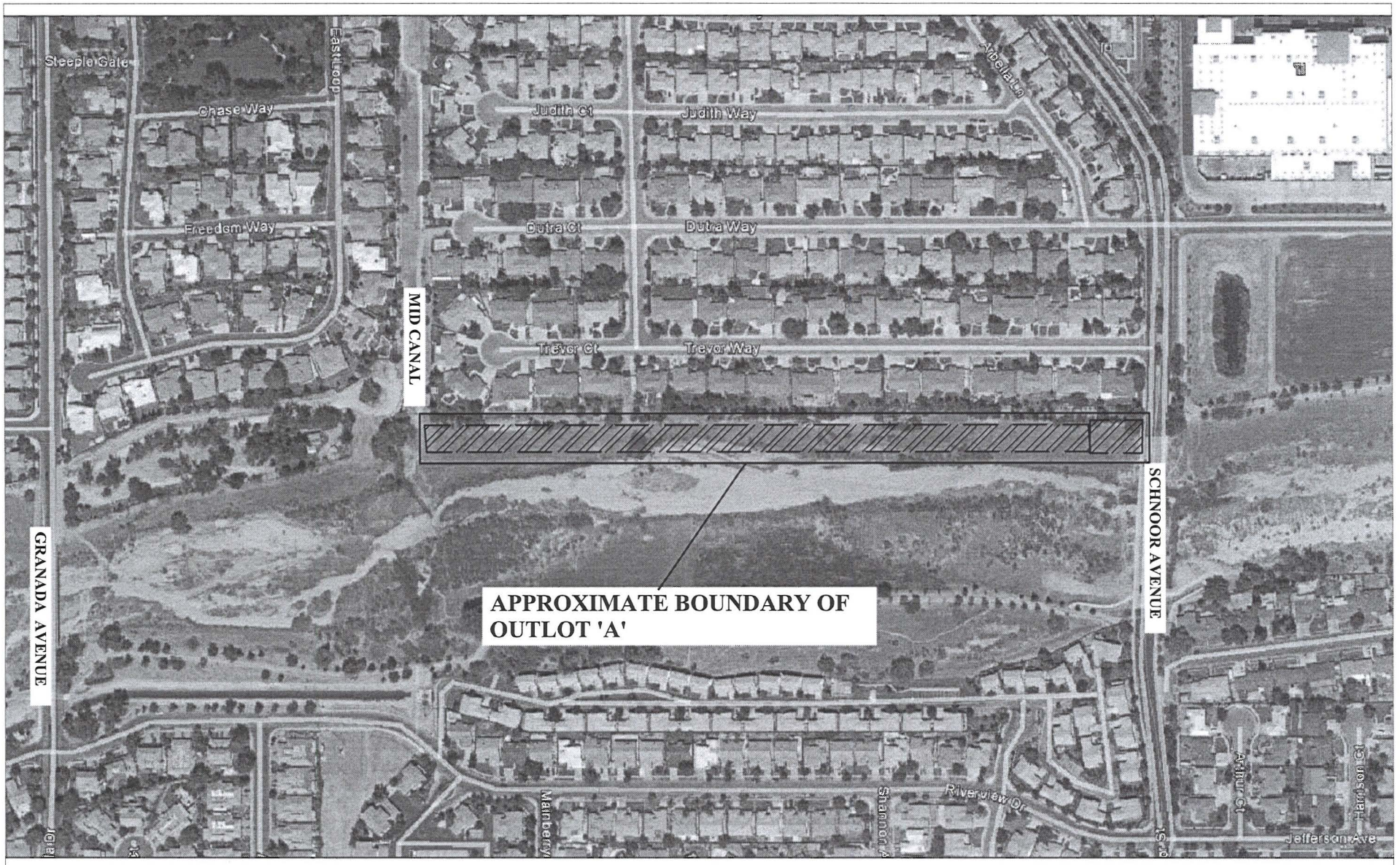
FINANCIAL IMPACT:

There is no adverse fiscal impact to the City's General Fund or other Funds. Local matching funds have been programmed in the FY 15/16 City Budget; Local Transportation Funds (LTF) Fund account 5830-5096.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN

Strategy 113 - City Facilities Accessibility: Promote greater accessibility of City facilities and services to meet the needs of various cultural, socio-economic and disabled groups.

Strategy 138 - ADA Compliance: Establish and enforce American with Disabilities Act standards in public facilities throughout the community.



ATTACHMENT 'A'

RESOLUTION NO. 16 - _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA, APPROVING THE AGREEMENT TO PURCHASE TAX-DEFAULTED PROPERTY FROM MADERA COUNTY FOR PARCELS 006-441-015 AND 006-440-022 FOR USE ON CITY OF MADERA RIVER TRAIL PROJECTS.

WHEREAS, the City of Madera, requires the acquisition of parcels 006-441-015 and 006-440-022 (both included in Outlot 'A') to construct a pedestrian bike trail; and,

WHEREAS, the Agreement to Purchase Tax-Defaulted Property must be executed with Madera County; and

WHEREAS, the City wishes to delegate authorization to the City Engineer of the City of Madera to execute the Agreement to Purchase Tax-Defaulted Property with the Madera County.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY finds, orders and resolves as follows:

1. The above recitals are true and correct.
2. The City Mayor is authorized to execute the Agreement to Purchase Tax-Defaulted Property with Madera County on behalf of the City.
3. This resolution is effective immediately upon adoption.

* * * * * * * * * * * * *

AGREEMENT TO PURCHASE TAX-DEFAULTED PROPERTY

This Agreement is made this **16** day of **March**, **2016**, by and between the

Board of Supervisors of Madera County, State of California, and **City of Madera** ("PURCHASER"), pursuant to the Provisions of Division 1, Part 6, Chapter 8, of the Revenue and Taxation Code.

The real property situated within said county, hereinafter set forth and described in this agreement, is tax-defaulted and is subject to the power of sale by the tax collector of said county for the nonpayment of taxes, pursuant to provisions of law.

It is mutually agreed as follows:

1. That, as provided by Revenue and Taxation Code section 3800, the cost of giving notice of this agreement shall be paid by the PURCHASER, and

2. That the PURCHASER agrees to pay the sum of $ **4,320** for the real property described in Exhibit "A" within **thirty (30)** days after the date this agreement becomes effective. Upon payment of said sum to the tax collector, the tax collector shall execute and deliver a deed conveying title to said property to PURCHASER.

3. That the PURCHASER agrees to use the parcel(s) for public purpose under the following intent:

For public use as a bike and pedestrian concrete path along the Fresno River.

4. That, if said purchaser is a taxing agency as defined in Revenue and Taxation Code section 121 or any other agency that receives its revenue share under the provisions of Division 1, Part 8, Chapter 3 of the Revenue and Taxation Code, it will not share in the distribution of the payment required by the Agreement as defined by section 3791 and section 3720 of the Revenue and Taxation Code.

If all or any portion of any individual parcel described in this agreement is redeemed prior to the effective date of this agreement, this agreement shall be null and void as to that individual parcel.

The undersigned hereby agree to the terms and conditions of this agreement and are duly authorized to sign for said agencies.

This document may be executed in counterpart each of which constitutes an original.

City of Madera

By: _____
Robert L. Poythress, Mayor

APPROVE AS TO FORM:

_____

Brent Richardson, City Attorney

ATTEST:

_____

Sonia Alvarez, City Clerk

ATTEST: BOARD OF SUPERVISORS

_____ By _____ COUNTY

Clerk of the Board of Supervisors

By _____ By_____

Deputy Chair

(seal)

Pursuant to the provisions of section 3775 of the Revenue and Taxation Code, the governing body of the City of ___Madera____ hereby agrees to the sale price as provided in this agreement.

ATTEST: CITY OF MADERA

_____ By: _____

Sonia Alvarez, City Clerk Robert L. Poythress, Mayor

Pursuant to the provisions of section 3795 of the Revenue and Taxation Code, the Controller approves the foregoing agreement this _____ day of _____, _____.

BETTY YEE, CALIFORNIA STATE CONTROLLER

By _____

Exhibit "A"

Description	First Year Delinquent	Default Number	Purchase Price
Vacant Lot 006-441-015	**2006**	**des-060-001-740**	**$1,835**
Vacant Lot 006-441-022	**2006**	**des-060-001-739**	**$2,485**

Return to Agenda

COUNCIL MEETING OF:
March 16, 2016

AGENDA ITEM NUMBER:
C-1

REPORT TO THE CITY COUNCIL

Approved By:

PLANNING MANAGER

CITY ADMINISTRATOR

SUBJECT:

A noticed public hearing and consideration of introduction of an ordinance prezoning approximately 18.96 acres located at the northwest corner of Tozer Street (Road 28) and South A Street to the PF (Public Facilities) Zone District and consideration of adoption of a resolution amending the General Plan land use designation from the MD (Medium Density) to the P&SP (Public and Semi-Public) land use Designation in support of the construction of an elementary school.

RECOMMENDATION:

The Planning Commission and staff recommend that the Council, after considering public testimony, adopt a resolution approving the General Plan amendment and introduce an ordinance prezoning the subject property.

DISCUSSION:

Background

The Madera Unified School District proposes to develop an elementary school on the project area under consideration for General Plan amendment and prezoning. In order to fully develop the property, the school district wishes to annex into the City in order to connect to City services. The proposed elementary school would be developed consistent with the development standards and the goals and policies of the General Plan. Prezoning is required to be completed in advance of formal application for annexation into the City.

General Plan Amendment

The General Plan currently designates the project site as MD (Medium Density). The MD designation provides for medium density residential development, including small-lot single family residential and lower density multifamily apartments. The applicant has requested a change in General Plan land use designation to the P&SP (Public and Semi-Public) land use designation. The P&SP land use designation would provide consistency between the proposed PF (Public Facility) Zone District and the expected development of an elementary school.

Prezoning

The project site is proposed to be prezoned into the PF (Public Facility) Zone District. The PF Zone District is designed to provide land for the development of offices and/or facilities owned

and operated by city, county, state, or federal governmental agencies, and public school districts. Examples of development found in the PF (Public Facilities) Zone District include civic centers, fire and police stations, libraries and post offices, and schools. The PF Zone District is the correct zone for the development of the proposed elementary school.

Public Infrastructure

Public infrastructure and utilities required by Madera Municipal Code and the Madera General Plan will be constructed in support of the elementary school. Required infrastructure includes sewer, water, and storm drainage infrastructure consistent with the City's master plans. Street improvements include the widening of Tozer Street to complete the City's half-street cross section for an arterial street. The applicant should anticipate that the completion of all improvements will be required as a part of any agreement to obtain City water and sewer for the project.

CEQA

The General Plan amendment and prezoning currently under review act as first steps in the eventual development of the project site and are subject to compliance with the California Environmental Quality Act (CEQA). The school district, acting as the lead agency per CEQA, has prepared a mitigated negative declaration in support of the development of an elementary school on the project site. The City, acting as a responsible agency per CEQA, is required to consider the mitigated negative declaration when reaching a decision on the project. Madera Unified School District (MUSD) adopted the mitigated negative declaration on February 9, 2016.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

The project supports one of the four core vision statements in the Vision Plan. "A Strong Community and Great Schools" highlights development of leadership, expansion of educational opportunities, support for the arts and recognition of Madera's unique culture. Prezoning and General Plan conformance in advance of the construction of an elementary school directly supports this core vision statement.

FISCAL IMPACT:

None.

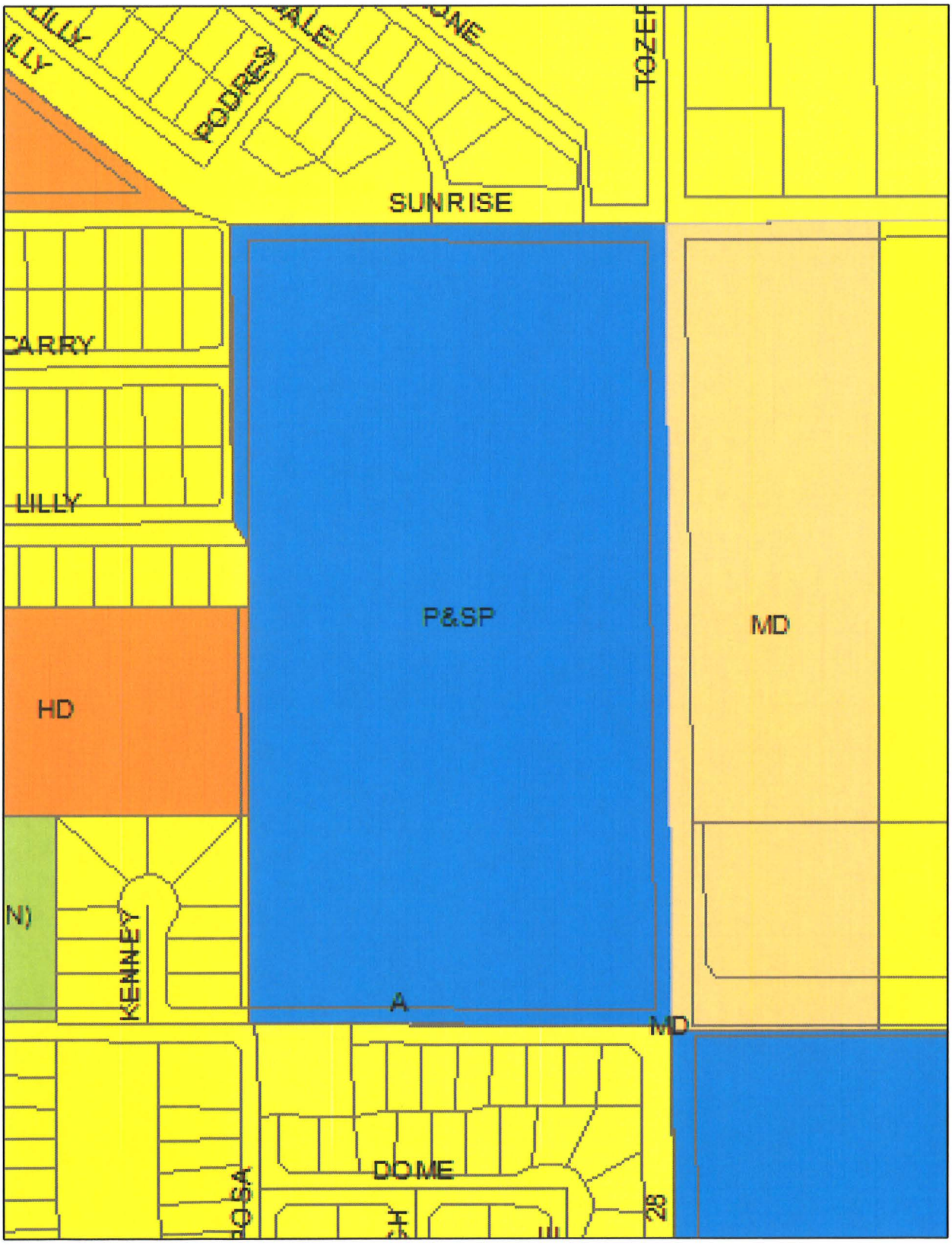
REFERENCE MATERIALS:

Aerial Image
Exhibit A – General Plan Amendment
Exhibit B – Prezoning Area
Planning Commission Resolution No. 1808
General Plan Amendment Resolution
Draft Ordinance
Mitigated Negative Declaration

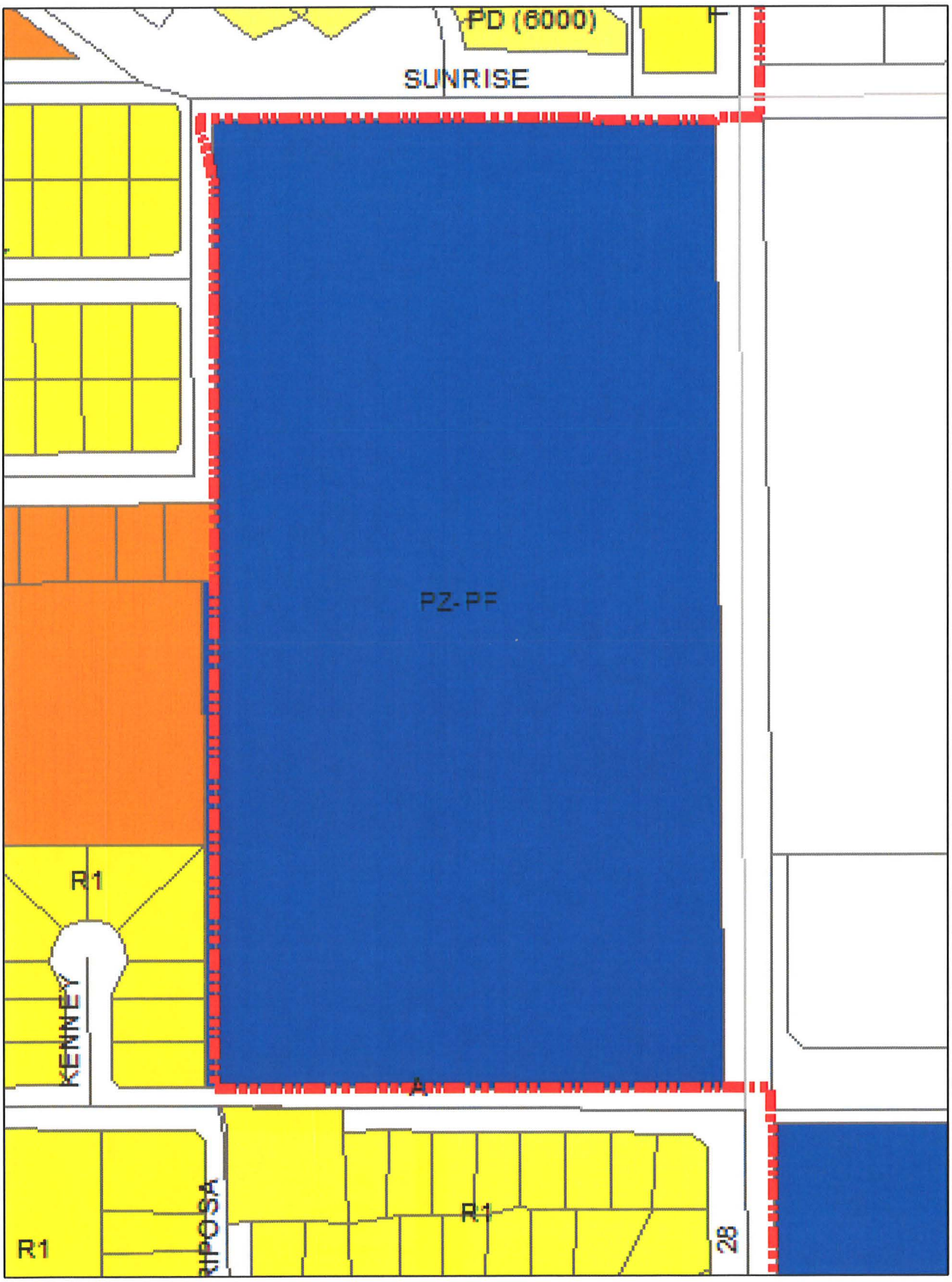
Aerial Photo



General Plan Map



Zoning Map



RESOLUTION NO. 1808

RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MADERA RECOMMENDING TO THE CITY COUNCIL OF THE CITY OF MADERA APPROVAL OF AN AMENDMENT OF THE GENERAL PLAN CHANGING THE LAND USE DESIGNATION OF APPROXIMATELY TWENTY ACRES FROM THE MD (MEDIUM DENSITY) TO P&SP (PUBLIC AND SEMI-PUBLIC) GENERAL PLAN LAND USE DESIGNATION AND THE PREZONING OF THE PROPERTY TO THE PF (PUBLIC FACILITY) ZONE DISTRICT

WHEREAS, State Law requires that local agencies adopt General Plans containing specific mandatory elements; and

WHEREAS, the City of Madera has adopted a Comprehensive General Plan Update and Environmental Impact Report, and the City of Madera is currently in compliance with State mandates relative to Elements of the General Plan; and

WHEREAS, State law also provides for periodic review, updates, and amendments of its various plans; and

WHEREAS, the planning area for the General Plan includes the City limits, the City's sphere of influence, and an area outside the sphere of influence; and

WHEREAS, the City has initiated an amendment to the Madera General Plan amending the land use designations for approximately twenty acres of property immediately adjacent to the City limits to ensure that the general plan designation is consistent with the anticipated utilization of the land as an elementary school; and

WHEREAS, the City has initiated a prezoning of the property to the PF (Public Facility) Zone District to provide consistency with the proposed General Plan land use designation and the proposed utilization of the land as an elementary school; and

WHEREAS, the prezoning of the subject property will allow the submittal of an annexation application for the approximately twenty acres to the Madera Local Agency Formation Commission; and

WHEREAS, the Planning Commission, acting as a responsible agency, has considered a mitigated negative declaration prepared by the lead agency, the Madera Unified School District, in compliance with the California Environmental Quality Act; and

WHEREAS, the City agrees that no subsequent change may be made to the general plan for the annexed territory or zoning that is not in conformance to the prezoning designations for a period of two years after the completion of the annexation, unless the legislative body for the city finds at a public hearing that a substantial change has occurred in circumstances that necessitates a departure from the pre-zoning in the application to the commission.

WHEREAS, public notice of this public hearing was given by mailed and published notice in accordance with the applicable State and Municipal Codes and standard practices; and

WHEREAS, the Planning Commission has completed its review of the staff report and documents submitted for the proposed project, evaluated the information and considered testimony received as a part of the public hearing process.

NOW THEREFORE BE IT RESOLVED BY THE PLANNING COMMISSION OF THE CITY OF MADERA AS FOLLOWS:

1. The above recitals are true and correct.

2. The Planning Commission hereby recommends that the Madera General Plan land use map be amended as specified in attached Exhibit "A".

3. The proposed amendment to the Land Use Map is hereby found consistent with all elements of the Madera General Plan.

4. The proposed prezoning is hereby found to be consistent with all elements of the General Plan, including the land use map as amended by this application.

5. The Planning Commission hereby recommends the City Council adopt an ordinance rezoning property as specified within the attached Exhibit "B".

6. This resolution is effective immediately.

* * * * *

Passed and adopted by the Planning Commission of the City of Madera this 9th day of February, 2016, by the following vote:

AYES: Jim DaSilva, Pamela Tyler, Jeff Dal Cerro, Robert Gran, Jr. and Kenneth Hutchings
NOES: None
ABSTENTIONS: Ruben Mendoza
ABSENT: Bruce Norton

Kenneth Hutchings
Planning Commission Chairperson

Attest:

Christopher F. Boyle
Planning Manager

RESOLUTION NO. _____

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA APPROVING AN AMENDMENT OF THE GENERAL PLAN CHANGING THE LAND USE DESIGNATION OF APPROXIMATELY TWENTY ACRES FROM THE MD (MEDIUM DENSITY) TO P&SP (PUBLIC AND SEMI-PUBLIC) GENERAL PLAN LAND USE DESIGNATION AND THE PREZONING OF THE PROPERTY TO THE PF (PUBLIC FACILITY) ZONE DISTRICT

WHEREAS, State Law requires that local agencies adopt General Plans containing specific mandatory elements; and

WHEREAS, the City of Madera has adopted a Comprehensive General Plan Update and Environmental Impact Report, and the City of Madera is currently in compliance with State mandates relative to Elements of the General Plan; and

WHEREAS, State law also provides for periodic review, updates, and amendments of its various plans; and

WHEREAS, the planning area for the General Plan includes the City limits, the City's sphere of influence, and an area outside the sphere of influence; and

WHEREAS, the City has initiated an amendment to the Madera General Plan amending the land use designations for approximately twenty acres of property immediately adjacent to the City limits to ensure that the general plan designation is consistent with the anticipated utilization of the land as an elementary school; and

WHEREAS, the City has initiated a prezoning of the property to the PF (Public Facility) Zone District to provide consistency with the proposed General Plan land use designation and the proposed utilization of the land as an elementary school; and

WHEREAS, the prezoning of the subject property will allow the submittal of an annexation application for the approximately twenty acres to the Madera Local Agency Formation Commission; and

WHEREAS, the City Council, acting as a responsible agency, has considered a mitigated negative declaration prepared by the lead agency, the Madera Unified School District, in compliance with the California Environmental Quality Act; and

WHEREAS, the City agrees that no subsequent change may be made to the general plan for the annexed territory or zoning that is not in conformance to the prezoning designations for a period of two years after the completion of the annexation, unless the legislative body for the city finds at a public hearing that a substantial change has occurred in circumstances that necessitates a departure from the pre-zoning in the application to the Madera Local Agency Formation Commission; and

WHEREAS, the Planning Commission of the City of Madera held a public hearing on February 9, 2016, and adopted a resolution recommending to the City Council approval of the General Plan amendment; and

WHEREAS, public notice of this public hearing was given by mailed and published notice in accordance with the applicable State and Municipal Codes and standard practices; and

WHEREAS, the City Council has completed its review of the staff report and documents submitted for the proposed project, evaluated the information and considered testimony received as a part of the public hearing process.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MADERA AS FOLLOWS:

1. The above recitals are true and correct.

2. The City Council, acting as a responsible agency, has considered a mitigated negative declaration prepared by the lead agency, the Madera Unified School District, in compliance with the California Environmental Quality Act.

3. Based upon the testimony and information presented at the hearing, and all evidence in the whole record pertaining to this matter, the City Council hereby finds that the

proposed amendment to the General Plan Land Use Map is consistent with all elements of the Madera General Plan and is hereby approved, as specified in attached Exhibit A.

4. Based upon the testimony and information presented at the hearing, and all evidence in the whole record pertaining to this matter, the City Council hereby finds that the proposed prezoning is consistent with all elements of the General Plan, including the amended land use map is hereby approved, as specified in attached Exhibit B.

5. This resolution is effective immediately.

* * * * *

EXHIBIT 'A'

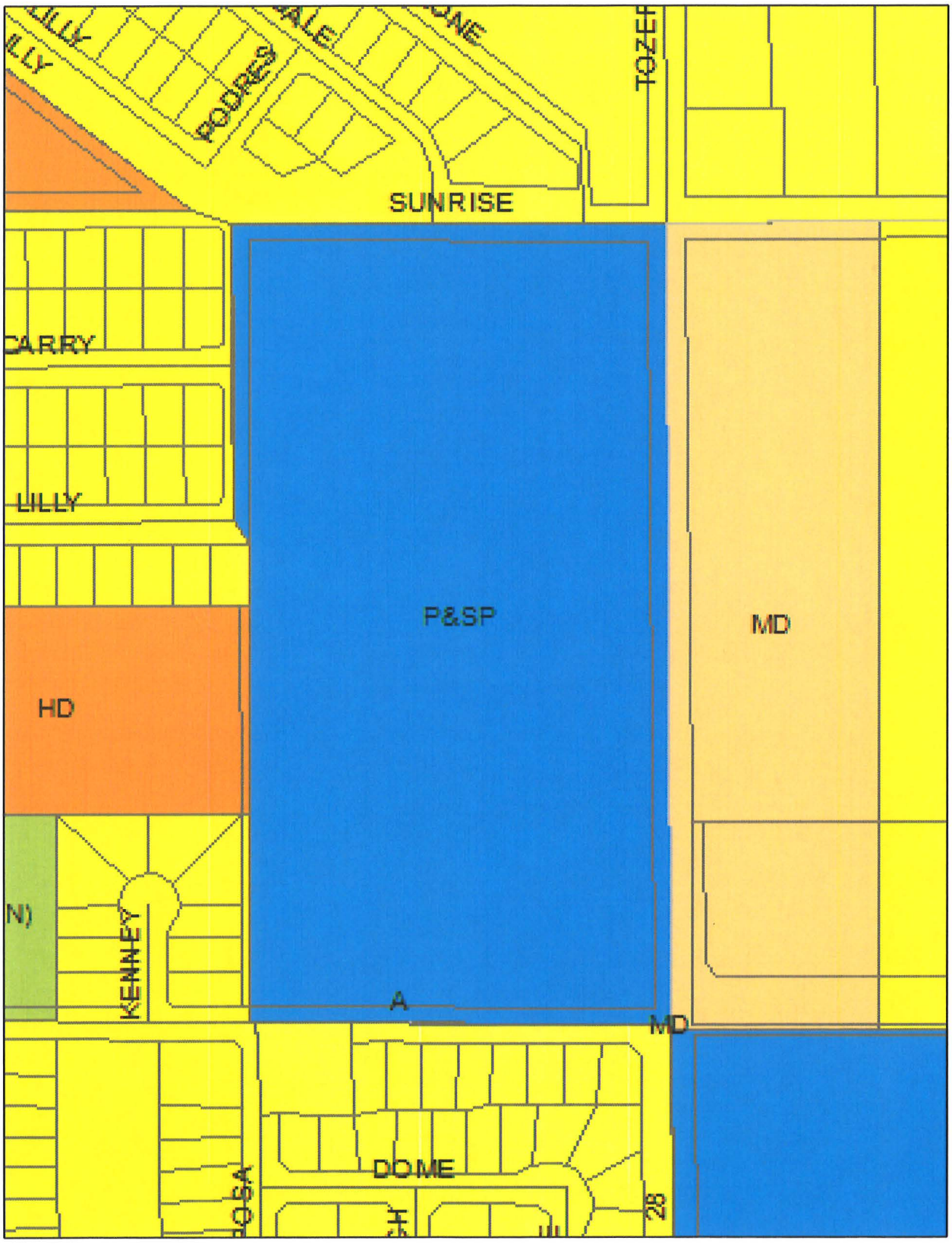
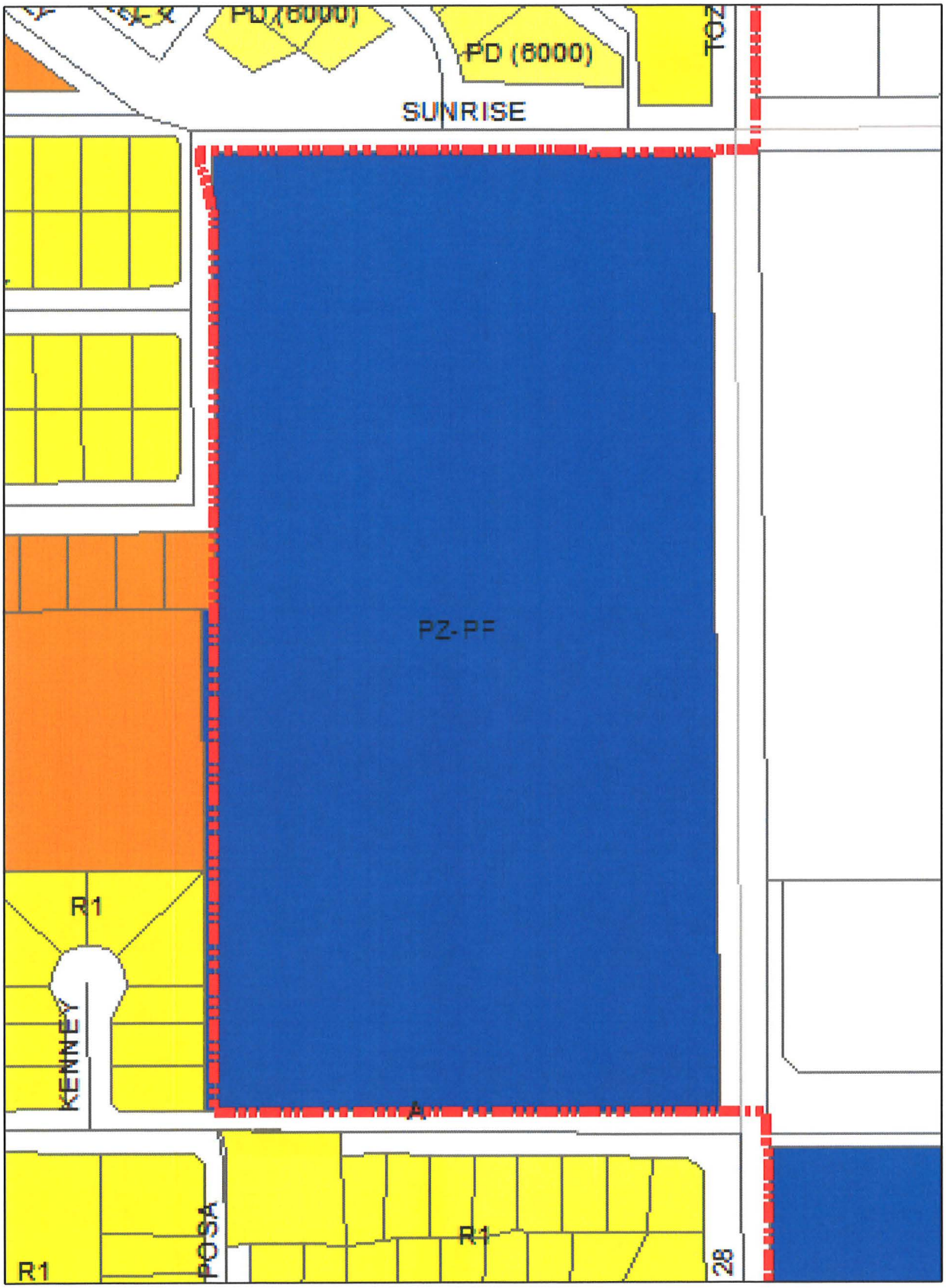


EXHIBIT 'B'



DRAFT ORDINANCE

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MADERA AMENDING THE OFFICIAL CITY OF MADERA ZONING MAP PREZONING APPROXIMATELY TWENTY ACRES LOCATED AT THE SOUTHWEST CORNER OF TOZER STREET AND SUNRISE AVENUE TO THE PF (PUBLIC FACILITY) ZONE DISTRICT AS IDENTIFIED WITHIN EXHIBIT "A"

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MADERA AS FOLLOWS:

SECTION 1. The Planning Commission of the City of Madera and this Council have held public hearings upon the prezoning of this property and have determined that the proposed prezoning is consistent with the General Plan as amended and subsequent development will be in conformance with all standards and regulations of the Municipal Code.

SECTION 2. The City of Madera Zoning Map as provided for in Chapter 3 of Title 10 of the Madera Municipal Code is hereby amended as illustrated in the hereto attached Exhibit "A" which indicates the segment of the City of Madera Zoning Map to be amended. Unless the adoption of this amendment to the Zoning Map is lawfully stayed, thirty-one (31) days after adoption of this amendment, the Planning Director and City Clerk shall cause these revisions to be made to the City of Madera Zoning Map which shall also indicate the date of adoption of this revision and be signed by the Planning Director and City Clerk.

SECTION 3. Based upon the testimony and information presented at the hearing, the adoption of the proposed prezoning is in the best interest of the City of Madera, and the Council hereby approves the prezoning based on the following findings:

FINDINGS:

1. THE PROPOSED PREZONE WILL PROVIDE THE REQUIRED CONSISTENCY BETWEEN THE GENERAL PLAN AND ZONING ORDINANCE.

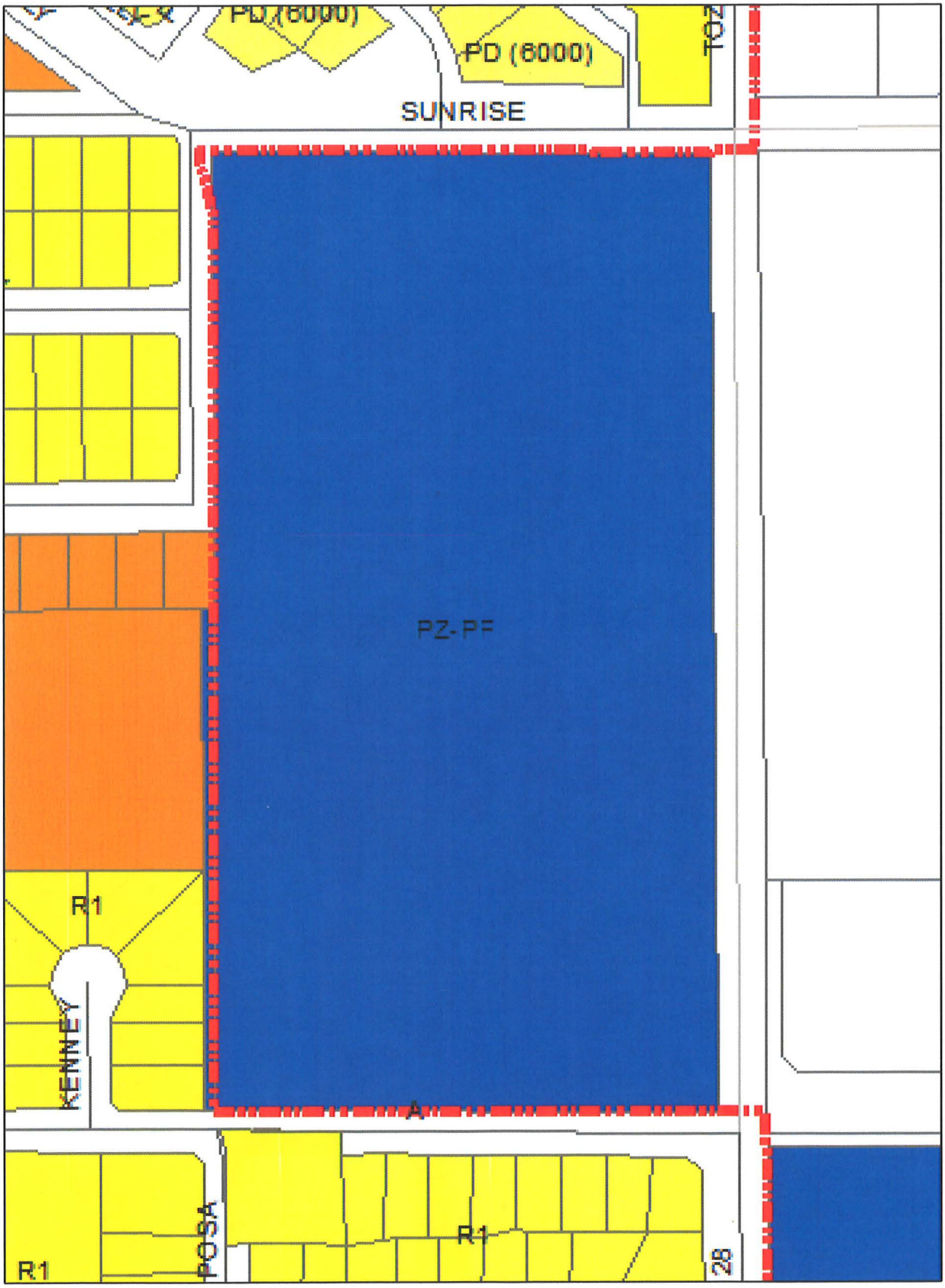
2. THE PREZONE IS NOT EXPECTED TO BE DETRIMENTAL TO THE HEALTH, SAFETY, PEACE, COMFORT OR GENERAL WELFARE OF THE NEIGHBORHOOD OR THE CITY.

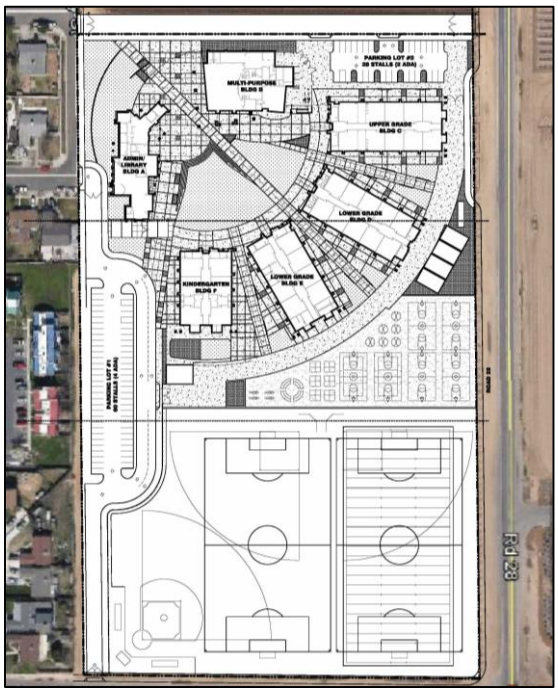
3. THE CITY AGREES THAT NO SUBSEQUENT CHANGE MAY BE MADE TO THE GENERAL PLAN FOR THE ANNEXED TERRITORY OR ZONING THAT IS NOT IN CONFORMANCE TO THE PREZONING DESIGNATIONS FOR A PERIOD OF TWO YEARS AFTER THE COMPLETION OF THE ANNEXATION, UNLESS THE LEGISLATIVE BODY FOR THE CITY FINDS AT A PUBLIC HEARING THAT A SUBSTANTIAL CHANGE HAS OCCURRED IN CIRCUMSTANCES THAT NECESSITATES A DEPARTURE FROM THE PRE-ZONING IN THE APPLICATION TO THE COMMISSION.

SECTION 4. This Ordinance shall be effective and of full force and effect at 12:01 a.m. on the thirty-first day after its passage.

* * * * *

DRAFT ORDINANCE - EXHIBIT A





RECIRCULATED MITIGATED NEGATIVE DECLARATION

Road 28 – New Elementary School

December 2015

PREPARED FOR:

Madera Unified School District
1902 Howard Road
Madera, CA 93637

PREPARED BY:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291

Recirculated Initial Study/Mitigated Negative Declaration

MUSD – Road 28 Elementary School

Prepared for:

Madera Unified School District
1205 S. Madera Avenue
Madera, CA 93637
(559) 675-4548
Contact: Rosalind Cox, Director of Facilities

Prepared by:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291
(559) 840-4414
Contact: Travis Crawford, AICP

December 2015

TABLE OF CONTENTS

CHAPTER ONE - INTRODUCTION 1-1
1.1 Project Summary 1-2
1.2 Document Format 1-2

CHAPTER TWO – PROJECT DESCRIPTION 2-1
2.1 Project Background 2-1
2.2 Location 2-2
2.3 Setting and Surrounding Land Use 2-2
2.4 Project Description 2-3
2.5 Other Required Approvals 2-4

CHAPTER THREE – INITIAL STUDY CHECKLIST 3-1
I. Aesthetics 3-5
II. Agriculture and Forest Resources 3-11
III. Air Quality 3-18
IV. Biological Resources 3-29
V. Cultural Resources 3-37
VI. Geology and Soils 3-45
VII. Greenhouse Gas Emissions 3-51
VIII. Hazards and Hazardous Materials 3-55
IX. Hydrology 3-66
X. Land Use and Planning 3-78
XI. Mineral Resources 3-81
XII. Noise 3-83
XIII. Population and Housing 3-89
XIV. Public Services 3-91
XV. Recreation 3-95
XVI. Transportation/Traffic 3-97
XVII. Utilities and Service Systems 3-109
XVIII. Mandatory Findings of Significance 3-120

CHAPTER FOUR - MMRP 4-1

CHAPTER FIVE – PREPARERS AND REFERENCES 5-1

LIST OF FIGURES
1 – Regional Map 2-5
2 – Location Map 2-6
3 – Aerial Map 2-7
4 – Site Plan 2-8

LIST OF TABLES
1 – Standards and Attainment Status for Listed Pollutants 3-20
2 – SJVAPCD Regulation VIII Control Measures 3-22

3 – Small Project Analysis Level (SPAL) by Project Size 3-25
4 – Proposed Project Construction Emissions 3-26
5 – Screening Levels for Potential Odor Sources 3-27
6 – Summary of Special Status Species 3-34
7 – Exterior Noise Compatibility Guidelines 3-85
8 – Typical Construction Noise Levels 3-86
9 – Project Trip Generation 3-101
10 – Intersection Level of Service Summary – Existing Conditions 3-102
11 – Intersection Level of Service Summary – Existing Plus Project Conditions 3-102
12 – Intersection Level of Service Summary – Cumulative With Project 3-103

APPENDICES

A-Land Evaluation Site Assessment (LESA)
B- Air Emission Output Tables
C- Biological Report
D- Cultural Resources Records Search
E- Geotechnical Investigation Report
F- Phase I / PEA
G- Infrastructure Report
H- Traffic Impact Study
I- Pipeline Risk Analysis

Chapter 1

INTRODUCTION

INTRODUCTION

Recirculation Instructions/Overview

A Notice of Intent to Adopt a Mitigated Negative Declaration was previously released for the proposed project for the required 30-day public review period (SCH #2015081044, August 18, 2015 – September 18, 2015). Following the public review period and prior to project approval, the proposed site plan was modified, which resulted in changes to vehicular and pedestrian access/circulation in and around the site. Therefore, the CEQA document has been revised and is being recirculated in accord with CEQA Guidelines Section 15073.5.

Summary of Changes to the Project Description

The *previous* site plan included a parent drop off and parking area on the eastern portion of the site with driveways connecting to Tozer Street. A circular Kindergarten drop off was proposed south of the parking lot. A bus drop off area was proposed on South A Street.

The *new* site plan includes a parent pickup/drop off driveway (northbound) connecting to South A Street near Mariposa Street and a one-way exit driveway connecting to Lilly Street at American Avenue. An on-site roadway, which is to remain gated to prevent student pickup/drop off via private vehicles, will run along the north side of the site between Lilly Street and Road 28 (Tozer Street) and will provide access to a teacher parking lot containing approximately 28 stalls. A bus pickup/drop off area will be located on Tozer Street. See Chapter 2 for the full project description.

In addition, the layout of the proposed buildings, playfields, classrooms, etc. have been re-configured. Due to the changes in site configuration and vehicle/pedestrian access, a new Traffic Impact Study (Appendix H) and an updated Geotechnical Investigation / Geohazards Study (Appendix E) were completed, the findings of which have been incorporated into this Mitigated Negative Declaration. The number of students, construction schedule and other project components (other than site configuration), remain the same.

Summary of Changes to the CEQA Environmental Analysis

As previously mentioned, the changes to the site plan required the preparation of a new TIS (See Appendix H). Neither the previous TIS nor the current TIS found that there would be significant and unavoidable traffic impacts resulting from the Project. The changes also required an update to the Geotechnical Investigation and Geohazards Study (Appendix E), however the CEQA findings remained the same. A High Pressure Pipeline Risk Analysis (Appendix I) was also prepared and added to the CEQA document. All CEQA findings (hazards, air quality, biology, land use, public services, etc.) remained the same between the original and the recirculated CEQA documents. The

project will not result in any significant and unavoidable environmental impacts. See Chapter 3 for the full environmental analysis.

1.1 Project Summary

This document is the Initial Study/Mitigated Negative Declaration (IS/MND) on the potential environmental effects of the Madera Unified School District's (District or MUSD) proposed Road 28 K-6 School Project (Project). The District intends to construct and operate a Kindergarten – 6th Grade school on a 18.96 acre parcel (035-221-001) northwest of the intersection of Tozer (Road 28) and A Streets in Madera, California. adjacent to the City of Madera. The proposed Project is more fully described in Chapter Two – Project Description.

The Madera Unified School District will act as the Lead Agency for this project pursuant to the *California Environmental Quality Act (CEQA)* and the *CEQA Guidelines.*

1.2 Document Format

This IS/MND contains five chapters, and appendices. Section 1, Introduction, provides an overview of the project and the CEQA environmental documentation process. Chapter 2, Project Description, provides a detailed description of project components. Chapter 3, Initial Study Checklist, presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the proposed project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or other requirements that would reduce those impacts to a less than significant level. Chapter 4, Mitigation Monitoring and Reporting Program, provides the proposed mitigation measures, completion timeline, and person/agency responsible for implementation. Chapter 5, List of Preparers, provides a list of key personnel involved in the preparation of the IS/MND.

Environmental impacts are separated into the following categories:

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant (as measured against established thresholds), and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

Less Than Significant After Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

Less Than Significant Impact. This category is identified when the project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.)

Regardless of the type of CEQA document that must be prepared, the basic purpose of the CEQA process as set forth in the CEQA Guidelines Section 15002(a) is to:

(1) Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

According to Section 15070(b), a Mitigated Negative Declaration is appropriate if it is determined that:

(1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
(2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

The Initial Study contained in Section Three of this document has determined that with mitigation measures and features incorporated into the project design and operation, the environmental impacts are less than significant and therefore a Mitigated Negative Declaration will be adopted by MUSD. The IS/MND will be made available for public review in accord with *CEQA* and the *CEQA Guidelines*.

Chapter 2

PROJECT DESCRIPTION

Project Description

2.1 Project Background

The Madera Unified School District intends to construct and operate an 850 student Kindergarten – 6th Grade School in the City of Madera (Project). The Project is located northwest of the intersection of Tozer (Road 28) and A Streets in Madera, California on an approximately 19 acre site (APN 035-221-001). The new School is intended to serve existing and new students in response to population growth in the area and was identified in the Madera Unified School District Facilities Master Plan (2014). The decision to construct the new school was based on enrollment projections and an evaluation of existing facilities needs within the District.

MUSD K-12 enrollment is projected to increase from 19,593 in 2013/2014 to 22,170 in 2023/2024. This is an increase of over 2,500 students and an average growth rate of 12.95% per year. In addition, overcrowded conditions at existing elementary school sites will be alleviated by construction of the proposed Project. Selection of the proposed Project site was conducted through a site selection process with the oversight of the MUSD site selection committee. The proposed site was reviewed by the California Department of Education – School Facilities Planning Division in April 2014 and was acquired by MUSD from Madera County in November 2014. Following completion of the CEQA process, MUSD will pursue approval from the California Department of Education - School Facilities Planning Division to construct and operate the school.

Recirculation

As described in Chapter 1, a Notice of Intent to Adopt a Mitigated Negative Declaration was previously released for the proposed project for the required 30-day public review period (SCH #2015081044, August 18, 2015 – September 18, 2015). Following the public review period and prior to project approval, the proposed site plan was modified, which resulted in changes to vehicular and pedestrian access/circulation in and around the site. Therefore, the CEQA document has been revised and is being recirculated in accord with CEQA Guidelines Section 15073.5.

2.2 Location

The proposed Project is located on a single parcel (APN 035-221-001) totaling 18.96 acres northwest of the intersection of Tozer (Road 28) and A Streets in Madera, California. Site address is 14450 Road 28, and is currently owned by MUSD. The site is bound by Sunrise Ave./ Ave. 14 ½ on the north, Road 28 on the east, S. A Street on the south, and Lilly Street on the west. The site is approximately 0.8 miles east of State Highway 99. See Figures 1 and 2– Regional Map and Vicinity Map, respectively. The majority of the buildings and accessory structures will be located on the southern portion of the site.

2.3 Setting and Surrounding Land Use

The Project site is located in the southeastern part of the City of Madera and is currently a vacant lot. The site was previously planted in grapevines. See Figure 3 – Aerial Map. The site is located in an urban area that provides a mix of land uses. The site is generally well kept and was actively farmed for several years. The site is currently (as of August 2015) void of any trees or other vegetation.

The site is zoned by Madera County as IA – Institutional Area District. Schools are an allowable use in the IA designation according to the Madera County Code of Ordinances. Land uses surrounding the site are identified as follows:

Existing Land Use

Location	Existing Land Use
North	Sunrise Avenue; single-family dwellings; park-type area; vacant lands
South	South A Street; single-family dwellings; municipal water well
West	Single-family dwellings; multi-family dwellings
East	Road 28; ag land; Madera County maintenance facility

2.4 Project Description

The proposed Project is the construction and operation of an 850 student Kindergarten – 6th Grade school. The Project includes construction of academic and administrative buildings, a cafeteria (no food preparation is done on-site as the District has a central kitchen where food is prepared and brought to the various schools on carts), a gymnasium, maintenance facilities, parking lots, playfields, infrastructure (water, sewer, storm drain) and associated site improvements. See Figure 4 – Site Plan.

Access/Parking/Drop-off

The site plan includes a parent pickup/drop off driveway (northbound) connecting to South A Street near Mariposa Street and a one-way exit driveway connecting to Lilly Street at American Avenue. An on-site roadway, which is to remain gated to prevent student pickup/drop off via private vehicles, will run along the north side of the site between Lilly Street and Road 28 (Tozer Street) and will provide access to a teacher parking lot containing approximately 28 stalls. A bus pickup/drop off area will be located on Tozer Street.

School Operation

Typical daily operations will likely include a bell schedule from 8am-2:40pm (Monday-Friday). An after-school program will utilize the cafeteria or playfields until 6:00 p.m. (Monday-Friday). The school cafeteria and playfields are typically open to various local groups such as churches, boy scouts, various sports teams, etc. during afterhours and on weekends.

Origin of Students

The projected student population for the new elementary school pulls from the following three elementary schools:

- Cesar Chavez: 151 students (18% of total new school population)
- Sierra Vista: 154 students (19% of total new school population)
- Millview: 520 students (63% of total new school population)

Infrastructure

Existing water, wastewater, natural gas, telephone and electrical facilities are located in South A Street or Tozier Avenue (Road 28). The Knox stormwater basin is located 400 feet to the west of the Project site, but no existing storm drainage collection facilities are located in South A Street to

provide drainage service to the site. MUSD will be required to construct facilities to tie into existing infrastructure.

Construction Schedule

Construction is anticipated to begin in Summer of 2016 and will take approximately 14 months to complete.

2.5 Other Required Approvals

The proposed Project will include, but not be limited to, the following regulatory requirements:

- The adoption of a Mitigated Negative Declaration by MUSD
- California Department of Education - School Facilities Planning Division approval
- California Department of General Services – Division of State Architect (DSA) approval
- California Department of Toxic Substances Control approval
- Approval of a Stormwater Pollution Prevention Plan by the Central Valley Regional Water Quality Control Board
- Dust Control Plan Approval letter from the San Joaquin Valley Air Pollution Control District
- Compliance with other federal, state and local requirements.

Figure 1
Regional Map

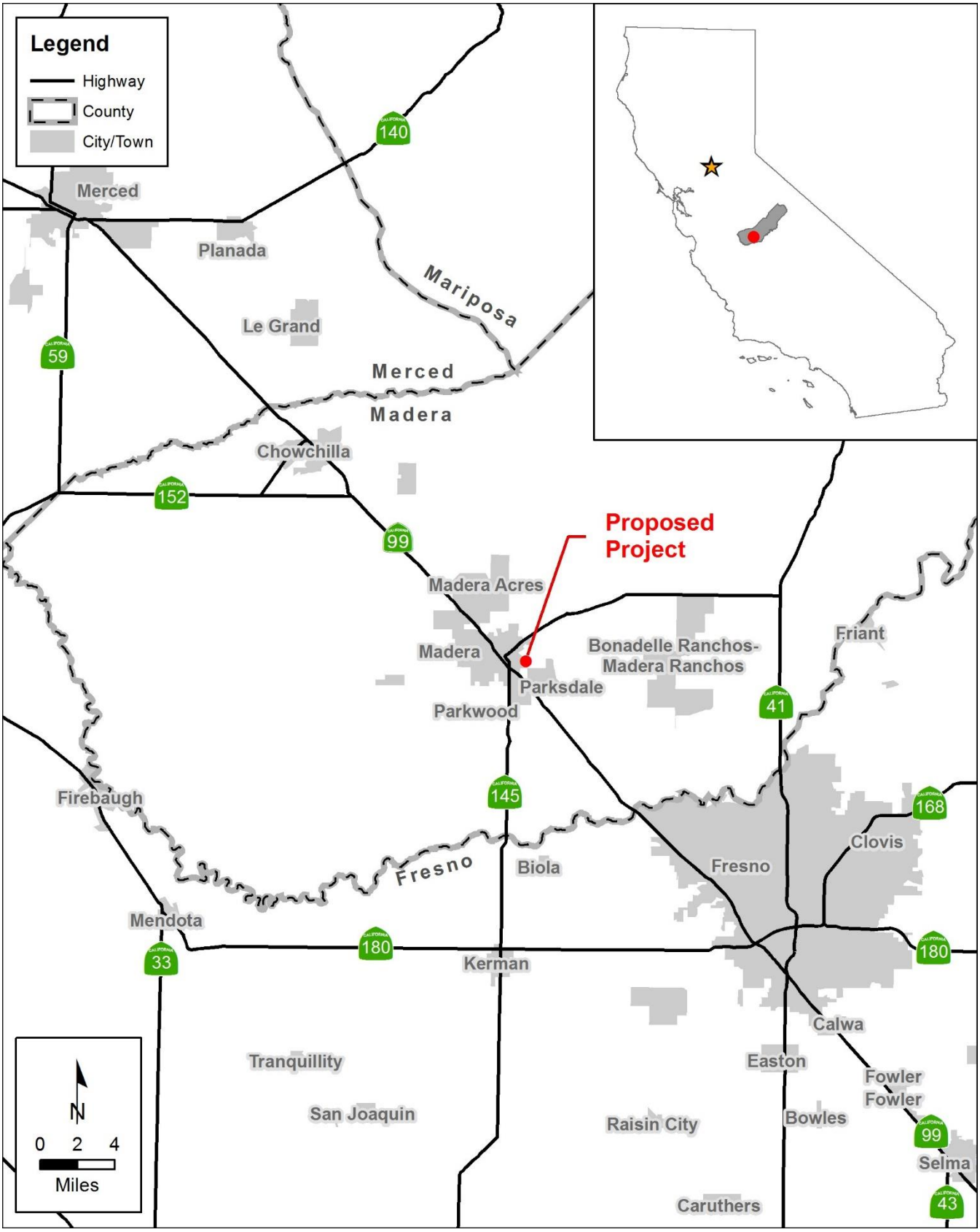


Figure 2
Location Map

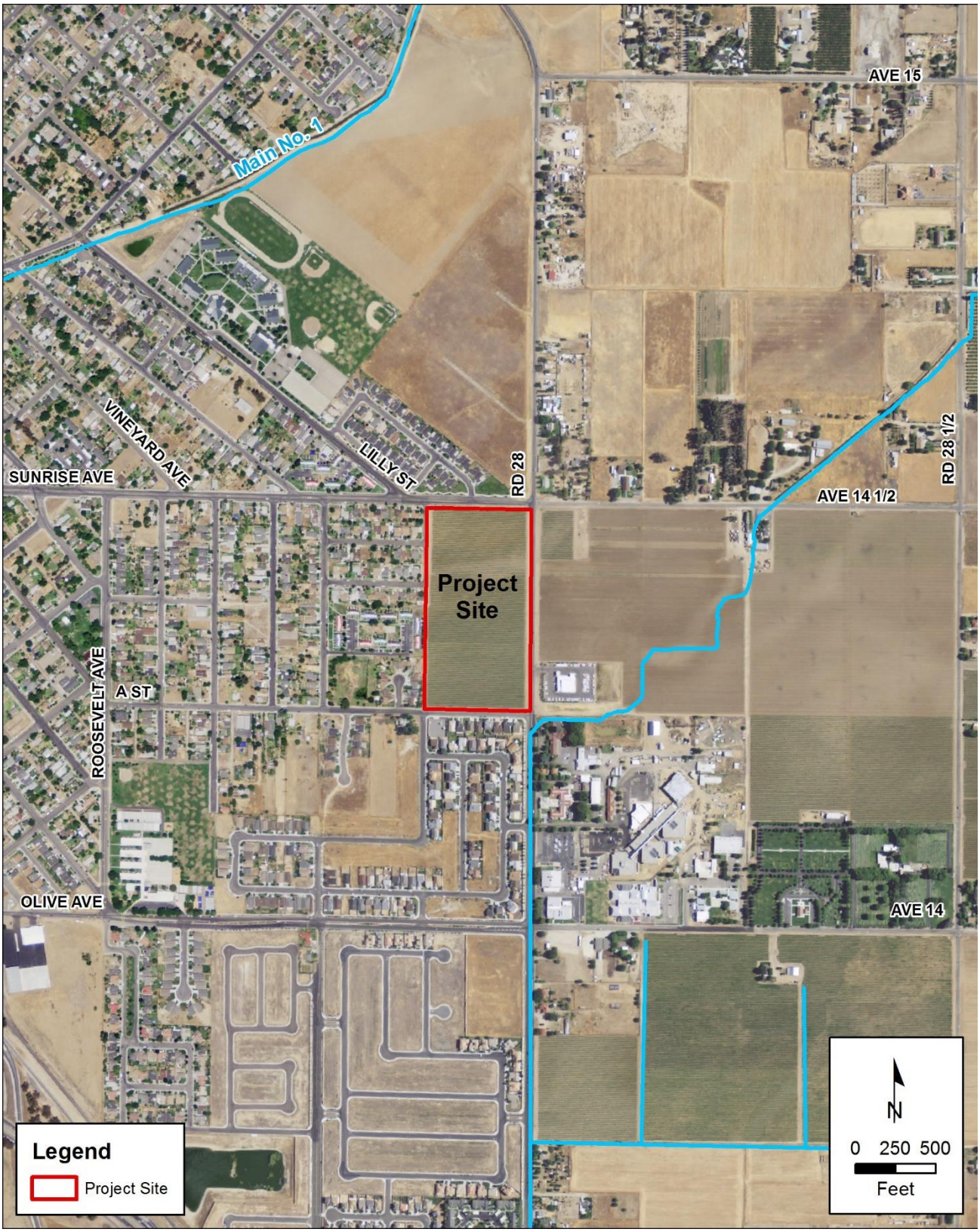
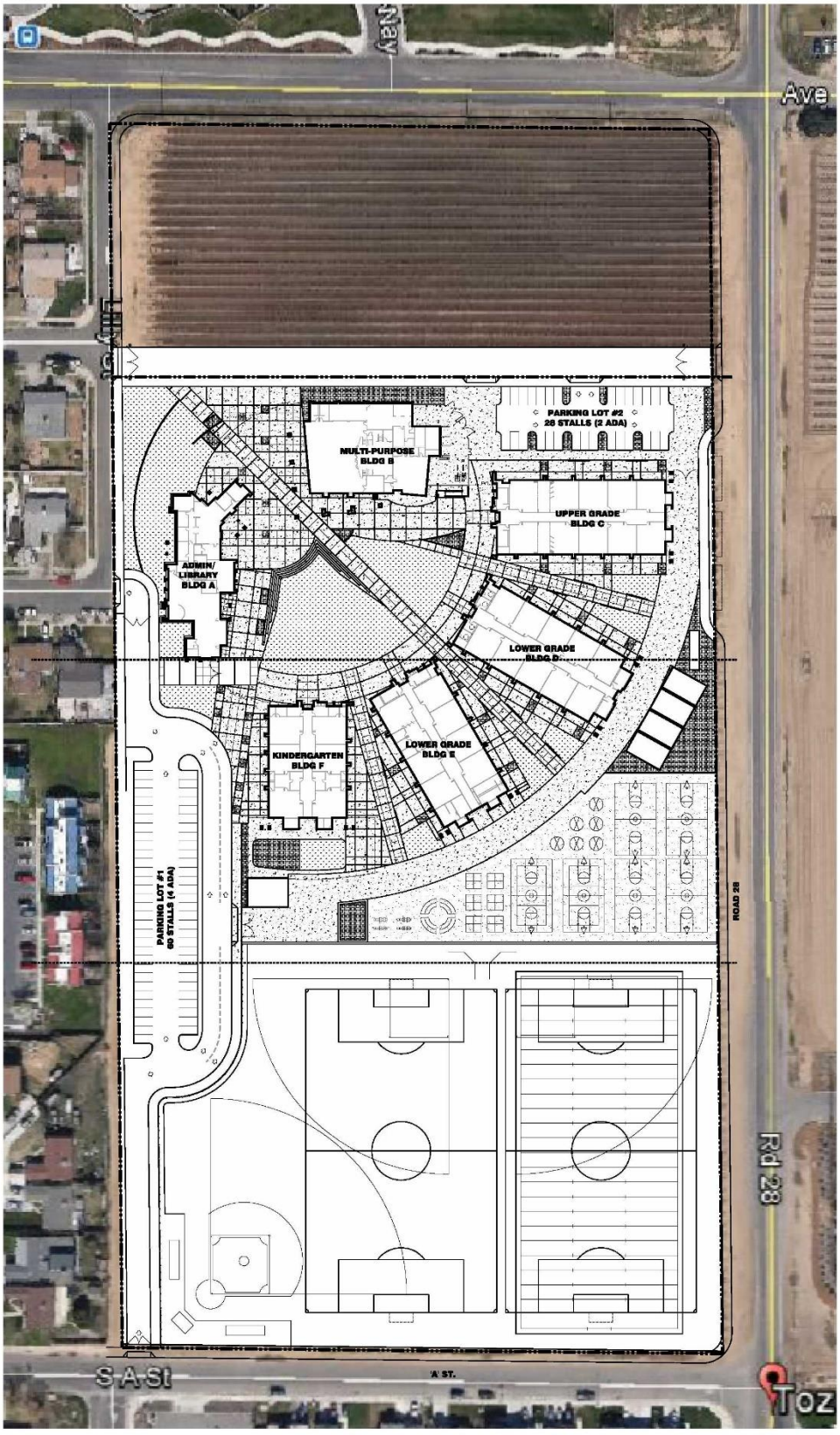


Figure 3
Aerial Map



Figure 4
Site Plan



Chapter 3

IMPACT ANALYSIS

Initial Study Checklist

3.1 Environmental Checklist Form

Project title:

Madera Unified School District Road 28 Elementary School

Lead agency name and address:

Madera Unified School District
1902 Howard Road
Madera, CA 93637

Contact person and phone number:

Rosalind Cox, Director of Facilities Planning & Const. Mgmt.
Madera Unified School District
(559) 675-4548

Project location:

The proposed Project is located on a single 18.96 acre parcel (035-221-001) at the southwest corner Sunrise Avenue and Road 28, adjacent to the City of Madera. The physical address is 14450 Road 28, Madera, CA 93638.

Project sponsor's name/address:

Madera Unified School District
1902 Howard Road
Madera, CA 93637

General plan designation:

Medium Density Residential (City of Madera General Plan)

Zoning:

IA (Institutional Area District)

Description of Project:

The District intends to construct and operate a Kindergarten – 6th Grade school on a 18.96 acre parcel (035-221-001) at the southwest corner Sunrise Avenue and Road 28, adjacent to the City of Madera. The proposed Project is more fully described in Chapter Two – Project Description.

Surrounding land uses/setting:

The Project site is located southeast of the City of Madera, adjacent to the City limits. The site is currently vacant/fallow (as of August 2015) but historically been used for agricultural purposes. The site is located in an urban area that provides for a mix of land uses. To the north are single family dwelling units, a park-type area, and vacant land; to the south are single family dwelling units; to the east is agricultural land and a Madera County maintenance facility; to the west are single family dwellings and a multi-family development.

3.2 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology /Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Transportation/Traffic	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance

3.3 Determination

On the basis of this initial evaluation:

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

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

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

☐ I find that the proposed project MAY have a "potentially significant impact" or

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

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

Rosalind Cox — Date

Director of Facilities Planning & Constr. Mgmt.

Madera Unified School District

I. AESTHETICS

Would the project:

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

SETTING

Environmental Setting

Madera is located in central Madera County on the east side of the San Joaquin Valley floor. The Madera area is characterized by flat terrain of approximately 250 to 275 feet above mean sea level. Madera is approximately 15 miles from the Sierra Nevada foothills located to the east.

The proposed Project site is located southwest of the City of Madera, adjacent to the City limits. The site is currently vacant/fallow (as of August 2015) but historically been used for agricultural purposes. The site is located in an urban area that provides for a mix of land uses. To the north are single family dwelling units, a park-type area, and vacant land; to the south are single family dwelling units; to the east is agricultural land and a Madera County maintenance facility; to the west are single family dwellings and a multi-family development.

The aesthetic features of the existing visual environment in the proposed Project area are relatively uniform; consisting of single family residential units, a County-owned maintenance facility, and typical urban form such as overhead power lines, scattered trees, roads, and sidewalks. The lone exception to

urban form is an agricultural field to the east. There are no scenic resources or scenic vistas in the area. State Highway 99 is located approximately 0.8 miles to the west.

Regulatory Setting

Federal

Aesthetic resources are protected by several federal regulations, none of which are relevant to the proposed Project because it will not be located on lands administered by a federal agency, and the proposed Project applicant is not requesting federal funding or a federal permit.

State

Nighttime Sky – Title 24 Outdoor Lighting Standards

The Energy Commission adopted changes to Title 24, Parts 1 and 6, Building Energy Efficiency Standards (Standards), on April 23, 2008. These new Standards became effective on January 1, 2010. Requirements for outdoor lighting remained consistent with past Standards and the requirements vary according to which "Lighting Zone" the equipment is in. The Standards contain lighting power allowances for newly installed equipment and specific alterations that are dependent on which Lighting Zone the Project is located in. Existing outdoor lighting systems are not required to meet these lighting power allowances. However, alterations that increase the connected load, or replace more than 50% of the existing luminaires, for each outdoor lighting application that is regulated by the Standards, must meet the lighting power allowances for newly installed equipment.

An important part of the Standards is to base the lighting power that is allowed on how bright the surrounding conditions are. The eyes adapt to darker surrounding conditions, and less light is needed to properly see; when the surrounding conditions get brighter, more light is needed to see. The least power is allowed in Lighting Zone 1 and increasingly more power is allowed in Lighting Zones 2, 3, and 4.

The Energy Commission defines the boundaries of Lighting Zones based on U.S. Census Bureau boundaries for urban and rural areas as well as the legal boundaries of wilderness and park areas. By default, government designated parks, recreation areas and wildlife preserves are Lighting Zone 1; rural areas are Lighting Zone 2; and urban areas are Lighting Zone 3. Lighting Zone 4 is a special use district that may be adopted by a local government.

California Scenic Highway Program

The Scenic Highway Program allows county and city governments to apply to the California Department of Transportation (Caltrans) to establish a scenic corridor protection program which was created by the Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263.

RESPONSES

a. Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. The proposed Project is the construction and operation of an 850 student Kindergarten – 6th Grade school. The Project includes construction of academic and administrative buildings, a cafeteria, a gymnasium, maintenance facilities, parking lots, playfields, infrastructure (water, sewer, storm drain) and associated site improvements. The structures will be single story in height and will conform to design standards set forth by the City's General Plan and Zoning Ordinance. In addition, the Project will construct landscaping within and around the perimeter of the site. The proposed Project site is located in an area that is substantially surrounded by urban uses and will not result in a use that is visually incompatible with the surrounding area.

The City of Madera General Plan does not identify any scenic vistas within the Project area. A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. The Project is located in an area of minimal topographic relief, and views of the site are easily obscured by buildings, fences, other structures and trees. Neither the Project area nor any surrounding land use contains features typically associated with scenic vistas (e.g., ridgelines, peaks, overlooks).

Construction activities will occur over approximately 14 months and will be visible from the adjacent roadsides; however, the construction activities will be temporary in nature and will not affect a scenic vista. The impact will be ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. According to the California Department of Transportation Scenic Highway Mapping System, there are no state designated scenic highways within the immediate proximity to the Project site. In addition, no scenic highways or roadways are listed within the Project area in the City of Madera's General Plan or Madera County's General Plan. Based on the National Register of Historic Places (NRHP) and the City's General Plan, no historic buildings exist on the Project site. The proposed Project would not damage any trees, rock outcroppings or historic buildings within a State scenic highway corridor. Any impacts would be considered ***less than significant***.

Mitigation Measures: None are required.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. The proposed Project is the construction and operation of an 850 student Kindergarten – 6th Grade school. The Project includes construction of academic and administrative buildings, a cafeteria, a gymnasium, maintenance facilities, parking lots, playfields, infrastructure (water, sewer, storm drain) and associated site improvements. The structures will be single story in height and will conform to design standards set forth by the City's General Plan and Zoning Ordinance. In addition, the Project will construct landscaping within and around the perimeter of the site. The proposed Project site is located in an area that is substantially surrounded by urban uses and will not result in a use that is visually incompatible with the surrounding area.

View from north of site looking south



View from southeast corner of site looking west



The site is visible from surrounding residential neighborhoods and from vehicles traveling along adjacent streets. However, the proposed Project site is planned for medium density residential housing (according to the City's General Plan) and will be similar in visual character to the existing area, as similar urban uses are found in the area and throughout both rural and urban parts of the Central Valley. As such, the proposed Project will not substantially degrade the existing visual character or quality of the area or its surroundings.

The impact will be ***less than significant***.

Mitigation Measures: None are required.

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

Less Than Significant Impact. Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments; however, these lights have the potential to produce spillover light and glare and waste energy, and if designed incorrectly, could be considered unattractive. Light that falls beyond the intended area is referred to as "light trespass." Types of light trespass include spillover light and glare. Minimizing all these forms of obtrusive light is an important environmental consideration. A less obtrusive and well-designed energy efficient fixture would face downward, emit the correct intensity of light for the use, and incorporate energy timers.

Spillover light is light emitted by a lighting installation that falls outside the boundaries of the property on which the installation is sited. Spillover light can adversely affect light-sensitive uses, such as residential neighborhoods at nighttime. Because light dissipates as it travels from the source, the intensity of a light fixture is often increased at the source to compensate for the dissipated light. This can further increase the amount of light that illuminates adjacent uses. Spillover light can be minimized by using only the level of light necessary, and by using cutoff type fixtures or shielded light fixtures, or a combination of fixture types.

Glare results when a light source directly in the field of vision is brighter than the eye can comfortably accept. Squinting or turning away from a light source is an indication of glare. The presence of a bright light in an otherwise dark setting may be distracting or annoying, referred to as discomfort glare, or it may diminish the ability to see other objects in the darkened environment, referred to as disability glare. Glare can be reduced by design features that block direct line of sight to the light source and that direct light downward, with little or no light emitted at high (near horizontal) angles, since this light would travel long distances. Cutoff-type light fixtures minimize glare because they emit relatively low-intensity light at these angles.

Currently the sources of light in the Project area are from street lights, the vehicles traveling along Sunrise Avenue and Road 28, and security lighting at the County maintenance facility to the east. The Project would include nighttime lighting for building and parking lot security. Such lighting would be subject to the requirements of the City of Madera General Plan Policy CON-44, which ensures that outdoor lighting does not produce obtrusive glare onto the public right-of-way or adjoining properties. Lighting fixtures for security would be designed with "cutoff" type fixtures or shielded light fixtures, or a combination of fixture types to cast light downward, thereby providing lighting at the ground level for safety while reducing glare to adjacent properties. Accordingly, the Project would not create substantial new sources of light or glare. Potential impacts are ***less than significant***.

Mitigation Measures: None are required.

II. AGRICULTURE AND FOREST RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

SETTING

Environmental Setting

The proposed Project includes constructing and operating a K-6 elementary school on approximately 19 acres of land that historically has been farmed. Of the 19 acres, 12.6 acres are designated as Prime Farmland, 4.3 as Unique Farmland, and 1.8 acres as Farmland of Statewide Importance. As such, a Land Evaluation Site Assessment (LESA), provided by the California Department of Conservation, was completed to quantify the significance of taking the 19 acres out of farmland production (See Appendix A).

Regulatory Setting

Federal

Federal regulations for agriculture and forest resources are not relevant to the proposed Project because it is not a federal undertaking (the Project site is not located on lands administered by a federal agency, and the Project applicant is not requesting federal funding or a federal permit).

State

California Department of Conservation, Division of Land Resource Protection

The California Department of Conservation (DOC) applies the Natural Resources Conservation Service (NRCS) soil classifications to identify agricultural lands. Pursuant to the DOC's Farmland Mapping and Monitoring Program (FMMP), these designated agricultural lands are included in the Important Farmland Maps (IFM) used in planning for the present and future of California's agricultural land resources. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a description of all the categories mapped by the FMMP.

- **Prime Farmland**. Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance**. Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been

used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Unique Farmland**. Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

- **Farmland of Local Importance**. Lands that produce dryland grains (barley and wheat); lands that have physical characteristics that would qualify for "Prime" or "Statewide Important" farmlands except for the lack of irrigation water; and lands that currently support confined livestock, poultry, and/or aquaculture operations.

- **Grazing Land**. Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- **Urban and Built-up Land**. Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land**. Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Sections 51200–51297.4, and therefore is applicable only to specific land parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. However, an agricultural preserve must consist of no less than 100 acres. In order to meet this

requirement, two or more parcels may be combined if they are contiguous, or if they are in common ownership.

The Williamson Act program is administered by the DOC, in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners.

As defined by the Williamson Act, prime agricultural land includes: (1) Class I and II soils as classified by the NRCS; (2) land that qualifies for rating 80 through 100 in the Storie Index Rating by the University of California, Division of Agricultural Sciences; (3) land that supports livestock used for the production of food and fiber and with at least one animal unit per acre; 4) land planted with fruit or nut-bearing crops that yield not less than $200 per acre annually during commercial bearing periods; or (5) land that has returned from the production of unprocessed agricultural plant products and annual gross value of not less than $200 per acre for three of the previous five years.

The Williamson Act states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit. California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also Section 51238 states that board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with Section 51238.1. Further, California Government Code Section 51238.1 allows a board or council to allow as compatible any use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves.

- The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
- The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses.

Public Resources Code Section 21060.1

The Public Resource Code (PRC) Section 21060.1 defines agricultural land for the purposes of assessing environmental impacts using the FMMP. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California.

Local

Madera County General Plan

The Madera County General Plan Policy Document (adopted October 24, 1995) has policies that apply to projects within Madera County that serve to protect farmland. General Plan policies that are generally applicable to the proposed Project are listed below:

5.A.1: The County shall maintain agriculturally-designated areas for agricultural uses and direct urban uses to designated new growth areas, existing communities, and/or cities.

5.A.2: The County shall discourage the conversion of prime agricultural land to urban uses unless an immediate and clear need can be demonstrated that indicates a lack of land for non-agricultural uses.

5.A.3: The County shall seek to ensure that new development and public works projects do not encourage further expansion of urban uses into designated agricultural areas.

5.A.5: The County shall allow the conversion of existing agricultural land to urban uses only within designated urban and rural residential areas, new growth areas, and within city spheres of influence where designated for urban development on the General Plan *Land Use Diagram.*

5.A.13: The County shall require development within or adjacent to designated agricultural areas to incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.

5.A.14: The County shall continue to enforce the provisions of its *Right-to-Farm Ordinance* and of the existing state nuisance law.

RESPONSES

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

Less Than Significant Impact. The proposed Project includes constructing and operating a K-6 elementary school on approximately 19 acres of land that historically has been farmed. Of the 19 acres, 12.6 acres are designated as Prime Farmland, 4.3 as Unique Farmland, and 1.8 acres as Farmland of Statewide Importance. As such, a LESA, provided by the California Department of Conservation, was completed to quantify the significance of taking the 19 acres out of farmland production. The site scored a 29.89, which is well under the significance thresholds for farmland conversion. The low score is largely due to the urban and built up land within the City of Madera, immediately west of the proposed Project site. In addition, the site is substantially surrounded by urban uses and is already planned for residential development according to the City's General Plan. As such, any impacts would be less than significant.

Mitigation Measures: None are required.

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

No Impact. The proposed Project site was under a Williamson Act Contract; however, non-renewal on the Contact was filed in 2005 and the Contract expired in 2015. The proposed Project is also consistent with the IA (Institutional Area District) zoning and as such, any impacts resulting from land use conflicts will be less than significant.

There is ***no impact***.

Mitigation Measures: None are required.

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

No Impact. This impact evaluates the potential for the proposed Project to conflict with existing Forest Land zoning or result in the loss of forest land or result in the conversion of forest land to non-forest use. There is no forest land zoning on the proposed Project site and there are no forest uses on the site. No loss of forest land would occur and no conflicts would occur. Therefore, no impacts would occur.

Mitigation Measures: None are required.

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

No Impact. No conversion of forestland, as defined under Public Resource Code or General Code, as referenced above, would occur as a result of the Project. There is ***no impact***.

Mitigation Measures: None are required.

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

No Impact. The site is planned for urban uses according to the City of Madera's General Plan and is being developed as such. The proposed Project does not have the potential to result in the conversion of Farmland to non-agricultural uses or forestland uses to non-forestland. There is ***no impact***.

Mitigation Measures: None are required.

III. AIR QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

SETTING

Environmental Setting

The climate of the San Joaquin Valley is characterized by long, hot summers and stagnant, foggy, winters. Precipitation is low and temperature inversions are common. These characteristics are conducive to the formation and retention of air pollutants and are in part influenced by the surrounding mountains which intercept precipitation and act as a barrier to the passage of cold air and air pollutants.

The proposed Project lies within the San Joaquin Valley Air Basin, which is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD or Air District). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide

(NO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility.

Air quality plans or attainment plans are used to bring the applicable air basin into attainment with all state and federal ambient air quality standards designed to protect the health and safety of residents within that air basin. Areas are classified under the Federal Clean Air Act as either "attainment", "non-attainment", or "extreme non-attainment" areas for each criteria pollutant based on whether the NAAQS have been achieved or not. Attainment relative to the State standards is determined by the California Air Resources Board (CARB). The San Joaquin Valley is designated as a State and Federal extreme non-attainment area for O_3, a State and Federal non-attainment area for $PM_{2.5}$, a State non-attainment area for PM_{10}, and Federal and State attainment area for CO, SO_2, NO_2, and Pb.

Regulatory Setting

Federal

Clean Air Act

The federal Clean Air Act of 1970 (as amended in 1990) required the U.S. Environmental Protection Agency (EPA) to develop standards for pollutants considered harmful to public health or the environment. Two types of National Ambient Air Quality Standards (NAAQS) were established. Primary standards protect public health, while secondary standards protect public welfare, by including protection against decreased visibility, and damage to animals, crops, landscaping and vegetation, or buildings. NAAQS have been established for six "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

State

California Air Resources Board

The California Air Resources Board (CARB) is the state agency responsible for implementing the federal and state Clean Air Acts. CARB has established California Ambient Air Quality Standards (CAAQS), which include all criteria pollutants established by the NAAQS, but with additional regulations for Visibility Reducing Particles, sulfates, hydrogen Sulfide (H_2S), and vinyl chloride.

The proposed Project is located within the San Joaquin Valley Air Basin, which includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and parts of Kern counties and is managed by the SJVAPCD.

Air basins are classified as attainment, nonattainment, or unclassified. Attainment is achieved when monitored ambient air quality data is in compliance with the standards for a specified pollutant. Non-compliance with an established standard will result in a nonattainment designation and an unclassified designation indicates insufficient data is available to determine compliance for that pollutant.

Standards and attainment status for listed pollutants in the Air District can be found in Table 1. Note that both state and federal standards are presented.

Table 1
Standards and Attainment Status for Listed Pollutants in the Air District

	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.07 ppm (8-hr avg) 0.09 ppm (1-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg)	0.30 ppm (annual avg) 0.18 ppm (1-hr avg)
Sulfur Dioxide	0.03 ppm (annual avg) 0.14 ppm (24-hr avg) 0.5 ppm (3-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1hr avg)
Lead	1.5 µg/m3 (calendar quarter) 0.15 µg/m3 (rolling 3-month avg)	1.5 µg/m3 (30-day avg)
Particulate Matter (PM10)	150 µg/m3 (24-hr avg)	20 µg/m3 (annual avg) 50 µg/m3 (24-hr avg)
Particulate Matter (PM2.5)	15 µg/m3 (annual avg)	35 µg/m3 (24-hr avg) 12 µg/m3 (annual avg)

µg/m3 = micrograms per cubic meter

Additional State regulations include:

CARB Portable Equipment Registration Program – This program was designed to allow owners and operators of portable engines and other common construction or farming equipment to register their equipment under a statewide program so they may operate it statewide without the need to obtain a permit from the local air district.

U.S. EPA/CARB Off-Road Mobile Sources Emission Reduction Program – The California Clean Air Act (CCAA) requires CARB to achieve a maximum degree of emissions reductions from off-road mobile sources to attain State Ambient Air Quality Standards (SAAQS); off- road mobile sources include most construction equipment. Tier 1 standards for large compression-ignition engines used in off-road mobile sources went into effect in California in 1996. These standards, along with ongoing rulemaking, address emissions of nitrogen oxides (NOX) and toxic particulate matter from diesel engines. CARB is currently

developing a control measure to reduce diesel PM and NOX emissions from existing off-road diesel equipment throughout the state.

California Global Warming Solutions Act – Established in 2006, Assembly Bill 32 (AB 32) requires that California's GHG emissions be reduced to 1990 levels by the year 2020. This will be implemented through a statewide cap on GHG emissions, which will be phased in beginning in 2012. AB 32 requires CARB to develop regulations and a mandatory reporting system to monitor global warming emissions levels.

In addition, the proposed Project is being evaluated pursuant to CEQA.

Local

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the local agency charged with preparing, adopting, and implementing mobile, stationary, and area air emission control measures and standards. The SJVAPCD has several rules and regulations that may apply to the Project:

Rule 3135 (Dust Control Plan Fees) – This rule requires the project applicant to submit a fee in addition to a Dust Control Plan. The purpose of this rule is to recover the SJVAPCD's cost for reviewing these plans and conducting compliance inspections.

Rules 4101 (Visible Emissions) and 4102 (Nuisance) – These rules apply to any source of air contaminants and prohibits the visible emissions of air contaminants or any activity which creates a public nuisance.

Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations) – This rule applies to use of asphalt for paving new roadways or restoring existing roadways disturbed by project activities.

Regulation VIII (Fugitive PM_{10} Prohibitions) – This regulation, a series of eight regulations, is designed to reduce PM_{10} emissions by reducing fugitive dust. Regulation VIII requires implementation of control measures to ensure that visible dust emissions are substantially reduced. The control measures are summarized in Table 2.

Table 2
San Joaquin Valley Air Pollution Control District
Regulation VIII Control Measures for Construction Related Emissions of PM_{10}

The following are required to be implemented at all construction sites:
All disturbed areas, including storage piles, which are not actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizers/suppressants, covered with a tarp or other similar cover, or vegetative
All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions during construction using water or chemical stabilizer
All land clearing, grubbing, scraping, excavation, land leveling, grading cut and fill, and demolition activities during construction shall be effectively controlled of fugitive dust emissions utilizing application of water or pre-soaking.
When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from top of container shall be maintained.
All operations shall limit, or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of
Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site at the end of each workday.
Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.

RESPONSES

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

Less than Significant Impact. The San Joaquin Valley Air Basin (SJVAB) is designated nonattainment of state and federal health based air quality standards for ozone and $PM_{2.5}$. The SJVAB is designated nonattainment of state PM_{10}. To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

- Extreme Ozone Attainment Demonstration Plan (EOADP) for attainment of the 1-hour ozone standard (2004);
- 2007 Ozone Plan for attainment of the 8-hour ozone standard;
- 2007 PM_{10} Maintenance Plan and Request for Redesignation; and
- 2008 $PM_{2.5}$ Plan.

Because of the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the project-generated emissions of either of the ozone precursor pollutants (ROG or NOx), PM_{10}, or $PM_{2.5}$ were to exceed the

SJVAPCD's significance thresholds, then the project uses would be considered to conflict with the attainment plans. In addition, if the project uses were to result in a change in land use and corresponding increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

As discussed in Impact c), below, predicted construction and operational emissions would not exceed the SJVAPCD's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$. As a result, the Project uses would not conflict with emissions inventories contained in regional air quality attainment plans, and would not result in a significant contribution to the region's air quality non-attainment status. Additionally, the Project would comply with all applicable rules and regulations. Therefore, this impact is ***less than significant.***

Mitigation Measures: None are required.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact. Because ozone is a regional pollutant (SJVAPCD 2002), the pollutants of concern for localized impacts are CO and fugitive PM_{10} dust from construction. Ozone and PM_{10} exhaust impacts are addressed under Impact c), below. The proposed Project would not result in localized CO hotspots or PM_{10} impacts, as discussed below. Therefore, the proposed Project would not violate an air quality standard or contribute to a violation of an air quality standard in the Project area.

Localized PM_{10}

Localized PM_{10} would be generated by proposed Project construction activities, which would include earth-disturbing activities. The SJVAPCD indicates that all control measures in Regulation VIII are required for all construction sites by regulation. The SJVAPCD's Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2002) lists additional measures that may be required of very large projects or projects close to sensitive receptors. If all appropriate "enhanced control measures" in the GAMAQI are not implemented for very large projects or those close to sensitive receptors, then construction impacts would be considered significant (unless the Lead Agency provides a satisfactory detailed explanation as to why a specific measure is unnecessary). The GAMAQI also lists additional control measures (Optional Measures) that may be implemented if further emission reductions are deemed necessary by the Lead Agency. The SJVAPCD's Regulation VIII (Fugitive PM_{10} Prohibitions) has been updated and expanded since the GAMAQI guidance was written in 2002. Regulation VIII now includes the "enhanced control measures" contained in the GAMAQI.

The proposed Project would comply with the SJVAPCD's Regulation VIII dust control requirements during any proposed construction (including Rules 8011, 8031, 8041, and 8071). Compliance with this regulation would reduce the potential for significant localized PM_{10} impacts to ***less than significant*** levels.

CO Hotspot

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The SJVAPCD provides screening criteria to determine when to quantify local CO concentrations based on impacts to the level of service (LOS) of roadways in the Project vicinity.

As further discussed in the Transportation/Traffic checklist evaluation, the Project would not generate, or substantially contribute to, additional traffic that would reduce the level of surface on local roadways. Therefore, the Project would not significantly contribute to an exceedance that would exceed state or federal CO standards. Impacts are considered ***less than significant***.

Mitigation Measures: None are required.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. The nonattainment pollutants for the SJVAPCD are ozone, PM_{10} and $PM_{2.5}$. Therefore, the pollutants of concern for this impact are ozone precursors, regional PM_{10}, and $PM_{2.5}$. Ozone is a regional pollutant formed by chemical reaction in the atmosphere, and the Project's incremental increase in ozone precursor generation is used to determine the potential air quality impacts, as set forth in the GAMAQI.

The SJVAPCD does not have a threshold for regional PM_{10} or $PM_{2.5}$. This document proposes a PM_{10} threshold using the same basis as the ozone precursor thresholds. Since the GAMAQI was published, the SJVAPCD has been recommending use of a PM_{10} threshold of 15 tons per year. However, a similar basis of threshold is not available for $PM_{2.5}$ emissions. Because the SJVAB is in nonattainment for $PM_{2.5}$, the threshold for $PM_{2.5}$ for this Project will be nine tons per year. The justification for this number is that $PM_{2.5}$ is in nonattainment and should have a more stringent threshold than PM_{10} to provide a worst-case assessment. The annual standard for PM_{10} is 20 $\mu g/m^3$ and the annual standard for $PM_{2.5}$ is 12 $\mu g/m^3$. Therefore, the ratio of PM_{10} to $PM_{2.5}$ results in a threshold for $PM_{2.5}$ of nine tons per year.

The annual significance thresholds to be used for the Project for construction and operational emissions are as follows:

- 10 tons per year ROG;
- 10 tons per year NOx;
- 15 tons per year PM_{10}; and
- 9 tons per year $PM_{2.5}$.

To aid in evaluating potentially significant construction and/or operational impacts of a project, SJVAPCD has prepared an advisory document, the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI), which contains standard procedures for addressing air quality in CEQA documents (SJVAPCD, 2002) The guide was adopted in 1998 and revised in 2002.

GAMAQI presents a three-tiered approach to air quality analysis. The Small Project Analysis Level (SPAL) is first used to screen the project for potentially significant impacts. A project that meets the screening criteria at this level requires no further analysis and air quality impacts of the project may be deemed less than significant. If a project does not meet all the criteria at this screening level, additional screening is recommended at the Cursory Analysis Level and, if warranted, the Full Analysis Level.

Table 3 below (from GAMAQI 5-3(e), which SJVAPCD recommends using as part of the initial screening process, shows the maximum project size to be considered a SPAL project. The Project consists of an 850 student elementary school. Therefore, the Project meets the SPAL criterion for project size and is excluded from quantifying criteria pollutant emissions for CEQA purposes.

Table 3
Small Project Analysis Level (SPAL) by Project Size

Land Use Category	Project Size
Hospital	78,000 sq. ft.
Elementary School	1875 students
Junior High School	1680 students
High School	1325 students
Junior College (2 year)	1100 students
University/College (4 year)	716 students
Place of Worship	48,000 sq. ft.

Source: SJAPCD-GAMAQI, 2002

The SPAL analysis is applicable to Project operation, however, for CEQA purposes, construction emissions are also included in this analysis. The estimated construction emissions are shown below. The California Emissions Estimator (CalEEMod), Version 2013.2.2, was used to estimate construction emissions resulting from the proposed Project, The modeling results are provided in Table 4 and the CalEEMod output files are provided in Appendix B.

Table 4
Proposed Project Construction Emissions

	VOC (ROG) (tons/year)	NO_x (tons/year)	PM10 (tons/year)	CO2 (tons/year
Total Project Construction Emissions	0.90	2.62	0.23	280.89
Threshold of Significance	10	10	15	--

Any impacts would be considered ***less than significant***.

Mitigation Measures: None are required.

d. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The proposed Project would not expose sensitive receptors to substantial concentrations of localized PM_{10}, carbon monoxide, diesel particulate matter, or hazardous pollutants, naturally occurring asbestos, or valley fever, as discussed below.

Localized PM_{10}

As shown in Response III-b, above, the Project would not generate a significant impact for construction-generated, localized PM_{10}. Therefore, the Project would not expose sensitive receptors to unhealthy levels of PM_{10}.

PM Hotspot

A $PM_{2.5}$ and PM_{10} Hotpot Analysis is not required for the Project because it is not a Project of Air Quality Concern (POAQC).

Carbon Monoxide Hotspot

As shown in Impact b), above, the Project would not generate a CO hotspot. In addition, the existing background concentrations of CO are low and any CO emissions would disperse rapidly. Therefore, the Project would not expose sensitive receptors to unhealthy levels of CO.

Naturally Occurring Asbestos

The Department of Conservation, Division of Mines and Geology published a guide entitled A General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos, for generally identifying areas that are likely to contain naturally occurring asbestos. The guide includes a map of areas where formations containing naturally occurring asbestos in California are likely to occur. Foothill areas within Madera County are identified as areas with ultramafic rocks. According to the Phase I report prepared for this Project, the Project site is located over 30 miles from the closest reported location of an ultramafic rock unit. In addition, no visual evidence of ultramafic rock was observed on the site at the time of Krazan's October 20, 2014 site visit (Phase I Report). For these reasons, the Project is not anticipated to expose workers or nearby receptors to naturally occurring asbestos. Any impacts to this analysis area would be considered ***less than significant***.

e. Create objectionable odors affecting a substantial number of people?

Less than Significant Impact. If the proposed Project were to result in a sensitive odor receptor being located in the vicinity of an undesirable odor generator, the impact would be considered significant. The SJVAPCD regulates odor sources through its nuisance rule, Rule 4102, but has no quantitative standards for odors. The SJVAPCD presents a list of project screening trigger levels for potential odor sources in its GAMAQI, which is displayed in Table 5. If the project were to result in sensitive receptors being located closer to an odor generator in the list in Table 5 than the recommended distances, a more detailed analysis including a review of SJVAPCD odor complaint records is recommended.

Table 5
Screening Levels for Potential Odor Sources

Odor Generator	Distance (Miles)
Wastewater Treatment Facilities	2
Sanitary Landfill	1
Transfer Station	1
Composting Facility	1
Petroleum Refinery	2
Asphalt Batch Plant	1
Chemical Manufacturing	1

Fiberglass Manufacturing	1
Painting/Coating Operations (e.g., auto body shop)	1
Food Processing Facility	1
Feed Lot/Dairy	1
Rendering Plant	1

Source: San Joaquin Valley Air Pollution Control District, 2002

Significant odor problems are defined as:

- More than one confirmed complaint per year averaged over a three year period; or
- Three unconfirmed complaints per year averaged over a three-year period.

The proposed Project would allow for the development of an elementary school within the Project area. These land uses are not considered sources of objectionable odors. Therefore, objectionable odors are not expected to be a significant concern during either proposed Project construction related or operational emissions. As such, any impacts would be considered ***less than significant***.

Mitigation Measures: None are required.

IV. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

SETTING

Environmental Setting

The proposed Project site is located in a portion of the central San Joaquin Valley that has, for decades, experienced intensive agricultural and urban disturbances. Current agricultural endeavors in the region include dairies, groves, and row crops.

Like most of California, the Central San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures usually exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely raise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the proposed Project site is about 10 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain and storm-water readily infiltrates the soils of the surrounding the sites.

Native plant and animal species once abundant in the region have become locally extirpated or have experienced large reductions in their populations due to conversion of upland, riparian, and aquatic habitats to agricultural and urban uses. Remaining native habitats are particularly valuable to native wildlife species including special status species that still persist in the region.

The site consists of a vacant field that has no existing vegetation or trees. Surrounding lands consist of streets, residential neighborhoods, agricultural land, a County-owned maintenance facility and open space.

No aquatic or wetland features occur on the propose Project site; therefore, jurisdictional waters are considered absent from the site.

Regulatory Setting

Federal

Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and wildlife that are listed as endangered or threatened by the USFWS and National Oceanic and Atmospheric Administration (NOAA) Fisheries. Section 9 of the FESA prohibits the taking of listed wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging-up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16USC1538). Pursuant to Section 7 of the FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed plant or wildlife species or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity, provided the action will not jeopardize the continued existence of the species. Section 10 of the FESA provides for issuance of incidental take permits to private parties, provided a Habitat Conservation Plan (HCP) is developed.

Migratory Bird Treaty Act

The MBTA implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the CDFG Code.

Federal Clean Water Act

The federal Clean Water Act's (CWA's) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the United States without a permit from the U.S. Army Corps of Engineers (ACOE). The definition of waters of the United States includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated

by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3 7b)." The USEPA also has authority over wetlands and may override an ACOE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or Waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the RWQCB.

State

California Endangered Species Act

The California Endangered Species Act (CESA) generally parallels the main provisions of the FESA, but unlike its federal counterpart, the CESA applies the take prohibitions to species proposed for listing (called candidates by the state). Section 2080 of the CDFG Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the CDFG Code as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with the CDFG to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened, or candidate species or result in destruction or adverse modification of essential habitat. The CDFG administers the act and authorizes take through Section 2081 agreements (except for designated fully protected species).

Fully Protected Species

The State of California first began to designate species as fully protected prior to the creation of the CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians, reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered pursuant to the CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (CDFG Code Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, the CDFG prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

Native Plant Protection Act

Regarding listed rare and endangered plant species, the CESA defers to the California Native Plant Protection Act (NPPA) of 1977 (CDFG Code Sections 1900 to 1913), which prohibits importing of rare

and endangered plants into California, and the taking and selling of rare and endangered plants. The CESA includes an additional listing category for threatened plants that are not protected pursuant to NPPA. In this case, plants listed as rare or endangered pursuant to the NPPA are not protected pursuant to CESA, but can be protected pursuant to the CEQA. In addition, plants that are not state listed, but that meet the standards for listing, are also protected pursuant to CEQA (Guidelines, Section 15380). In practice, this is generally interpreted to mean that all species on lists 1B and 2 of the CNPS Inventory potentially qualify for protection pursuant to CEQA, and some species on lists 3 and 4 of the CNPS Inventory may qualify for protection pursuant to CEQA. List 3 includes plants for which more information is needed on taxonomy or distribution. Some of these are rare and endangered enough to qualify for protection pursuant to CEQA. List 4 includes plants of limited distribution that may qualify for protection if their abundance and distribution characteristics are found to meet the standards for listing.

California Lake and Streambed Alteration Agreement

Sections 1600 through 1616 of the CDFG Code require that a Lake and Streambed Alteration Program Notification Package be submitted to the CDFG for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFG reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal on which the CDFG and the applicant agree is the Lake and Streambed Alteration Agreement. Often, projects that require a Lake and Streambed Alteration Agreement also require a permit from the ACOE pursuant to Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Lake and Streambed Alteration Agreement may overlap.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

Less than Significant Impact with Mitigation.

A Biological Report was prepared for the Project (See Appendix C). A records search for special status species known from the Madera 7.5 minute USGS quadrangle was performed using the California Natural Diversity Data Base (CNDDB). A summary of these records is provided in the attached Table 6.

To determine the potential for special status species to occur, Aevum biologists, Justin Jack and Kat Calderala, conducted a general reconnaissance-level, biological habitat assessment survey at the site on November 30th, 2014. Weather at the time of the survey was overcast, with winds approximately 0 to 3 miles per hour (mph) from the east with the temperature approximately 55° Fahrenheit.

The site was surveyed by walking a series of transects through the vineyard rows while visually scanning each row on either side site for potentially occurring special status species, or their critical habitat. Observed biological resources were recorded on data sheets, including dominant vegetation and observed wildlife habitats and species, the level of disturbance, as well as the presence of potential wetlands and/or any other jurisdictional features.

Table 6. Summary of Special Status Species Known From the Madera 7.5 Minute USGS Quadrangle.

Species	Federal Status	State Status	Other Status
California tiger salamander *Ambystoma californiense*	Threatened	Threatened	--
Swainson's hawk *Buteo swainsoni*	--	Threatened	--
Burrowing owl *Athene cunicularia*	--	--	State Species of Special Concern
Hoary bat *Lasiurus cinereus*	--	--	--
Blunt-nosed leopard lizard *Gambelia sila*	Endangered	Endangered	State Fully Protected
Coast horned lizard *Phrynosoma blainvillii*	--	--	State Species of Special Concern
Hairy Orcutt grass *Orcuttia pilosa*	Endangered	Endangered	CNPS 1B.1
Madera leptosiphon *Leptosiphon serrulatus*	--	--	CNPS 1B.2

FINDINGS

The site is located in southwestern Madera County, within the San Joaquin Valley. The proposed site is bordered on the north, west, and south sides by the city of Madera, California. The eastern perimeter is bordered by Road 28, which is within the jurisdiction of the county of Madera. The site is within the Madera 7.5 minute quadrangle. Topography of the site is comprised of a relatively flat parcel. The elevation of the site is approximately 275 feet above mean sea level (MSL). The site has been disturbed by ongoing agricultural operations, specifically the cultivation and harvest of Thompson grapes. Ruderal weeds were also present onsite along with various annual grasses and ornamental seedlings likely carried over from the surrounding neighborhoods. On-site hydrology observed at the time of the survey showed areas of shallow ponded water on the south side of the site from recent rain events. There is a roadside swale approximately six feet from top of bank to top of bank and is approximately two feet deep that runs the length of the northern border along Sunrise Avenue.

The site was planted with Thompson grapes irrigated by drip hose under each row at the time of the survey. However, as of August 2015, the site has been cleared. Approximately fifty percent of the leaves had fallen from the vines at the time of the survey. Ruderal weeds growing within the rows and on the adjacent perimeter include; annual grasses from the Poa family (*Poaceae sp.*), common mallow (*Malva neglecta*), telegraphweed (*Heterotheca sp.*), horseweed (*Conyza sp.*), black mustard (*Brassica nigra*), goosefoot (*Chenopodium sp.*), plantain (*Plantago sp.*), cranesbill (*Erodium sp.*), Russian thistle (*Salsola sp.*), and prickly lettuce (*Lactuca serriola*),

Animal species observed on site included black-tailed jackrabbit (*Lepus californicus*), red-tailed hawk (*Buteo jamaicensis*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), western scrub jay (*Aphelocoma californica*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), northern flicker (*Colaptes auratus*), ruby-crowned kinglet (*Regulus calendula*), American bushtit (*Psaltriparus minimus*), lark sparrow (*Chondestes grammacus*), white-crowned sparrow (*Zonotrichia leucophrys*), dark-eyed junco (*Junco hyemalis*), Brewer's blackbird (*Euphagus cyanocephalus*), and European starling (*Sturnus vulgaris*).

Neither the roadside swale on the northern border of the property or the areas of shallow ponded water on the south side of the site appeared to be jurisdictional in nature under the USACE as Waters of the United States and/or the CDFW Lake and Streambed Alternation Agreement. There did not appear to be any connectivity from the roadside swale to any other water course. It appeared to have been constructed in order to limit vehicle parking along the shoulder of Sunrise Avenue. The shallow ponded water on the south side of the site lacked appropriate obligate and facultative plants to be considered a wetland.

The site has been routinely cleared and is surrounded by intense urban uses and provides very little habitat for animal species and no habitat for plant species; however, neighboring parcels do have suitable trees for nesting and known occurrences of Swainson's Hawk have been documented in the vicinity of the site.

Potential impacts to these protected bird species will be avoided with implementation of Mitigation Measure BIO-1. As such, impacts to sensitive species will be ***less than significant with mitigation incorporation***.

Mitigation Measures:

BIO-1 A preconstruction nesting bird survey is recommended if construction activities will take place between February 1st and August 1st. The survey should follow the Swainson's Hawk Technical Advisory Committees May 31, 2000 Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. If nesting Swainson's Hawk is observed within the one-half mile buffer area, consultation with CDFW should be sought.

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

Less than Significant Impact. There are no waterways or vegetation on the subject site and the area consists of an actively maintained vacant field. There is no riparian habitat or other sensitive natural community on site or adjacent to the Project. As such, any impacts would be ***less than significant.***

Mitigation Measures: None are required.

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

Less than Significant Impact. No wetlands occur in or near the Project site. Impacts would be ***less than significant.***

Mitigation Measures: None are required.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant Impact. There are no waterways or vegetation on the subject site and the area consists of an actively maintained vacant field. The proposed Project site is located in an urban area and there are no waterways or migratory wildlife corridors on site or in the Project vicinity. Any impacts to native species movement would be ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. The City of Madera's General Plan includes various policies for the protection of biological resources. The proposed Project would not conflict with any of the adopted policies and any impacts would be considered ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. There are no local, regional, or state conservation plans that apply to the Project. As such, any impacts would be ***less than significant***.

Mitigation Measures: None are required.

V. CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

SETTING

Environmental Setting

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric (before the introduction of writing in a particular area) or historic (after the introduction of writing). The majority of such places in this region are associated with either Native American or Euroamerican occupation of the area. The most frequently encountered prehistoric and early historic Native American archaeological sites are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and sites of rock art. Historic archaeological sites may include foundations or features such as privies, corrals, and trash dumps.

The tribes which inhabited the Madera area generally lived a subsistence life-style that included hunting, fishing and collection of plant resources, particularly acorns. Some of these early inhabitants built a variety of structures including residential dwellings, ceremonial structures, and semi-subterranean sweat lodges. A common dwelling was a thatched house covered by brush, grass or tules.

A variety of flaked and ground stone tools (e.g., knives, arrow and spear points, and rough cobble and shaped pestles) were common among Native Americans in the area. Obsidian was a highly valued material for tool manufacture, and was generally imported. Some local tribes also engaged in trading relationships with surrounding groups for commodities such as salt, marine shells and basketry.

Euroamerican contact with Native American groups living in the Central Valley of California began during the last half of the 18th century. At this time, the attention of Spanish missionaries shifted away from the coast, and its dwindling Native American population, to the missionization of interior populations of Native Americans. The efforts of the Spanish to missionize the Native American population began a history of destructive Euroamerican interactions with Native Americans that eventually lead to the loss of traditional Native American culture.

The proposed Project site has been highly disturbed for many years due to active farming and disking. A records search was conducted at the Southern San Joaquin Valley Information Center (SSJVIC), California Historical Resources Information System (See Appendix D) in August 2015. According to the SSJVIC records, there have been no previous cultural resource studies conducted within the project area and two studies were conducted within the ½ mile radius of the Project site.

Regulatory Setting

Federal

Cultural resources are protected by several federal regulations, none of which are relevant to this proposed Project because it will not be located on lands administered by a federal agency and the Project applicant is not requesting federal funding.

State

The proposed Project is subject to CEQA which requires public or private projects financed or approved by public agencies to assess their effects on historical resources. CEQA uses the term "historical resources" to include buildings, sites, structures, objects or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance. CEQA states that if implementation of a project results in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (CCR 15064.5, 15126.4). For the purposes of this CEQA document, a significant impact would occur if project implementation:

- Causes a substantial change in the significance of a historical resource
- Causes a substantial adverse change in the significance of an archaeological resource

- Disturbs any human remains, including those interred outside of formal cemeteries

Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined. CEQA guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review:

- If the resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR)
- If the resource is included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC unless the preponderance of evidence demonstrates that it is not historically or culturally significant
- The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (CCR, Title 14, Division 6, Chapter 3, Section 15064.5(a))

Each of these ways of qualifying as a historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (PRC 5020.1(k), 5024.1, 5024.1(g)).

A historical resource may be eligible for inclusion in the CRHR if it:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- Is associated with the lives of persons important in our past
- 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
- Has yielded, or may be likely to yield, information important in prehistory or history Properties that area listed in or eligible for listing in the National Register of Historic Places are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (PRC Section 5024.1(d)(1)).

Public Resources Code §5097.5

California Public Resources Code §5097.5 prohibits excavation or removal of any "vertebrate paleontological site...or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public

lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

Senate Bill 18

SB 18 requires cities and counties to contact, and consult with California Native American tribes prior to amending or adopting any general plan or specific plan, or designating land as open space.

Human Remains

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper and dignified treatment of the remains and associated grave artifacts.

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals and associated deposits. The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant resources.

CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) §15126.4 (a)(1)). California Public Resources Code §5097.5 (see above) also applies to paleontological resources.

RESPONSES

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

Less than Significant Impact with Mitigation. The records search conducted at the SSJVIC (Appendix D) indicated that there are no recorded cultural resources within the Project area or within the ½ mile radius and it is unknown if any exist. In addition, there are no recorded cultural resources within the Project area or within ½ mile that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

Subsurface construction activities associated with the proposed Project could potentially damage or destroy previously undiscovered historic resources. This is considered a potentially significant impact; however, implementation of Mitigation Measure CUL-1 will ensure that significant impacts remain ***less than significant with mitigation incorporation.***

CUL-1 The following measures shall be implemented:

- Before initiation of construction or ground-disturbing activities associated with the Project, MUSD shall require all construction personnel to be alerted to the possibility of buried cultural resources, including historic, archeological and paleontological resources;
- The general contractor and its supervisory staff shall be responsible for monitoring the construction Project for disturbance of cultural resources; and
- If a potentially significant historical, archaeological, or paleontological resource, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains or trash deposits are encountered during subsurface construction activities (i.e., trenching, grading), all construction activities within a 100-foot radius of the identified potential resource shall cease until a qualified archaeologist evaluates the item for its significance and records the item on the appropriate State Department of Parks and Recreation (DPR) forms. The archaeologist shall determine whether the item requires further study. If, after the qualified archaeologist conducts appropriate technical analyses, the item is determined to be significant under California Environmental Quality Act, the archaeologist shall recommend feasible mitigation measures, which may include avoidance, preservation in place or other appropriate measure, as outlined in Public Resources Code section 21083.2. MUSD shall implement said measures.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant Impact with Mitigation. The possibility exists that subsurface construction activities may encounter undiscovered archaeological resources. This would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 would require inadvertently discovery practices to be implemented should previously undiscovered archeological resources be located. As such, impacts to undiscovered archeological resources would be ***less than significant with mitigation incorporation.***

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

Less than Significant Impact with Mitigation. There are no unique geological features or known fossil-bearing sediments in the vicinity of the proposed Project site. However, there remains the possibility for previously unknown, buried paleontological resources or unique geological sites to be uncovered during subsurface construction activities. Therefore, this would be a potentially significant impact. Mitigation is proposed requiring standard inadvertent discovery procedures to be implemented to reduce this impact to a level of ***less than significant with mitigation incorporation***.

CUL-2 MUSD will incorporate into the construction contract(s) a provision that in the event a fossil or fossil formations are discovered during any subsurface construction activities for the proposed Project (i.e., trenching, grading), all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at MUSD, who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, MUSD shall implement those measures, which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code section 21083.2.

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

Less than Significant Impact. Although unlikely given the highly disturbed nature of the site and the records search did not indicate the presence of such resources, subsurface construction activities associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on-site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the

remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. The NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.

Although considered unlikely subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites, however compliance with regulations would reduce this impact to ***less than significant***.

Mitigation Measures: None are required.

VI. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the most recently	☐	☐	☒	☐

adopted Uniform Building Code creating substantial risks to life or property?

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? ☐ ☐ ☐ ☒

SETTING

Environmental Setting

The project site is centrally located within the San Joaquin Valley which comprises the southern half of the Great Valley geomorphic province. According to Bartow (1991) the San Joaquin Valley is a westward-tilting structural trough where the east flank is broad and gently inclined as opposed to the western flank which is relatively narrow. The sediments along the eastern side of the valley rest on the fault block of the Sierra Nevada pluton. The west end of the Valley is thought to be underlain by mafic and ultramafic rocks.

According to regional maps and cross sections prepared by Bartow (1991) roughly between 1,500 and 3,000 feet of Quaternary and Tertiary age sediments underlie the site and rest on basement complex bedrock. Shelton, et. al (2012) report up to 3,000 feet of late Tertiary to Quaternary age sediments in the Madera area. The sediments derived from the Sierra Nevada Mountains to the east comprise alluvial fan and fluvial deposits with interbedded lacustrine deposits.

Faulting and Seismicity

The site is not located within the boundaries of an Earthquake Fault Zone for fault-rupture hazard as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no faults are known to pass through the property. The nearest active or potentially active earthquake fault zone is located approximately 40 miles to the west/southwest of the site along the San Joaquin Fault System. According to the California Historical Earthquakes Online Database maintained by the California Geological Survey, there have been no historic earthquakes with a magnitude greater than or equal to 5.5 epicentered within 30 miles of the site.

Soils

The project site is underlain by deep alluvial soils that generally consisted of medium dense to dense silty sand, relatively clean sand, and sandy silt layers within the depth explored (51 feet).

Regulatory Setting

Federal

Federal regulations for geology and soils are not relevant to the proposed Project because it is not a federal undertaking (the Project site is not located on lands administered by a federal agency, and the Project applicant is not requesting federal funding or a federal permit).

State

Uniform Building Code

The California Code of Regulations (CCR) Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The California Building Code incorporates by reference the Uniform Building Code with necessary California amendments. The Uniform Building Code is a widely adopted model building code in the United States published by the International Conference of Building Officials. About one-third of the text within the California Building Code has been tailored for California earthquake conditions.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

a-i. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. A Preliminary Geotechnical Investigation and Geohazards Study was prepared for the proposed project (See Appendix E). According to the Geotechnical Investigation, the proposed Project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. Since no known surface expression of active faults is believed to cross the site, fault rupture through the site is not anticipated. ***Less than significant impacts*** would occur.

Mitigation Measures: None are required.

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

Less than Significant Impact. According to the Geotechnical Investigation, the proposed Project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. Since no known surface expression of active faults is believed to cross the site, fault rupture through the site is not anticipated. Seismic design parameters have been developed in accordance with Section 1613 of the 2013 California Building Code using the online U.S. Geological Survey Seismic Design Maps Calculator.

Project related building construction will conform to the latest standards for seismic design as adopted by the Uniform Building Code. Therefore, the impact is ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. See Response a-ii as it relates to seismic-related ground failure. Liquefaction is a phenomenon where earthquake-induced ground vibrations increase the pore pressure in saturated granular soils until it is equal to the confining, overburden pressure. When this occurs, the soil can completely lose its shear strength and enter a liquefied state. The possibility of liquefaction is dependent upon grain size, relative density, confining pressure, saturation of the soils, and intensity and duration of ground shaking. In order for liquefaction to occur, three criteria must be met: "low density", coarse-grained (sandy) soils, a groundwater depth of less than about 50 feet, and a potential for seismic shaking from nearby large-magnitude earthquake.

Although some low density sand soils were encountered within the upper 50 feet at the site, the current and historical (past 57 years) groundwater depth is greater than 50 feet; therefore, the risk of liquefaction occurring during a design seismic event is considered negligible (according to the Geotechnical Investigation). Therefore, the impact is ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. According to the Geotechnical Investigation, there are no cut or fill slopes that currently exist or are planned at the Project site. In addition, there are no natural or manmade slopes in the vicinity of the Project site; therefore, the potential for landslides is negligible. The impact is ***less than significant***.

Mitigation Measures: None are required.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The Project site has a generally flat topography, is in an established urban area and does not include any Project features that would result in soil erosion or loss of topsoil. Therefore, the impact is ***less than significant***.

Mitigation Measures: None are required.

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

No Impact. As identified in the Geotechnical Investigation, the proposed development is geologically and geotechnically feasible. Review of the geological literature and the field exploration performed for the proposed Project did not indicate any unusual conditions at the site that would entail special design considerations or construction procedures. In addition, the site is not identified in an area of large historic subsidence within the California Central Valley. The soil on site would not become unstable as a result of the Project or result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. See also responses a. and b. There is a ***less than significant impact.***

Mitigation Measures: None are required.

d. Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating substantial risks to life or property?

Less than Significant Impact. According to the Geotechnical Investigation, expansion index tests and the percent of soil passing the #200 sieve indicate that near surface soils range from low to moderately expansive. The impact is ***less than significant***.

Mitigation Measures: None are required.

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

No Impact. The Project will tie into the City's existing wastewater system and will not require installation of a septic tank or alternate wastewater disposal system. There is ***no impact.***

Mitigation Measures: None are required.

VII. GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

SETTING

Environmental Setting

Various gases in the earth's atmosphere play an important role in moderating the earth's surface temperature. Solar radiation enters earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs are transparent to solar radiation, but are effective in absorbing infrared radiation. Consequently, radiation that would otherwise escape back into space is retained, resulting in a warming of the earth's atmosphere. This phenomenon is known as the greenhouse effect. Scientific research to date indicates that some of the observed climate change is a result of increased GHG emissions associated with human activity. Among the GHGs contributing to the greenhouse effect are water vapor, carbon dioxide (CO_2), methane (CH_4), ozone, Nitrous Oxide (NO_x), and chlorofluorocarbons. Human-caused emissions of these GHGs in excess of natural ambient concentrations are considered responsible for enhancing the greenhouse effect. GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Global climate change is, indeed, a global issue. GHGs are global pollutants, unlike criteria pollutants and TACs (which are pollutants of regional and/or local concern). Global climate change, if it occurs, could potentially affect water resources in California. Rising temperatures could be anticipated to result in sea-level rise (as polar ice caps melt) and possibly change the timing and amount of precipitation, which could alter water quality. According to some, climate change could result in more extreme weather patterns; both heavier precipitation that could lead to flooding, as well as more

extended drought periods. There is uncertainty regarding the timing, magnitude, and nature of the potential changes to water resources as a result of climate change; however, several trends are evident.

Snowpack and snowmelt may also be affected by climate change. Much of California's precipitation falls as snow in the Sierra Nevada and southern Cascades, and snowpack represents approximately 35 percent of the state's useable annual water supply. The snowmelt typically occurs from April through July; it provides natural water flow to streams and reservoirs after the annual rainy season has ended. As air temperatures increase due to climate change, the water stored in California's snowpack could be affected by increasing temperatures resulting in: (1) decreased snowfall, and (2) earlier snowmelt.

Regulatory Setting

Federal

The USEPA Mandatory Reporting Rule (40 CFR Part 98), which became effective December 29, 2009, requires that all facilities that emit more than 25,000 metric tons CO_2-equivalent per year beginning in 2010, report their emissions on an annual basis. On May 13, 2010, the USEPA issued a final rule that established an approach to addressing GHG emissions from stationary sources under the CAA permitting programs. The final rule set thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration and title V Operating Permit programs are required for new and existing industrial facilities.

In addition, the Supreme Court decision in Massachusetts v. EPA (Supreme Court Case 05-1120) found that the USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the CAA. On April 17, 2009, the USEPA found that CO_2, CH_4, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride may contribute to air pollution and may endanger public health and welfare. This finding may result in the USEPA regulating GHG emissions; however, to date the USEPA has not proposed regulations based on this finding.

State

California is taking action to reduce GHG emissions. In June 2005, Governor Schwarzenegger signed Executive Order S-3-05 to address climate change and GHG emissions in California. This order sets the following goals for statewide GHG emissions:

- Reduce to 2000 levels by 2010
- Reduce to 1990 levels by 2020
- Reduce to 80 percent below 1990 levels by 2050

In 2006, California passed AB 32, the California Global Warming Solutions Act of 2006 (Act). The Act requires ARB to design and implement emission limits, regulations, and other feasible cost-effective measures to reduce statewide GHG emissions to 1990 levels by 2020. Senate Bill 97 was signed into law in August 2007. The Senate Bill required the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resource Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009. On April 13, 2009, the OPR submitted to the Secretary for Natural Resources its recommended amendments to the State CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting the amendments. Following a 55-day public comment period and 2 public hearings, and in response to comments, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the CCR. The Amendments became effective on March 18, 2010.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG emissions that cause climate change. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. The first regulation adopted by the ARB pursuant to AB 32 was the regulation requiring mandatory reporting of GHG emissions. The regulation requires large industrial sources emitting more than 25,000 metric tons of CO_2 per year to report and verify their GHG emissions from combustion of both fossil fuels and biomass-derived fuels. The California Cap and Trade program is being developed and the ARB must adopt regulations by January 1, 2011. Finally, Governor Schwarzenegger directed the ARB, pursuant to Executive Order S-21-09, to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

Less than Significant Impact. The U.S. Environmental Protection Agency published a rule for the mandatory reporting of greenhouse gases from sources that in general emit 25,000 metric tons or more of carbon dioxide (CO_2) per year. As shown in Table 4, Overall Construction, Unmitigated Construction,

the Project is estimated to produce 280.89 tons per year of CO_2. This represents approximately only one percent of the reporting threshold.

Additionally, emissions from construction are temporary in nature. The SJVAPCD has implemented a guidance policy for development projects within their jurisdiction. This policy, "Guidance for Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA," approved by the Board on December 17, 2009, does not address temporary GHG emissions from construction, nor does this policy establish numeric thresholds for ongoing GHG emissions. AB 32 requires that emissions within the State be reduced to 1990 levels by the year 2020. These construction emissions are minimal and would mainly occur prior to 2020; therefore, construction-generated GHGs are ***less than significant.***

Mitigation Measures: None are required.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. The City of Madera does not yet have an adopted Climate Action Plan. Therefore, the plan adopted for the purpose of reducing the emissions of GHGs applicable to the proposed Project is ARB's approved Scoping Plan, which will be used to determine significance for this criterion. As discussed previously, AB 32 requires that emissions within the State be reduced to 1990 levels by the year 2020. The Project would generate temporary construction emissions prior to the year 2020; therefore, impacts would be ***less than significant***.

Mitigation Measures: None are required.

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project result in	☐	☐	☐	☒

	a safety hazard for people residing or working in the project area?			
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h.	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	☐	☐	☐	☒

SETTING

Environmental Setting

The Project site is located southeast of the City of Madera, adjacent to the City limits. The site is currently vacant/fallow (as of August 2015) but historically been used for agricultural purposes. The site is located in an urban area that provides for a mix of land uses. To the north are single family dwelling units, a park-type area, and vacant land; to the south are single family dwelling units; to the east is agricultural land and a Madera County maintenance facility; to the west are single family dwellings and a multi-family development.

The Project site is approximately 3.8 miles southeast of the Madera Municipal Airport. Fresno-Yosemite International Airport is the closest regional airport to the proposed Project site, approximately 21 miles southeast.

The site is approximately 0.2 miles from the fenceline of the nearest school (Martin Luther King Jr. Middle School).

A Phase I Environmental Site Assessment and Preliminary Endangerment Assessment (PEA) were prepared for the proposed Project (See Appendix F).

Regulatory Setting

Federal

The primary federal agencies with responsibility for hazardous materials management include the EPA, U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). The Environmental Protection Agency (EPA) was created to protect human health and to safeguard the natural environment – air, water and land – and works closely with other federal agencies, and state and local governments to develop and enforce regulations under existing environmental laws. Where national standards are not met, EPA can issue sanctions and take other steps to assist the states in reaching the desired levels of environmental quality. EPA also works with industries and all levels of government in a wide variety of voluntary pollution prevention programs and energy conservation efforts.

State

The California Department of Industrial Relations, Division of Occupational Safety and Health is the administering agency designed to protect worker health and general facility safety. The California Department of Forestry and Fire Protection has designated the area that includes the, proposed Project site as a Local Responsibility Area, defined as an area where the local fire jurisdiction is responsible for emergency fire response.

DTSC

The California Department of Toxic Substances Control (DTSC) oversees new school construction compliance with regard to hazardous and toxic substances. The mission of DTSC is to protect California's people and environment from harmful effects of toxic substances by restoring contaminated resources, enforcing hazardous waste laws, reducing hazardous waste generation, and encouraging the manufacture of chemically safer products. State legislature requires that DTSC provide oversight of review for contaminants where state funds will be used for acquisition or construction on proposed new school sites.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

Less than Significant Impact. This impact is associated with hazards caused by the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Proposed Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials

during construction activities would be required to comply with applicable federal, state, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, the Project would be required to comply with the National Pollutant Discharge Elimination System (NPDES) permit program through the submission and implementation of a Stormwater Pollution Prevention Plan during construction activities to prevent contaminated runoff from leaving the Project site. Therefore, no significant impacts would occur during construction activities.

It is anticipated that the proposed Project would not be a large-quantity user of hazardous materials. Small quantities of hazardous materials would be used onsite, including cleaning solvents (e.g., degreasers, paint thinners, and aerosol propellants), paints (both latex- and oil-based), acids and bases (such as many cleaners), disinfectants, and fertilizers. The potential risks posed by the use and storage of these hazardous materials are primarily limited to the immediate vicinity of the materials. Transport of these materials would be performed by commercial vendors who would be required to comply with various federal and state laws regarding hazardous materials transportation. As such, these materials are not expected to expose human health or the environment to undue risks associated with their use. Therefore, the proposed Project will not create a significant hazard to the public or the environment and any impacts would be ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. See Response a. above. Any accumulated hazardous construction or operational wastes will be collected and transported away from the site in compliance with all federal, state and local regulations. Any impacts would be ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact.

Hazardous emissions/materials

The proposed Project is the construction and operation of a school. In addition, the site is approximately 0.2 miles from the fenceline of the nearest school (Martin Luther King Jr. Middle School).

Based on the current Project description, it is not reasonably foreseeable that the proposed Project will cause a significant impact by emitting hazardous waste or bringing hazardous materials within one-quarter mile of an existing or proposed school. Schools do not generate, store, or dispose of significant

quantities of hazardous materials. Such uses also do not normally involve dangerous activities that could expose persons onsite or in the surrounding areas to large quantities of hazardous materials. See also Responses a. and b. regarding hazardous material handling. The impact is ***less than significant.***

In addition, a request was submitted to the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the District to review their records to determine if any potential sources of toxic air contaminants are located within a quarter-mile radius of the subject site (See Appendix A of Appendix F). According to the SJVAPCD, the following permitted facilities are located within a quarter-mile radius of the subject site:

FACID	Name	Address
C3098	Comcast Cable Communications, Inc.	NE Corner, Ave. 14 ½ & Road 28
C3323	Madera County Engineering Dept.	14215 Road 28
C3324	Madera County Engineering Dept.	14191 Road 28
C3347	Verizon Wireless – Madera	14269 Road 28 #58 ecp4
C3368	AT&T Mobility – Usid 42559	14269 Road 28
C3546	Madera County	28261 Ave. 14
C6049	Madera County Sheriff	14143 Road 28
C7997	Madera County Gas Dispensing Facility	14355 Road 28

Additionally, the SJVAPCD response indicates the following:

- No freeways are located within a quarter-mile
- No busy traffic corridors are located within a quarter-mile
- No railways are located within a quarter-mile
- There are agricultural facilities within a quarter-mile of the proposed school site. These sources may reasonably be expected to emit hazardous compounds from the operation of internal combustion engines driving irrigation pumps, gasoline dispensing tanks, application of pesticides, or other agricultural-related operations.

The potential sources of toxic air contaminators identified by the SJVAPCD are primarily limited to the immediate vicinity of those facilities. Storage, emission, or transport of these materials would be performed by commercial vendors who would be required to comply with various federal and state laws regarding storage, emission, or transport of hazardous or toxic materials. As such, these materials are not expected to expose human health or the environment to undue risks associated with their use within a quarter-mile of the proposed school.

Mitigation Measures: None are required.

Proximity to Above Ground Power Lines

An overhead 12 kilovolt (kV) electrical line is located along the east side of the right of way of Tozier Avenue (Road 28) and an underground 12 kV electrical line is located along the south side of South A Street in a joint trench. An existing overhead electrical line is also located along the south side of Sunrise Avenue (Pacific Gas & Electric Company 2015-E). PG&E will design the required primary electrical service, transformer, and secondary electrical line to the service meter for the Project. The Madera Unified School District may elect to have PG&E construct the facilities or have them constructed by their contractor and inspected by PG&E. PG&E will ultimately own and maintain the primary and secondary electrical lines and the transformer.

The California Department of Education has established the following limits. No school property line may be located closer than:

- 100 feet from the edge of an easement for a 50-133 kV line
- 150 feet from the edge of an easement for a 220-230 kV line, or
- 350 feet from the edge of an easement for a 500-550 kV line

As indicated above, the nearest electrical line is a 12 kV line along the northern edge of the property. This is well below CDE's thresholds to establish a school. In addition, the northern portion of the site will remain undeveloped (See Figure 4), thereby creating an even greater buffer between the overhead lines and the school boundary.

Therefore, impacts regarding proximity to high voltage power lines are ***less than significant.***

Mitigation Measures: None are required.

Proximity to Pipelines

There is an 8.625-inch diameter local gas transmission line located east of the project site within the Tozer Street ROW. The normal operating pressure is 400 psig and the maximum allowable operating pressure is 720 psig. At the closest point, this north-south trending pipeline is located approximately 70 feet east

of the eastern boundary of the site. There is also two 2.375-inch diameter gas line segments and a 1.05-inch diameter segment located north of the project site within the Sunrise Avenue ROW. The normal operating pressure is 400 psig and the maximum allowable operating pressure is 720 psig. At the closest point, this east-west trending pipeline is located approximately 313 north of the site.

A Pipeline Risk Analysis Report (Risk Report) was prepared for the Project (See Appendix I). The Risk Report identifies the probability of the pipeline failure in the vicinity of the project site, estimates consequences that could result from pipeline failure and estimates the level of individual risk and population risk at the subject property due to proximity to the natural gas pipelines. The Report also included an analysis of high-volume water pipelines risk.

Pacific Gas & Electric Company (PG&E) will design the required gas main and service for the Project. The Madera Unified School District may elect to have PG&E construct the facilities or have them constructed by their contractor and inspected by PG&E. PG&E will ultimately own and maintain the gas main and service from the main to the meter.

According to CDE, acquisition of a school site within 1,500 feet of a hazardous pipeline is prohibited if the site: "Contains one or more pipelines, situated underground or aboveground, which carries hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood."

The Risk Report indicates an insignificant level of annual individual and population risk to persons at the proposed new elementary school site due to proximity to the subject pipelines. The high pressure gas and water lines are not considered to pose an unacceptable safety hazard for school facility development at the proposed site. Therefore, impacts regarding proximity to high pressure pipelines are ***less than significant.***

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

Less Than Significant. As previously discussed, a Phase I ESA and PEA were prepared for the proposed Project. The results of which are summarized herein:

PHASE I PEA

The findings of the Phase I Environmental Site Assessment of the proposed New K-6 Elementary School subject site indicate: 1) the site is not a current or former waste disposal site, 2) the site is

not a hazardous substance release site, and 3) there is no qualified freeway or qualified traffic corridor located within 500 feet of the site.

Krazan's findings of this Phase I ESA revealed no evidence of recognized environmental conditions (RECs), controlled RECs (CRECs) or historical RECs (HRECs) in conjunction with the subject site as defined by ASTM E 1527-13. However, the following potential areas of concern (PAOCs) and site development issues were identified in connection with the subject site:

PAOCs

- Krazan's historical research indicates that the subject site was utilized for agricultural purposes from at least 1946 until the present. Although no material evidence of the use of environmentally persistent pesticides/herbicides was obtained during the course of this assessment, aerial photographs taken between 1946 and 1998 indicate that a rural residence, including a detached garage and a shed, were located in the northeastern portion of the subject. According to review of Madera County Assessor's Office (MCAO) records, the historical structures may have been built as early as approximately 1906. While Krazan's experience generally indicates that the potential for elevated concentrations of environmentally persistent pesticides and/or herbicides related to crop cultivation to exist in the near-surface soils of common agricultural properties in the subject site area at concentrations which would require regulatory action typically is low, it is not uncommon for agricultural chemicals to be stored and mixed in the vicinity of structures, a circumstance which introduces the potential for constituents of concern to be spilled or disposed in this area. Consequently, given the apparent agricultural use of the subject site for at least 50 years including the 1940s, 1950s and 1960s, the potential that environmentally persistent pesticides and/or herbicides were historically applied to the crops grown on the subject site, and the presence of former structures in the northeastern portion of the subject site, the specific circumstances related to potential agricultural chemical storage, mixing and application to crops on this subject site are unknown.

Given the above-referenced considerations and the proposed use of the subject site for a public elementary school, Krazan recommends that a Phase II Limited Subsurface Assessment be conducted throughout the cultivation areas and inferred location of historical structures to assess the presence or absence of potentially elevated concentrations of environmentally persistent pesticides/herbicides from historical farming operations at the subject site.

- As indicated previously, the northeastern portion of the subject site was occupied by a rural residence, including a detached structure and a shed, from at least 1946 until approximately 1998 and perhaps as early as approximately 1906. A representative of the

owner of the subject site familiar with the subject site since 2008 indicated that she was not aware of underground storage tanks (USTs) being located at the subject site, and no records of USTs for the subject site address of 14450 Road 28 are contained in the EDR regulatory agency database report. However, USTs on rural or agricultural properties historically have been exempt from requirements for registration with regulatory agencies. Krazan's experience with such properties has shown that it is not uncommon for property owners/operators to install USTs for their convenience, especially in the vicinity of structures, which are undocumented and whose presence would remain unknown in spite of the standard data research conducted in the course of this Phase I ESA. It is therefore possible that subsurface features such as unregistered USTs may exist in the vicinity of the former on-site structures which remain unknown based upon the absence of any regulatory, municipality or interview data, or other evidence indicating their presence or location. Consequently, despite an absence of data suggesting their presence, the presence or absence of USTs associated with the subject site potentially installed prior to the knowledge of the current property owner is unknown.

Krazan recommends conducting a Limited Geophysical Survey in the vicinity of the inferred location of former on-site structures based upon review of historical aerial photographs to assess the presence or absence of subsurface metallic anomalies characteristic of underground storage tanks and related features. If a UST is identified, it should be removed in accordance with State and local guidelines.

Site Development Issues

- Krazan's review of historical aerial photographs indicates that a dwelling/building was located within the northeastern portion of the subject site circa 1946. A water well and a septic system were apparently/reportedly associated with the former on-site dwelling. A representative of the Madera County Resource Management Agency, Building Division (MCBD), stated that a building permit was issued in 1985 for installation or repair/upgrade of a septic tank and leach line. Information contained in the building permit indicates that the septic tank and leach line were located in the northeastern portion of the subject site on the east side of the former dwelling. It is unknown if the septic tank and leach line were properly removed/abandoned in conjunction with the demolition of the residential structures in approximately 1999, as potential permits associated with the demolition of the former on-site structures are not currently available from the MCBD. If a water well and/or septic system are identified during the planned redevelopment of the subject site, they should be properly abandoned/closed or destroyed in accordance with State and local guidelines.

PEA Report

A Targeted Site Investigation Final PEA Report was prepared by Geocon (April 29, 2015) for review by DTSC. A PEA soil investigation using incremental sampling methodology was conducted at the site to evaluate the potential presence of OCPs and metals from historic and current application of agricultural chemicals, lead from the lead-based paint, OCPs from termiticide use and PCBs from window caulking or glazing in the area of the former structures in the northeastern portion of the site. The PEA Report indicates that the maximum 95 percent upper confidence level of the mean concentration of lead (78.21 milligram per kilogram [mg/kg]) in the soil samples is below the California Human Health Screening Level for residential soil of 80 mg/kg. Arsenic concentrations, ranging from less than 2.0 to 3.92 mg/kg, are within the background concentration. PCBs were not detected above the laboratory's reporting limit. The concentrations of OCP's and CAM 17 metals (excluding lead and arsenic) are below their respective US EPA Regional Screening Levels. The PEA Report recommends the issuance of a "no further action" determination.

Approval of PEA by DTSC

DTSC provided a letter of approval and "no further action" to the District on May 5, 2015. In short: "Based on the review of the Final PEA Report, neither a release of hazardous material nor the presence of naturally occurring hazardous material which would pose a threat to public health or the environment under unrestricted land use was indicated at the site. Therefore, DTSC concurs with the conclusion of the revised PEA Report that further environmental investigation of the site is not required and hereby approves the PEA Report."

As such, ***less than significant impacts*** would occur that would create a significant hazard to the public or the environment.

Mitigation Measures: None are required.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact. The Project site is 3.8 miles southeast of the Madera Municipal Airport and therefore there is ***no impact***.

Mitigation Measures: None are required.

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

No Impact. There are no private airstrips in the Project vicinity and as such, there is ***no impact***.

Mitigation Measures: None are required.

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The proposed Project site will be accessible via multiple entrances, as seen in Figure 4, which are not a part of the City's emergency response plan or emergency evacuation plan. As such, the Project will not interfere with any adopted emergency response or evacuation plan. Any impacts are ***less than significant***.

Mitigation Measures: None are required.

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

No Impact. There are no wildlands on or near the Project site. There is ***no impact***.

Mitigation Measures: None are required.

IX. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or	☐	☐	☒	☐

IX. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
provide substantial additional sources of polluted runoff?				
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

SETTING

Environmental Setting

The City of Madera provides domestic water to the Project site through a network of groundwater wells and pumps and water distribution system. The sole source of water supply for the City of Madera is the Madera sub-basin of the San Joaquin Valley Groundwater Basin (Akel Engineering Group, Inc 2014W). This source is considered adequate at this time, but is in an overdraft condition, which if not managed, will result in a dropping water table elevation in the aquifer and poorer water quality (Akel Engineering Group, Inc 2014W). The Madera County Integrated Water Management Plan (Madera IRWM)

encourages all of the groundwater users in Madera County to cooperate in reducing the overdraft. The City has developed specific plans to reduce their use of groundwater through implementation of water meters to encourage conservation by users and the percolation of treated wastewater for extraction by the Madera Irrigation District for farm irrigation uses. They have the potential to further reduce groundwater depletion through the implementation of a groundwater recharge program that uses surface water supplies from the San Joaquin River and the Fresno River (Akel Engineering Group, Inc 2014W).

The quality of the water from the aquifer is considered to be of good quality and does not require additional treatment at this time (Akel Engineering Group, Inc 2014W). Well No. 31, which is located directly south of A Street from the Project site does not have water quality issues (Akel Engineering Group, Inc 2014W). An Infrastructure Report was prepared for the proposed Project and is included as Appendix G.

Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) is intended to restore and maintain the chemical, physical, and biological integrity of the nation's waters (33 CFR 1251). The regulations implementing the CWA protect waters of the U.S. including streams and wetlands (33 CFR 328.3). The CWA requires states to set standards to protect, maintain, and restore water quality by regulating point source and some non-point source discharges. Under Section 402 of the CWA, the National Pollutant Discharge Elimination System (NPDES) permit process was established to regulate these discharges.

The National Flood Insurance Act (1968) makes available federally subsidized flood insurance to owners of flood-prone properties. To facilitate identifying areas with flood potential, Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps (FIRM) that can be used for planning purposes.

State

State Water Resources Control Board

The State Water Resources Control Board (SWRCB), located in Sacramento, is the agency with jurisdiction over water quality issues in the State of California. The SWRCB is governed by the Porter-Cologne Water Quality Act (Division 7 of the California Water Code), which establishes the legal framework for water quality control activities by the SWRCB. The intent of the Porter-Cologne Act is to

regulate factors which may affect the quality of waters of the State to attain the highest quality which is reasonable, considering a full range of demands and values. Much of the implementation of the SWRCB's responsibilities is delegated to its nine Regional Boards. The proposed Project site is located within the Central Valley Region.

Regional Water Quality Board

The Regional Water Quality Control Board (RWQCB) administers the NPDES storm water-permitting program in the Central Valley region. Construction activities on one acre or more are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). The General Construction Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The plan will include specifications for Best Management Practices (BMPs) that will be implemented during proposed Project construction to control degradation of surface water by preventing the potential erosion of sediments or discharge of pollutants from the construction area. The General Construction Permit program was established by the RWQCB for the specific purpose of reducing impacts to surface waters that may occur due to construction activities. BMPs have been established by the RWQCB in the California Storm Water Best Management Practice Handbook (2003), and are recognized as effectively reducing degradation of surface waters to an acceptable level. Additionally, the SWPPP will describe measures to prevent or control runoff degradation after construction is complete, and identify a plan to inspect and maintain these facilities or Project elements.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

a. Violate any water quality standards or waste discharge requirements?

Less than Significant Impact. The State Water Resources Control Board requires any new construction project over an acre to complete a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining best management practices to minimize the risk of pollution and sediments being discharged from construction sites. Implementation of the SWPPP will minimize the potential for the proposed Project to substantially alter the existing drainage pattern in a manner that will result in substantial erosion or siltation onsite or offsite.

The City of Madera provides wastewater collection, treatment and disposal for the wastewater generated by the Project site. Wastewater collection is provided through a series of existing sanitary sewer mains

and trunk sewers that convey wastewater from the Project and areas surrounding the Project to the existing wastewater treatment plant. Treatment and disposal are provided at the City's Wastewater Treatment Plant (WWTP) located at 13048 Road 21½, west of the City of Madera. The WWTP has adequate capacity to serve the minimal amount of waste water generated by the Project.

The campus consumptive water uses will include sinks, urinals, toilets, and landscape irrigation water, of which only sinks, urinals, and toilets will contribute to the wastewater system. Cooling water may be used depending on the Heating, Ventilation, and Air Conditioning (HVAC) system installed on the campus, but it will not contribute to the wastewater system. Food will not be prepared nor will dishes be washed at the campus. Showers will not be provided on the campus either. Therefore, these uses will not be sources of wastewater.

The WWTP provides primary and secondary treatment for a rated capacity of 10.1 Million Gallons per Day (MGD). The WWTP can accommodate a peak flow of 15.1 MGD and currently operates at an average daily flow of 5.7 MGD (Akel Engineering Group, Inc. 2014SS).

The Project will generate an estimated 608 gallons per day/acre of wastewater based on 850 students, a Project area of 14.25 acres, and the typical water demand per student of 10.2 gallons per day (Gleick, et al. 2003) for sinks, urinals, and toilets only. The typical water demand per student includes the demand for staff, faculty, and maintenance personnel at the school site. Water demand for the campus is used to determine wastewater flows assuming 100-percent of the water used becomes wastewater. The Project site is planned for medium density residential, which has a 1200 gallons per day/acre wastewater discharge rate (Akel Engineering Group, Inc. 2014SS). The Project wastewater discharge is less than the rate used to determine capacity within the sanitary sewer system and for the Wastewater Treatment Plant.

The Pecan line is impacted at this time. The impacted section occurs between State Route 99 and Stadium Road. The master plan capital improvement schedule indicates that parallel pipelines are necessary in this reach to provide adequate capacity within the Pecan Trunk sewer for the design peak flow discharge rate. The uses at the campus will occur during normal school hours, 8:00 AM to 3:30 PM. The diurnal curve for the Pecan Trunk line, as determined by flow metering that was performed during February, 2011 at temporary metering station located in a manhole between Monterey Street and Concord Street. The metering station was located approximately 14,120 feet downstream of the Project site. The diurnal curve shows that the peak for the Pecan Trunk occurs between 11:00 AM and 12:00 noon. The average velocity in the Pecan Trunk at the metering station was 1.4 feet per second. Assuming that the average velocity at the metering station represents the average velocity in the Pecan Trunk and Road 28 Trunk, the peak flow rate in the Pecan system would be influenced by flows originating at the site between 8:30 AM and 9:00 AM. Peak school uses will occur at the morning recess and the noon recess and during

afternoon physical education time when students and teaching staff use the bathroom facilities. Morning recess is normally between 9:45 AM and 10:30 AM and noon recess normally occurs between 11:30 AM and 1:00 PM. Afternoon physical education time occurs between 2:00 PM and the end of school at 3:30 PM. Therefore, sanitary sewer discharges from the Project should lag and not add to the peak discharge rate in the Pecan Trunk within the critical sections.

The Project should not require the construction of any additional sanitary sewer collection system or treatment facilities. The Project will require the construction of a sanitary sewer service line from the existing sewer main in South A Street to the Project. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the Project site during the construction period will be covered by the General Construction Permit issued by the State of California Water Resources Control Board. A San Joaquin Valley Air Pollution District permit and dust requirements will be adhered to during the construction period. Construction activities should not result in significant Project impacts or cumulative impacts to the environment.

Given the nature of the wastewater generated by the Project (sinks, urinals, toilets, etc.) it is not anticipated that the quality of effluent will result in exceedance of RWQCB requirements nor will it impact any waste discharge requirements. The site does not include kitchen or dishwashing facilities and therefore the type of wastewater generated is limited to bathroom related discharges.

Additionally, there will be no discharge to any surface or groundwater source. As such, the proposed Project will not violate any water quality standards and will not impact waste discharge requirements. The impact will be ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. The City of Madera provides domestic water to the Project site through a network of groundwater wells and pumps and water distribution system. The campus consumptive water uses will include sinks, urinals, toilets, and landscape irrigation. Cooling water may be used depending on the Heating, Ventilation, and Air Conditioning (HVAC) system installed on the campus. Food will not be prepared and dishes will not be washed at the campus. Showers will not be provided

on the campus either. Landscape irrigation will be the largest use of water, comprising an estimated 86-percent of the water use.

Service to the site will be provided by constructing a domestic water service, an irrigation water service, and a fire service from the existing 12-inch diameter water main in South A Street to the campus. Materials for the services will be Polyvinyl Chloride pipe or High Density Polyethylene pipe with cast iron valves. The service lines will be installed in trenches that will be excavated, backfilled and compacted. Temporary pavement will be installed where pavement has been removed in South A Street to install the water services. Permanent pavement will be installed with the street improvements for the campus, which will improve the north side of South A Street from Mariposa Avenue to North Tozier Avenue. Water meters and backflow prevention devices will be installed for the domestic and irrigation water services. The fire service will be installed with backflow prevention and a fire detection check valve.

The water system that serves the Project site is fully developed. Wells 17, 31, and 34 are in service and are connected to the water main distribution grid system. The water main distribution grid system consisting of 12-inch diameter pipelines is in place and is available to provide service to the site. The system will provide a minimum pressure of 35 pounds per square inch (psi) during peak hour demand and a normal minimum pressure of 40 psi (Akel Engineering Group, Inc 2014W).

The system is capable of meeting fire flow demands for the Project area in its current planned land use configuration of Medium Density Residential, which is 1500 gpm for two hours (Akel Engineering Group, Inc 2014W). Institutional fire flow rates are listed in the City of Madera Water Master Plan as 2500 gpm for three hours (Akel Engineering Group, Inc 2014W). The water supply to meet fire flow demands is provided within the City's infrastructure by a one million gallon tank and Well No. 26 (Akel Engineering Group, Inc 2014W). Modeling of the transmission system should be performed to verify that the system can provide the higher file flows at the minimum required pressure of 20 psi.

The Project will have an estimated domestic water demand of 2279 gallons per day/acre based on 850 students, a Project area of 14.25 acres, and the typical water demand per student of 38.2 gallons/day. Typical staff uses are included in the per student demand (Gleick, et al. 2003). The Water Master Plan assigned the Project site a land use designation of medium density residential, which has an average daily water demand rate of 2850 gallons/acre (Akel Engineering Group, Inc 2014W). The water system modeling for the Water Master Plan determiend that the existing water distribution system that services the Project is able to meet the demands during the peak hour and peak daily plus fire flow.

The development of this Project will replace 14.25 acres of Thompson seedless grapes with an elementary school campus. Thompson seedless grapes have an estimated water use of use of 8.3 acre feet per year

(Williams, et al. 2003). The Project has an estimated water use of 3.3 acre feet per year (Briley 2015). The Project water use, while still a consumptive use which will contribute to the depletion of the groundwater supplies, will result in less depletion than the existing use and not exceed that of the planned use for the Project area. Therefore the Project impacts will not be significant. Cumulative impacts will occur that are unavoidable, but will be less than the impacts from the current use or the planned use of the Project site.

The Project should not require the construction of any additional water distribution, storage, or supply systems. The Project will construct service lines from the existing 12-inch diameter water main in South A Street to serve the Project. The Project will result in temporary impacts during the construction of the water services. These impacts could include disruptions to traffic, increased dust, increased sediments in rainfall runoff, and increased air emissions from construction equipment. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the Project site during the construction period will be covered by the General Construction Permit issued by the State of California Water Resources Control Board. A San Joaquin Valley Air Pollution District permit and dust requirements will be adhered to during the construction period. Construction activities should not result in significant Project impacts or cumulative impacts to the environment.

Therefore, the proposed Project will not result in additional groundwater use that was not already accounted for by the City. As such, there is ***a less than significant impact*** to this impact area.

Mitigation Measures: None are required.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The response below applies to c., d., and e.:

Less than Significant Impact With Mitigation. There are no natural lakes or streams within or adjacent to the Project area. The site is presently a vacant dirt lot that has historically been farmed but is currently disked. The proposed Project will introduce new impervious surfaces (pavement) to a portion of the site.

Stormwater

The City of Madera provides stormwater collection and disposal for the Project site. Stormwater collection for the site will be provided a proposed 18-inch diameter storm drain pipeline that will run from the southwest corner of the Project site to the existing Knox Basin located at the northeast corner of South A Street and Knox Street (Akel Engineering Group, Inc. 2014SD).

Collection System

The stormwater collection system that will serve the campus does not exist. The storm drainage master plan has designated the construction of an 18-inch diameter storm drain pipeline from the Knox basin west in South A Street to the southwest corner of the Project site to provide drainage service for the 20 acres located north of South A Street, south of Sunrise Avenue and west of Tozier Street (Road 28) (Akel Engineering Group, Inc. 2014SD). The pipeline was sized to convey runoff from a medium density residential development (average effective imperviousness of 50-percent) to the Knox Basin while providing minimum freeboard at inlets and manholes located along the system (Akel Engineering Group, Inc. 2014SD). The Project will have a typical effective imperviousness of 0.60 (Akel Engineering Group, Inc. 2014SD).

Disposal

Stormwater disposal is provided by the Knox Basin, which is located at the northeast corner of South A Street and Knox Street, approximately 600 feet west of the Project site. The basin has an existing capacity of 16 acre-feet and can be expanded to 20 acre-feet.

Project Impacts

The Project will have four significant impacts to the site hydrology:

1. It will increase rainfall runoff discharge rates as compared to existing and planned land uses
2. It will increase rainfall runoff volume rates as compared to existing and planned land uses
3. It will reduce groundwater recharge at the site due to increased imperviousness

4. It will block drainage from the remaining 4.31 acres of undeveloped property to the north of the Project site from reaching the master planned collection point on South A Street

Rainfall runoff discharge rates and volumes will increase as a result in the following improvements to the site:

- Street frontages will be improved and pavement widths will convert pervious area to impervious area
- Additional hardscape, roofs, and parking areas will convert pervious surface area to impervious surface area
- Grading will occur and concrete surface drainage improvements will be added which will channel runoff and increase the speed at which it travels
- Storm drain inlets and underground storm drainage collection systems will be added which will further channel runoff increase the speed at which it travels

These improvements will result in an increase in peak runoff rate and runoff volume from the existing condition. The storm drainage master plan anticipated that the Project area (runoff area of 15.6 acres) and the 4.31 acres to the north of the Project would develop as a single family residential land use. This development pattern will also increase imperviousness and provide more efficient channelization of runoff, which will increase both peak runoff discharge rate and runoff volume from the site. The master plan included the installation of an 18-inch diameter storm drain pipeline from the Knox Basin to the southwest corner of the Project to mitigate the increase in peak runoff rate from the Project area due to the residential development and planned on increasing the storage volume within the Knox basin from 16 acre-feet to 20 acre-feet to provide additional storage volume within the basin (Akel Engineering Group, Inc. 2014SD).

The Project will result in a slight increase in runoff volume from the Project site area over the runoff volume from the planned single family residential of 0.73 acre-feet (1,180 cubic yards).

The Project will also alter the anticipated grading patterns of the Storm Drainage Master Plan. The Master Plan envisioned that the entire undeveloped area, including the 14.25 acre school site and the remaining 4.31 acres to the north of the school, would drain southerly to the southwest corner of the Project site. The development of the school will make this drainage pattern impossible to implement. The result is that the remaining 4.31 acres, which, when fully developed at the single family residential land use, will discharge a peak runoff rate of 1.33 cubic feet per second (cfs) that cannot drain to the master planned collection point on South A Street.

Mitigation Measures: HYD – 1 The increase in runoff volume will be mitigated through the excavation of additional volume within the Knox basin to increase the storage volume to 20.73 acre-feet. Storage of

the increased runoff in the Knox basin will allow the runoff that did not percolate into the groundwater at the site to do so in the basin.

The Project will mitigate the increase in runoff discharge rate from the site at South A Street. At the time of development, a Project storm drainage report will be prepared which will determine the peak runoff rates from the Project site and the remaining 4.31 acres to the north at planned land uses. It will also determine the size of storm drain pipeline required to convey the runoff discharge rates from the Project site and the remaining 4.31 acres to the north to the Knox Basin while conforming to the City of Madera storm drainage design requirements. The report will be submitted to the City of Madera for review, comment, and approval. The Project will construct a storm drainage pipeline from South A Street to the north property line of the Project site through a dedicated storm drainage easement. This will provide drainage service to the remaining 4.31 acres to the north that meets the requirements of the storm drainage report.

Implementation of the recommendations of the storm drainage report and construction of the storm drain pipeline through the Project site to the north property line will mitigate the increased runoff rates and volume from the site and blockage of runoff from the remaining 4.31 acres to the north. These impacts will not result in significant Project or cumulative impacts to the environment.As a result, impacts would be ***less than significant after mitigation***.

f. Otherwise substantially degrade water quality?

Less than Significant Impact. See Responses a, c and d. The Project would not otherwise degrade water quality and therefore the impact is ***less than significant***.

Mitigation Measures: None are required.

g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The site is located within an unshaded area of Flood Zone X, which is a "minimal risk area outside the 1-percent and .2-percent-annual-chance floodplains. No base flood elevations or base flood depths are shown within these zones." Furthermore, the site does not lie within the limits of inundation in the event of a catastrophic dam failure. In addition, there is no housing associated with this Project. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. The site is located within an unshaded area of Flood Zone X, which is a "minimal risk area outside the 1-percent and .2-percent-annual-chance floodplains. No base flood elevations or base flood depths are shown within these zones." Furthermore, the site does not lie within the limits of inundation in the event of a catastrophic dam failure. In addition, there is no housing associated with this Project. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

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

Less than Significant Impact. The site is located within an unshaded area of Flood Zone X, which is a "minimal risk area outside the 1-percent and .2-percent-annual-chance floodplains. No base flood elevations or base flood depths are shown within these zones." Furthermore, the site does not lie within the limits of inundation in the event of a catastrophic dam failure. In addition, there is no housing associated with this Project. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

j. Inundation by seiche, tsunami, or mudflow?

No Impact. There are no inland water bodies that could be potentially susceptible to a seiche in the Project vicinity. This precludes the possibility of a seiche inundating the Project site. The Project site is more than 100 miles from the Pacific Ocean, a condition that precludes the possibility of inundation by tsunami. There are no steep slopes that would be susceptible to a mudflow in the Project vicinity, nor are there any volcanically active features that could produce a mudflow in the City of Madera. This precludes the possibility of a mudflow inundating the Project site. ***No impacts*** would occur.

Mitigation Measures: None are required.

X. LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

SETTING

Environmental Setting

The Project site has been historically farmed (most recently in grapes), but as of August 2015, the site is vacant and has been disked. The northeastern portion of the site was once occupied by a rural residence from at least 1946 until approximately 1998 wherein the structures were removed. The site is proposed to be annexed into the City of Madera.

Madera County Land Use Designation:

The site is currently zoned by Madera County as IA – Institutional Area District. Schools are an allowable use in the IA designation according to the Madera County Code of Ordinances. Land uses surrounding the site are identified as follows:

Existing Land Use

Location	Existing Land Use
North	Sunrise Avenue; single-family dwellings; park-type area; vacant lands
South	South A Street; single-family dwellings; municipal water well
West	Single-family dwellings; multi-family dwellings
East	Road 28; ag land; Madera County maintenance facility

City of Madera Land Use Designation:

The site is currently outside of the Madera City limits, however, according to the City of Madera General Plan, the site is designated as MD – Medium Density Residential. Schools are an allowable use within the MD land use designation.

Regulatory Setting

Federal

Federal regulations for land use are not relevant to the proposed Project because it is not a federal undertaking (the proposed Project site is not located on lands administered by a federal agency, and the Project applicant is not requesting federal funding or a federal permit).

State

The proposed Project is being evaluated pursuant to CEQA; however, there are no state regulations, plans, programs, or guidelines associated with land use and planning that are applicable to the proposed Project.

RESPONSES

a. Physically divide an established community?

No Impact. The Project is located along the eastern border of the City of Madera. The proposed Project site is an existing vacant field that is surrounded by urban uses. The construction and operation of the Project would not cause any land use changes in the surrounding vicinity nor would it divide an established community. ***No impacts*** would occur as a result of this Project.

Mitigation Measures: None are required.

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

Less than Significant Impact. The site is currently zoned by Madera County as IA – Institutional Area District. Schools are an allowable use in the IA designation according to the Madera County Code of Ordinances. Although outside City limits, according to the City of Madera General Plan, the site is designated as MD – Medium Density Residential. Schools are an allowable use within the MD land use designation. Therefore, the Project will not conflict with any applicable land use plan, policy or regulation and will result in less than significant impacts.

Mitigation Measures: None are required.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. There are no local, regional, or state conservation plans that apply to the Project. As such, there are no impacts.

Mitigation Measures: None are required.

XI. MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

SETTING

Environmental Setting

The Project site is centrally located within the San Joaquin Valley which comprises the southern half of the Great Valley geomorphic province. According to Bartow (1991) the San Joaquin Valley is a westward-tilting structural trough where the east flank is broad and gently inclined as opposed to the western flank which is relatively narrow. The sediments along the eastern side of the valley rest on the fault block of the Sierra Nevada pluton. The west end of the Valley is thought to be underlain by mafic and ultramafic rocks.

According to regional maps and cross sections prepared by Bartow (1991) roughly between 1,500 and 3,000 feet of Quaternary and Tertiary age sediments underlie the site and rest on basement complex bedrock. Shelton, et. al (2012) report up to 3,000 feet of late Tertiary to Quaternary age sediments in the Madera area. The sediments derived from the Sierra Nevada Mountains to the east comprise alluvial fan and fluvial deposits with interbedded lacustrine deposits.

Regulatory Setting

Federal

There are no federal or local regulations pertaining to mineral resources relevant to the proposed Project.

State

California Surface Mining and Reclamation Act of 1975

Enacted by the State Legislature in 1975, the Surface Mining and Reclamation Act (SMARA), Public Resources Code Section 2710 et seq., ensures a continuing supply of mineral resources for the State.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

No Impact. According to the City of Madera General Plan, the proposed Project area is not included in a State classified mineral resource zones. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

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

No Impact. According to the City of Madera General Plan, the proposed Project area is not included in a State classified mineral resource zones. Soil disturbance for the proposed Project would be limited site ground work such as grading, foundations, and installation of infrastructure. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

XII. NOISE

Would the project:

		Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a.	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

SETTING

Environmental Setting

The Project site is located southeast of the City of Madera, adjacent to the City limits. The site is currently vacant/fallow (as of August 2015) but historically been used for agricultural purposes. The site is located in an urban area that provides for a mix of land uses. To the north are single family dwelling units, a park-type area, and vacant land; to the south are single family dwelling units; to the east is agricultural land and a Madera County maintenance facility; to the west are single family dwellings and a multi-family development.

Regulatory Setting

Federal

The Federal Railway Administration (FRA) and the Federal Transit Administration (FTA) have published guidance relative to vibration impacts. According to the FRA, fragile buildings can be exposed to ground-borne vibration levels of 0.5 PPV without experiencing structural damage[32]. The FTA has identified the human annoyance response to vibration levels as 80 RMS.

State

The California Noise Control Act was enacted in 1973 (Health and Safety Code § 46010 et seq.), and states that the Office of Noise Control (ONC) should provide assistance to local communities in developing local noise control programs. It also indicates that ONC staff will work with the OPR to provide guidance for the preparation of the required noise elements in city and county General Plans, pursuant to Government Code § 65302(f). California Government Code § 65302(f) requires city and county general plans to include a noise element. The purpose of a noise element is to guide future development to enhance future land use compatibility.

In addition, this proposed Project is being evaluated pursuant to CEQA.

Local

The City of Madera General Plan provides guidelines for noise thresholds. Although the proposed school is not located within City limits, due to its proximity to the City, this analysis identifies project noise impacts within the context of City thresholds. These are shown in Table 7 below.

Table 7
Exterior Noise Compatibility Guidelines for Noise From All Sources, Including Transportation Noise (24-Hour Day-Night Average [CNEL/Ldn])

Land Use Designation	Completely Compatible	Tentatively Compatible	Normally Compatible	Completely Incompatible
All Residential (Single and multifamily)	Less than 60 dBA	60-70 dBA	70-75 dBA	Greater than 75 dBA
All Commercial	Less than 70 dBA	70-75 dBA	Greater than 75 dBA	None
Public Parks	Less than 65 dBA	65-70 dBA	70-75 dBA	Greater than 75 dBA

Completely Compatible – means that the specified land use is satisfactory and both indoor and outdoor environments are pleasant.

Tentatively Compatible – means that noise exposure may be of concern, but common building construction practices will make the indoor living environment acceptable, even for sleeping quarters, and outdoor activities will not be unduly disturbed by noise.

Normally Compatible – means that noise exposure warrants special attention, and new construction or development should generally be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features are included in the design. Careful site planning or exterior barriers may be needed to make the outdoor environment tolerable.

Completely Incompatible – means that the noise exposure is so severe that new construction or development should generally not be undertaken.

For purposes of CEQA, the City identifies a 5 dBA increase in noise levels shall be normally considered to be a significant increase in noise.

RESPONSES

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

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

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

The response below applies to criteria a., c. and d.

Less than Significant Impact With Mitigation.

Construction

Construction noise would be limited to the period during which the proposed school is under construction and would vary in intensity during the workday depending on the types of equipment in use, and would only occur during daylight hours.

Proposed Project construction related activities will involve temporary noise sources and are anticipated to last approximately 14 months. Typical construction related equipment include graders, trenchers, small tractors and excavators. During the proposed Project construction, noise from construction related activities will contribute to the noise environment in the immediate vicinity. Activities involved in construction will generate maximum noise levels, as indicated in Table 8, ranging from 79 to 91 dBA at a distance of 50 feet, without feasible noise control (e.g., mufflers) and ranging from 75 to 80 dBA at a distance of 50 feet, with feasible noise controls.

Table 8
Typical Construction Noise Levels

Type of Equipment	dBA at 50 ft	
	Without Feasible Noise Control	With Feasible Noise
Dozer or Tractor	80	75
Excavator	88	80
Scraper	88	80
Front End Loader	79	75
Backhoe	85	75
Grader	85	75
Truck	91	75

The distinction between short-term construction noise impacts and long-term operational noise impacts is a typical one in both CEQA documents and local noise ordinances, which generally recognize the reality that short-term noise from construction is inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term noise at levels that they would not accept for permanent noise sources. A more severe approach would be impractical and might preclude the kind of construction activities that are to be expected from time to time in urban environments. Most residents of urban areas recognize this reality and expect to hear construction activities on occasion.

Operational

Operational noise associated with the proposed school would be primarily associated with the intermittent sound of children's voices during outdoor recreational activities, school bells signaling the beginning or end of class, and on-site vehicular operations during student drop-off and pick-up periods. Noise generated by such activities would be intermittent, would be predominantly limited to the less noise-sensitive daytime hours, and is common in residential environments.

The proposed school would result in increased vehicle traffic on area roadways. Typically, a doubling of vehicle traffic is required before a noticeable increase (3 dBA, or greater) in traffic noise levels would result. Implementation of the proposed Project would generate approximately 1,065 additional daily trips (See Section XVI – Transportation/Traffic). Vehicle traffic on the adjacent and nearby roadways average several thousand trips per day (according to the City's General Plan Noise Element, Tozer Avenue has approximately 8,400 daily trips). Implementation of the proposed Project would not result in doubling of vehicle traffic in the area roadways and as a result would not cause a substantial increase in traffic noise levels along area roadways.

Although impacts are considered less than significant, implementation of Mitigation Measure NO-1 through NO-2 will ensure that impacts remain ***less than significant with mitigation incorporation.***

NO-1 Construction activities shall be limited to between 6:00 A.M. and 9:00 P.M. Monday through Friday and between 7:00 A.M. and 5:00 PM on Saturday or Sunday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on holidays (President's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving, Day after Thanksgiving, Christmas Day, and New Year's Day).

NO-2 The construction contract shall require the construction contractor to ensure that construction equipment noise is minimized by muffling and shielding intakes and exhaust on construction equipment (in accordance with the manufacturer's specifications) and by shrouding or shielding impact tools.

b. <u>Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?</u>

Less than Significant Impact. Typical outdoor sources of perceptible ground borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Construction vibrations can be transient, random, or continuous.

The approximate threshold of vibration perception is 65 VdB, while 85 VdB is the vibration acceptable only if there are an infrequent number of events per day. Table 9 describes the typical construction equipment vibration levels.

Table 9
Typical Construction Vibration Levels

Equipment	VdB at 25 ft
Small Bulldozer	58
Jackhammer	79

Vibration from construction activities will be temporary and not exceed the FTA threshold for the nearest residences which are located approximately 100 feet west of the Project site. The impact will be ***less than significant***.

Mitigation Measures: None are required.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. See Response a. There will be no substantial permanent increase in ambient noise levels and therefore the impact is ***less than significant***.

Mitigation Measures: None are required.

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

No Impact. There are no airports within 2 miles or airport land use plans that apply to the Project, therefore there is ***no impact.***

Mitigation Measures: None are required.

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

No Impact. There are no airports within 2 miles of the Project, therefore there is ***no impact.***

Mitigation Measures: None are required.

XIII. POPULATION AND HOUSING

Would the project:

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

SETTING

Environmental Setting

As of the 2010 United States Census, the City of Madera's population was 61,416, up from 43,207 at the 2000 U.S. Census. The estimated 2014 population was 63,605. The population density was 3,889 people per square mile with approximately 17,049 housing units at an average density of 1,079 per square mile. As of 2010, there were 21,338 people under the age of 18 living in Madera.

Regulatory Setting

The proposed Project is being evaluated pursuant to CEQA; however, there are no federal, state or local regulations, plans, programs, and guidelines associated with population or housing that are applicable to the proposed Project.

RESPONSES

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

Less Than Significant Impact. There are no new homes associated with the proposed Project. The relatively minor amount of new employment opportunities that would be created by the proposed Project could be readily filled, for the most part, by the existing employment base, given the City's existing unemployment rates. In addition, the new school may generate new jobs (at the teacher or administrative level) that may attract new residents from outside the area. However, given the availability of housing in and around Madera, it is unlikely that the proposed Project will generate the need for additional housing in the City. The proposed Project will not affect any regional population, housing, or employment projections anticipated by City policy documents. There is ***a less than significant impact.***

Mitigation Measures: None are required.

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. There are no structures on the Project site and the Project will not otherwise displace any housing. Therefore there is ***no impact***.

Mitigation Measures: None are required.

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. The Project will not displace any people and therefore there is ***no impact***.

Mitigation Measures: None are required.

XIV. PUBLIC SERVICES

Would the project:

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

SETTING

Environmental Setting

A Madera County fire station located approximately 0.22 miles southeast of the school services the Project area. It has one person and one engine along with volunteers. It provides an ISO rating of Level 4. The City of Madera provides two additional fire stations (at 200 S. Schnoor located 2.47 miles southwest and 317 N. Lake located 1.05 miles northwest). Both stations are manned 24 hours a day. Each station has an engine and there is one mini-pumper that is shared between the two.

The nearest police station is the Madera County Sheriff's Department located at 14143 Road 28 (approximately 0.2 miles southeast of the site). The City Police Station is located at 330 S. C Street (approximately 0.84 miles northwest of the site). Staffing for the City police is a ratio of 1.14 officers per 1,000 residents.

Nearby schools include Sierra Vista Elementary (0.27 miles southwest) and Martin Luther King Jr. Middle School (0.24 miles northwest).

Parks in the area include Knox Park (0.07 miles west) which is a 2.09 acre neighborhood park and McNally Park (0.38 miles northwest) which is a 1.93 acre neighborhood park.

Regulatory Setting

Federal

National Fire Protection Association

The National Fire Protection Association (NFPA) is an international nonprofit organization that provides consensus codes and standards, research, training, and education on fire prevention and public safety. The NFPA develops, publishes, and disseminates more than 300 such codes and standards intended to minimize the possibility and effects of fire and other risks. The NFPA publishes the NFPA 1, Uniform Fire Code, which provides requirements to establish a reasonable level of fire safety and property protection in new and existing buildings.

State

California Fire Code and Building Code

The 2007 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to fire fighters and emergency responders during emergency operations. The provision of the Fire Code includes regulations regarding fire-resistance rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, fire safety during construction and demolition, and wildland urban interface areas.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

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

Fire protection?

Less than Significant Impact. The proposed Project site will continue to be served by the Madera County Fire Department (located approximately 0.22 miles southeast of the site). No additional fire personnel or equipment is anticipated to serve the Project. The school will be designed per California Department of Education - School Facilities Planning Division and California Department of General Services – Division of State Architect (DSA) fire standards which include adequate emergency fire vehicle access, sprinkler systems, location of fire hydrants, and water pressure requirements. The impact is ***less than significant***.

Police Protection?

Less than Significant Impact. The proposed site will continue to be served by the City of Madera police department. No additional police personnel or equipment is anticipated. The impact is ***less than significant.***

Schools?

No Impact. The Project itself is construction and operation of a new school. The new school is intended to serve existing and new students in response to population growth in the area and was identified in the Madera Unified School District Facilities Master Plan (2014). The decision to construct the new school is based on enrollment projections and an evaluation of existing facilities needs within the District. MUSD K-12 enrollment is projected to increase from 19,593 in 2013/2014 to 22,170 in 2023/2024. This is an increase of over 2,500 students and an average growth rate of 12.95% per year. In addition, overcrowded conditions at existing elementary school sites will be alleviated by construction of the proposed Project.

The projected student population for the new elementary school pulls from the following three elementary schools:

- Cesar Chavez: 151 students (18% of total new school population)
- Sierra Vista: 154 students (19% of total new school population)
- Millview: 520 students (63% of total new school population)

There is ***no impact***.

Parks?

No Impact. The Project would not result in an increase in demand for parks and recreation facilities because it would not result in a major increase in population. In addition, the District generally allows

public use of its on-site recreational facilities, thereby providing an increase in recreational space within the City. Accordingly, the proposed Project would have ***no impacts*** on parks.

Other public facilities?

No Impact. The proposed Project is within the land use and growth projections identified in the City's General Plan and other infrastructure studies. The Project, therefore, would not result in increased demand for, or impacts on, other public facilities such as library services. Accordingly, ***no impact*** would occur.

Mitigation Measures: None are required.

XV. RECREATION

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

SETTING

Environmental Setting

The City of Madera provides its residents several types of parks and recreational facilities. According to the City's General Plan, there are more than 320 acres of parks and recreation areas within the City limits. The City's neighborhood parks are predominately located in the eastern half of the City.

Parks in the area include Knox Park (0.07 miles west) which is a 2.09 acre neighborhood park and McNally Park (0.38 miles northwest) which is a 1.93 acre neighborhood park.

Regulatory Setting

The proposed Project is being evaluated pursuant to CEQA; however, there are no additional federal, state or local regulations, plans, programs, and guidelines associated with recreation that are applicable to the proposed Project.

RESPONSES

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The proposed Project does not include the construction of residential uses and would not directly or indirectly induce population growth. Therefore, the proposed Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. In addition, the District generally allows public use of its on-site recreational facilities, thereby providing an increase in recreational space within the City. The Project would have ***no impact*** to existing parks.

Mitigation Measures: None are required.

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

No Impact. The proposed Project does not include the construction of residential uses and would not directly induce population growth. Therefore, the Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. See also response a. There is ***no impact***.

Mitigation Measures: None are required.

XVI. TRANSPORTATION/ TRAFFIC

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

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

SETTING

Environmental Setting

The proposed Project is located on a single parcel (APN 035-221-001) totaling 18.96 acres northwest of the intersection of Tozer (Road 28) and A Streets in Madera, California. Site address is 14450 Road 28, and is currently owned by MUSD. The site is bound by Sunrise Ave./ Ave. 14 ½ on the north, Road 28 on the east, S. A Street on the south, and Lilly Street on the west. The site is approximately 0.8 miles east of State Highway 99. See Figures 1 and 2– Regional Map and Vicinity Map, respectively. The majority of the buildings and accessory structures will be located on the southern portion of the site.

Access/Parking/Drop-off

The site plan includes a parent pickup/drop off driveway (northbound) connecting to South A Street near Mariposa Street and a one-way exit driveway connecting to Lilly Street at American Avenue. An on-site roadway, which is to remain gated to prevent student pickup/drop off via private vehicles, will run along the north side of the site between Lilly Street and Road 28 (Tozer Street) and will provide access to a teacher parking lot containing approximately 28 stalls. A bus pickup/drop off area will be located on Tozer Street.

School Operation

Typical daily operations will likely include a bell schedule from 8am-2:40pm (Monday-Friday). An after-school program will typically use the cafeteria until 6:00 p.m. (Monday-Friday). The school cafeteria and playfields are typically open to various local groups such as churches, boy scouts, various sports teams, etc. during afterhours and on weekends.

Origin of Students

The projected student population for the new elementary school pulls from the following three elementary schools:

- Cesar Chavez: 151 students (18% of total new school population)
- Sierra Vista: 154 students (19% of total new school population)
- Millview: 520 students (63% of total new school population)

Regulatory Setting

Federal

Several federal regulations govern transportation issues. They include:

- Title 49, CFR, Sections 171-177 (49 CFR 171-177), governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- 49 CFR 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.
- 49 CFR 397.9, the Hazardous Materials Transportation Act of 1974, directs the U.S. Department of Transportation to establish criteria and regulations for the safe transportation of hazardous materials.

State

State of California Transportation Department Transportation Concept Reports

Each District of the State of California Transportation Department (Caltrans) prepares a Transportation Concept Report (TCR) for every state highway or portion thereof in its jurisdiction. The TCR usually represents the first step in Caltrans' long-range corridor planning process. The purpose of the TCR is to determine how a highway will be developed and managed so that it delivers the targeted LOS and quality of operations that are feasible to attain over a 20-year period, otherwise known as the "route concept" or beyond 20 years, for what is known as the "ultimate concept".

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not

limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less than Significant Impact With Mitigation.

An updated Traffic Impact Study (TIS) was prepared by Peters Engineering, Inc. (See Appendix H). The results of the TIS are summarized herein:

Study Area and Time Period

The report includes analysis of the following intersections:

1. Lake Street / Sunrise Avenue
2. Road 28 (Tozer Street) / Avenue 14½ (Sunrise Avenue)
3. Road 28 (Tozer Street) / Site Access Driveway
4. Mariposa Street / South A Street
5. Road 28 (Tozer Street) / South A Street

This report also includes a discussion of the site driveways connecting to South A Street (entrance only) and connecting to Lilly Street at American Avenue (exit only).

The study time periods include the Project weekday a.m. and p.m. peak hours determined between 7:00 and 9:00 a.m. and between 2:00 and 4:00 p.m. The peak hours are analyzed for the following conditions:

- Existing Conditions;
- Existing Plus Project Conditions;
- Existing Plus Approved and Pending Projects Plus Project; and
- Cumulative (Year 2035) Conditions With Project.

Significance Criteria

Policy CI-22 of the City of Madera General Plan requires that LOS C or better be maintained in the vicinity of the Project site. Policy 2.A.8 of the Madera County General Plan Policy Document requires that LOS D or better be maintained on County roadways. Since the Project will include annexation, for purposes of this study all of the study locations will be considered subject to the City requirement of LOS C.

For purposes of this study, a traffic impact will be recognized if:

- the Project will decrease the LOS below C at an intersection;
- the Project will decrease the LOS from D to E, from D to F, or from E to F;
- the Project will exacerbate the delay at an intersection already operating at a substandard LOS (D, E, or F) by increasing the average delay by 5.0 seconds or more.

A queuing deficiency is identified in the existing condition if the calculated 95th-percentile queue length exceeds the storage length. A queuing issue is determined if the Project causes the calculated 95th-percentile queue length to exceed the existing or planned storage capacity of a lane at a signalized intersection. In storage lanes that are already deficient without the Project, a queuing issue is determined if the Project increases the calculated 95th-percentile queue length by at least 25 feet (the average storage length required for one vehicle).

Vehicle Trip Generation

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*, are typically used to estimate the number of trips anticipated to be generated by proposed projects. Table 9 presents the trip generation estimates for the Project. It is noted that the trip generation estimates are for average weekday conditions and do not include special events, sporting events, or weekends.

Table 9
Project Trip Generation

Land Use	Units	Daily		A.M. Peak Hour (Occurs Between 7:00 and 9:00 a.m.)					P.M. Peak Hour (Occurs Between 2:00 and 4:00 p.m.)				
		Rate	Total	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total
Elementary School (520)	825	1.29	1,065	0.45	55:45	205	167	372	0.28	45:55	104	127	231

Reference: *Trip Generation Manual, 9th Edition*, Institute of Transportation Engineers 2012

Rates are reported in trips per student In:Out are percentages of the total.

Tables 10 through 12 present the results of the intersection analyses. LOS impacts that the Project is responsible to mitigate are presented in bold type. Peak-hour traffic signal warrants are performed only for intersections with a LOS below the target LOS C. Warrants are not provided for the site access because it is not a candidate for signalization.

Table 10
Intersection Level of Service Summary – Existing Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
Lake / Sunrise	Two-way stop	13.4	B	n/a	12.2	B	n/a
Tozer / Sunrise	All-way stop	18.4	C	n/a	15.9	C	n/a
Lilly / Sunrise	Two-way stop	18.3	C	n/a	10.6	C	n/a
Mariposa / South A	One-way stop	9.0	A	n/a	7.3	A	n/a
Tozer / South A	One-way stop	13.7	B	n/a	13.6	B	n/a

Table 11
Intersection Level of Service Summary – Existing-Plus-Project Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
Lake / Sunrise	Two-way stop	13.9	B	n/a	12.2	B	n/a
Tozer / Sunrise	All-way stop	21.6	C	n/a	16.8	C	n/a
Lilly / Sunrise	Two-way stop	24.9	C	n/a	13.3	B	n/a
Mariposa / South A	One-way stop	10.3	B	n/a	9.5	A	n/a
Tozer / South A	One-way stop	13.7	B	n/a	13.1	B	n/a

Table 12
Intersection Level of Service Summary – Cumulative (2035) With-Project Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
Lake / Sunrise	Two-way stop	**37.0**	**E**	NOT MET	22.8	C	n/a
Tozer / Sunrise	All-way stop	**68.4**	**F**	MET	**67.3**	**F**	MET
Lilly / Sunrise	Two-way stop	**316.8**	**F**	*	**28.2**	**D**	n/a
Mariposa / South A	One-way stop	10.4	B	n/a	9.7	A	n/a
Tozer / South A	One-way stop	22.4	C	n/a	20.5	C	n/a

* City staff has indicated that the intersection of Lilly Street and Sunrise Avenue is not a candidate for signalization based on its distance from Tozer Street.

DISCUSSION OF IMPACTS AND MITIGATION MEASURES

Existing Conditions

The results of the intersection analyses indicate that the study intersections are currently operating at acceptable levels of service during the study peak hours. The calculated 95th-percentile queue lengths are less than the available storage capacity.

Existing-Plus-Project Conditions

The existing-plus-Project conditions analyses represent conditions that would occur after construction of the Project in the absence of other pending projects and regional growth. This scenario isolates the specific impacts of the Project.

The intersection analyses indicate the study locations are expected to continue to operate at acceptable levels of service after construction of the Project. The calculated 95th-percentile queue lengths are less than the available storage capacity.

Cumulative Conditions With Project

The year 2035 with-Project conditions analyses are based on the assumption that the Project is in operation and generating the trips discussed above, and that other development and growth in the region occurs resulting in increased traffic as discussed in preceding sections of this report. The results indicate that the Project is expected to contribute to cumulative impacts resulting in significant impacts to the following intersections:

- Lake Street / Sunrise Avenue
- Tozer Street / Sunrise Avenue
- Lilly Street / Sunrise Avenue

The intersection of Mariposa Street and South A Street and the intersection of Tozer Street and South A Street are expected to operate a acceptable levels of services under future with-Project conditions.

Impact TR-1

At the intersection of Lake Street and Sunrise Avenue the Project would contribute to a decrease in the LOS from B in the existing condition to E in 2035 during the a.m. peak hour.

Mitigation Measure TR-1:

Peak-hour traffic signal warrants are not expected to be satisfied based on the projected traffic volumes. In addition, all-way stop control is not expected to mitigate the future LOS D. Widening of Sunrise Avenue to provide four lanes is also not expected to be feasible based on the proximity of existing buildings to the existing roadway along Sunrise Avenue and the continuation to 9th Street. Therefore, to address the Project impact it is recommended that traffic signals be planned at the intersection of Lake Street and Tozer Street and installed if warranted based on observed traffic volumes in the future. With implementation of these improvements the intersection would operate at LOS B during the a.m. and p.m. Project peak hours. The Project is responsible only for its fair share of the ultimate mitigation. It should be noted that the ultimate design of the intersection should consider the p.m. peak hour between approximately 4:00 p.m. and 6:00 p.m., which was beyond the scope of this study.

Impact TR-2

At the intersection of Tozer Street and Sunrise Avenue the Project would contribute to a decrease in the LOS from C in the existing condition to F in 2035 during the a.m. and p.m. peak hours.

Mitigation Measure TR- 2

Peak-hour traffic signal warrants are expected to be satisfied based on the projected 2035 traffic volumes. It is recommended that traffic signals be installed at the intersection of Tozer Street and Sunrise Avenue in the future. Protected left-turn phasing is recommended, which requires dedicated left-turn lanes on all approaches. The length of the left-turn lanes should be per City of

Madera standards and should be long enough to accommodate the queue lengths presented in Table 10 of this report. In addition, a dedicated right-turn lane is recommended on all four approaches to the intersection. Future signalization should include construction of crosswalks, curb ramps, and sidewalks connecting to existing sidewalks on Sunrise Avenue and to the proposed school. With implementation of these improvements the intersection would operate at LOS C during the a.m. and p.m. Project peak hours. The Project is responsible only for its fair share of the ultimate mitigation. It should be noted that the ultimate design of the intersection should consider the p.m. peak hour between approximately 4:00 p.m. and 6:00 p.m., which was beyond the scope of this study.

Impact TR-3

At the intersection of Lilly Street and the Sunrise Avenue the Project would contribute to a decrease in the LOS from C in the existing condition to F in 2035 during the a.m. peak hour and from C in the existing condition to D in 2035 during the p.m. peak hour.

Mitigation Measure TR-3

City staff has indicated that the intersection of Lilly Street and the Sunrise Avenue is not a candidate for signalization or all-way stop control based on the spacing between major intersections. The recommended mitigation for substandard levels of service for intersections along Sunrise Avenue between Tozer Street and Lake Street is signalization of the intersection of Knox Avenue and Sunrise Avenue. There is a high degree of connectivity between streets on both sides of Sunrise Avenue that will allow traffic to redistribute to the future traffic signals.

With implementation of these mitigation measures, the impact is expected to be ***less than significant***.

Discussion of Site Access

The proposed site plan provides on-site vehicular access to City/County streets as follows:

- A one-way northbound entrance from South A Street near the Mariposa Street alignment;
- A one-way exit connecting to Lilly Street at American Avenue;
- A gated driveway connecting to Lilly Street near the Carrey Avenue alignment with access to teacher parking;
- A gated driveway connecting to Tozer Street on approximately the Carrey Avenue alignment.

South A Street Entrance

The analyses suggest that the intersection of Mariposa Street and South A Street is expected to operate at acceptable levels of service. The entrance is proposed as a one-way driveway, which minimizes the number of conflicting turning movements. As is typical of elementary schools, there is a potential for on-site queues to extend into South A Street. However, the proposed site plan provides a throat of more than 250 feet entering the site and provides a substantial length of pickup/drop off area (greater than 300 feet), plus additional driveway area parallel to the pickup/drop off area. Considering that Lilly Street provides a secondary pickup/drop off area, it is anticipated that vehicles will choose alternate paths if congestion at the South A Street entrance is encountered. South A Street is approximately 40 feet wide with parallel parking; therefore, additional space for turn lanes does not exist. Left-turn lanes are not recommended because the offset between the site entrance and Mariposa Street could result in head-on conflicts.

Lilly Street / American Avenue Exit

The intersection of Lilly Street and American Avenue is expected to experience a substantial amount of Project traffic, consisting of trips exiting from the one-way driveway as well as parents dropping off and picking up students along Lilly Street and along American Avenue. This area is also likely to experience a substantial amount of pedestrian traffic. City staff has requested that this report discuss the configuration of the intersection, particularly whether it should be constructed as a knuckle configuration or as a three-legged intersection. We recommend that a standard knuckle configuration not be used and that the pavement area be minimized to inhibit U-turns and disorderly parking. The intersection should be constructed in a "T" configuration to accommodate parallel parking and vehicle turning movements (turning templates should be utilized in the design). The on-site one-way exit should align with the westbound lane of American Avenue. It is anticipated that the installation of all-way stop control would contribute to orderly operation of the intersection and would provide protection for pedestrians. The CMUTCD allows for the installation of all-way stop control at the intersection of two local roads with similar volumes without the need for the satisfaction of volume warrants.

Lilly Street / Carrey Avenue Driveway

The proposed driveway on Lilly Street near the Carrey Avenue alignment will be gated and not available for student drop off and pickup. The gate should be set back from Lilly Street to provide storage for at least one vehicle while the gate is opening without blocking Lilly Street or the sidewalk. It is recommended that the driveway align with Carrey Avenue. In the near-term it is anticipated that this driveway will accommodate a low volume of traffic (primarily school employees) that will not coincide with a majority of the parent drop off/pickup trips.

Tozer Street Driveway

The proposed driveway on Tozer Street near the Carrey Avenue alignment will be gated and not available for student drop off and pickup. If two-way traffic is allowed, the gate should be set back from

Tozer Street to provide storage for at least one vehicle while the gate is opening without blocking Tozer Street or the sidewalk. Left turns exiting the driveway to northbound Tozer Street should not be allowed. In the near-term it is anticipated that this driveway will accommodate a low volume of traffic (primarily school employees) that will not coincide with a majority of the parent drop off/pickup trips.

Discussion of Pedestrian Crossings

It is anticipated that the Project may generate as many as 391 pedestrians/bicyclists during the a.m. peak hour and 471 pedestrians/bicyclists during the Project p.m. peak hour. A majority of the pedestrians/bicyclists are expected to travel west of the site, and a large number of them would be required to cross Sunrise Avenue. It is not anticipated that a significant volume of pedestrian traffic will be generated from the east and south of the Project site based on the proposed attendance boundary.

The scope of this study did not include the development of a school route plan. However, it is recommended that pedestrian barricades and appropriate signage be installed to prevent pedestrians from crossing Sunrise Avenue at Lilly Street. Adult crossing guards are recommended at the existing crosswalk at Knox Avenue (which should be painted yellow) and across Lilly Street on the south side of Sunrise Avenue. It is likely that an adult crossing guard will be necessary on the north side of South A Street at the Project entrance.

It is recommended that a sidewalk be constructed along the Project frontage on Lilly Street and that the sidewalk be extended along the east side of Lilly Street to Sunrise Avenue.

Since traffic conditions adjacent to schools can be unpredictable, the operation of intersections near the school, as well as pedestrian habits along Sunrise Avenue, Knox Avenue, Lilly Street, Carrey Avenue, American Avenue, and South A Street, should be monitored after the school is in operation to determine if modifications to the school route plan are required. In the event that pedestrians are observed crossing regularly at unmarked locations, the installation of crosswalks may be considered based on observed conditions. In the event that substantial pedestrian volumes are eventually observed at uncontrolled crosswalks and safety upgrades are considered, it is recommended that push-button-activated rapid rectangular flashing beacons or other similar devices be installed to enhance driver awareness of the crossing. All signs and markings shall conform to the CMUTCD.

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

Less than Significant Impact. As shown in Response a., the proposed Project will have a ***less than significant*** impact on any existing level of service or other travel demand measures. The Project will not conflict with any congestion management programs, as none are applicable to the Project.

Mitigation Measures: None are required.

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

No Impact. There are no airports or airstrips within 2 miles of the Project site. There are no characteristics of the Project that would have any impact on air traffic patterns. There is ***no impact***.

Mitigation Measures: None are required.

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

No Impact. No roadway design features associated with this proposed Project would result in an increase in hazards due to a design feature or be an incompatible use. See also Response XVI-a. There is ***no impact.***

Mitigation Measures: None are required.

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

g.	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

SETTING

Environmental Setting

The City of Madera provides domestic water to the Project site through a network of groundwater wells and pumps and water distribution system. The sole source of water supply for the City of Madera is the Madera sub-basin of the San Joaquin Valley Groundwater Basin (Akel Engineering Group, Inc 2014W). This source is considered adequate at this time, but is in an overdraft condition, which if not managed, will result in a dropping water table elevation in the aquifer and poorer water quality (Akel Engineering Group, Inc 2014W). The Madera County Integrated Water Management Plan (Madera IRWM) encourages all of the groundwater users in Madera County to cooperate in reducing the overdraft. The City has developed specific plans to reduce their use of groundwater through implementation of water meters to encourage conservation by users and the percolation of treated wastewater for extraction by the Madera Irrigation District for farm irrigation uses. They have the potential to further reduce groundwater depletion through the implementation of a groundwater recharge program that uses surface water supplies from the San Joaquin River and the Fresno River (Akel Engineering Group, Inc 2014W).

The quality of the water from the aquifer is considered to be of good quality and does not require additional treatment at this time ((Akel Engineering Group, Inc 2014W). Well No. 31, which is located directly south of A Street from the Project site does not have water quality issues (Akel Engineering Group, Inc 2014W).

The City of Madera provides wastewater collection, treatment and disposal for the wastewater generated by the Project site. Wastewater collection is provided through a series of existing sanitary sewer mains and trunk sewers that convey wastewater from the Project and areas surrounding the Project to the existing wastewater treatment plant. Treatment and disposal are provided at the City's Wastewater Treatment Plant (WWTP) located at 13048 Road 21½, west of the City of Madera. This section discusses the capacity of the existing sanitary sewer collection system, the capacity of the WWTP, the expected demand from the Project, and the evaluation of the impacts and comparison of those impacts to thresholds of significance.

Regulatory Setting

State

State Water Resources Control Board (SWRCB)

Waste Discharge Requirements Program. State regulations pertaining to the treatment, storage, processing, or disposal of solid waste are found in Title 27, CCR, Section 20005 et seq. (hereafter Title 27). In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 2744. Several SWRCB programs are administered under the WDR Program, including the Sanitary Sewer Order and recycled water programs.

National Pollutant Discharge Elimination System (NPDES) Permit

As authorized by the Clean Water Act (CWA), the National Pollutant Discharge Elimination System (NDPES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. In California, it is the responsibility of Regional Water Quality Control Boards (RWQCB) to preserve and enhance the quality of the state's waters through the development of water quality control plans and the issuance of waste discharge requirements (WDRs). WDRs for discharges to surface waters also serve as NPDES permits. Tulare County is within the Central Valley RWQCB's jurisdiction.

In addition, the proposed Project is being evaluated pursuant to CEQA.

RESPONSES

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less than Significant Impact. The State Water Resources Control Board requires any new construction project over an acre to complete a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining best management practices to minimize the risk of pollution and sediments being discharged from construction sites. Implementation of the SWPPP will minimize the potential for the proposed Project to substantially alter

the existing drainage pattern in a manner that will result in substantial erosion or siltation onsite or offsite.

The City of Madera provides wastewater collection, treatment and disposal for the wastewater generated by the Project site. Wastewater collection is provided through a series of existing sanitary sewer mains and trunk sewers that convey wastewater from the Project and areas surrounding the Project to the existing wastewater treatment plant. Treatment and disposal are provided at the City's Wastewater Treatment Plant (WWTP) located at 13048 Road 21½, west of the City of Madera.

The campus consumptive water uses will include sinks, urinals, toilets, and landscape irrigation water, of which only sinks, urinals, and toilets will contribute to the wastewater system. Cooling water may be used depending on the Heating, Ventilation, and Air Conditioning (HVAC) system installed on the campus, but it will not contribute to the wastewater system. Food will not be prepared nor will dishes be washed at the campus. Showers will not be provided on the campus either. Therefore, these uses will not be sources of wastewater.

The WWTP provides primary and secondary treatment for a rated capacity of 10.1 Million Gallons per Day (MGD). The WWTP can accommodate a peak flow of 15.1 MGD and currently operates at an average daily flow of 5.7 MGD (Akel Engineering Group, Inc. 2014SS).

The Project will generate an estimated 608 gallons per day/acre of wastewater based on 850 students, a project area of 14.25 acres, and the typical water demand per student of 10.2 gallons per day (Gleick, et al. 2003) for sinks, urinals, and toilets only. The typical water demand per student includes the demand for staff, faculty, and maintenance personnel at the school site. Water demand for the campus is used to determine wastewater flows assuming 100-percent of the water used becomes wastewater. The Project site is planned for medium density residential, which has a 1200 gallons per day/acre wastewater discharge rate (Akel Engineering Group, Inc. 2014SS). The Project wastewater discharge is less than the rate used to determine capacity within the sanitary sewer system and for the Wastewater Treatment Plant.

Given the nature of the wastewater generated by the Project (sinks, urinals, toilets, etc.) it is not anticipated that the quality of effluent will result in exceedance of RWQCB requirements. The site does not include kitchen or dishwashing facilities and therefore the type of wastewater generated is limited to bathroom related discharges.

Additionally, there will be no discharge to any surface or groundwater source. As such, the proposed Project will not violate any RWQCB discharge requirements. The impact will be ***less than significant***.

Mitigation Measures: None are required.

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

Less than Significant Impact. See Response a, above. In addition, the existing sanitary sewer collection system that services the campus consists of an 8-inch diameter sanitary sewer main located in South A Street that is laid at a bed slope of 0.0072 feet per foot. The capacity of this line is estimated to be 0.67 Million Gallons per Day (MGD) with a flow depth to pipe diameter (d/D) ratio of 0.92, which is the allowable d/D ratio during peak dry weather flow (Akel Engineering Group, Inc. 2014SS). The pipeline will be allowed to surcharge during peak wet weather flows (Akel Engineering Group, Inc. 2014SS). The existing 8-inch diameter sanitary sewer main is connected to the Road 28 Trunk sewer, an 18-inch diameter pipeline that runs from the Project site south in Road 28 (Tozier Avenue) to Pecan Avenue at State Route 99. The Road 28 Trunk sewer is connected to the Pecan Trunk sewer in Pecan Avenue on the east side of State Route 99. The Pecan Trunk sewer runs west in Pecan Avenue to discharge to the WWTP. The sanitary sewer master plan recommends construction of 8,950 lineal feet of parallel sanitary sewer pipelines with varying diameters for the Pecan Trunk sewer west of Golden State to Stadium Road to provide the design level of service in the Pecan Trunk today and to meet the added demand of the planned development in the Parkwood Village. The Parkwood Village is a residential area located in the southeast portion of the City, south of Avenue 13, between State Route 145 and State Route 99 (Akel Engineering Group, Inc. 2014SS).

The Road 28 Trunk and the Pecan Trunk sewers are gravity systems for their entire length, meaning that the wastewater is not lifted via a pump station between the Project site and the WWTP.

The Project will generate an estimated 608 gallons per day/acre of wastewater based on 850 students, a Project area of 14.25 acres, and the typical water demand per student of 10.2 gallons per day (Gleick, et al. 2003) for sinks, urinals, and toilets only. The typical water demand per student includes the demand for staff, faculty, and maintenance personnel at the school site. Water demand for the campus is used to determine wastewater flows assuming 100-percent of the water used becomes wastewater. The Project site is planned for medium density residential, which has a 1200 gallons per day/acre wastewater discharge rate (Akel Engineering Group, Inc. 2014SS). The Project wastewater discharge is less than the rate used to determine capacity within the sanitary sewer system and for the Wastewater Treatment Plant.

The Pecan line is impacted at this time. The impacted section occurs between State Route 99 and Stadium Road. The master plan capital improvement schedule indicates that parallel pipelines are necessary in

this reach to provide adequate capacity within the Pecan Trunk sewer for the design peak flow discharge rate. The uses at the campus will occur during normal school hours, 8:00 AM to 3:30 PM. The diurnal curve for the Pecan Trunk line, as determined by flow metering that was performed during February, 2011 at temporary metering station located in a manhole between Monterey Street and Concord Street. The metering station was located approximately 14,120 feet downstream of the Project site. The diurnal curve shows that the peak for the Pecan Trunk occurs between 11:00 AM and 12:00 noon. The average velocity in the Pecan Trunk at the metering station was 1.4 feet per second. Assuming that the average velocity at the metering station represents the average velocity in the Pecan Trunk and Road 28 Trunk, the peak flow rate in the Pecan system would be influenced by flows originating at the site between 8:30 AM and 9:00 AM. Peak school uses will occur at the morning recess and the noon recess and during afternoon physical education time when students and teaching staff use the bathroom facilities. Morning recess is normally between 9:45 AM and 10:30 AM and noon recess normally occurs between 11:30 AM and 1:00 PM. Afternoon physical education time occurs between 2:00 PM and the end of school at 3:30 PM. Therefore, sanitary sewer discharges from the Project should lag and not add to the peak discharge rate in the Pecan Trunk within the critical sections.

The Project should not require the construction of any additional sanitary sewer collection system or treatment facilities. The minimal amount of wastewater can be handled by the City's WWTP. The Project will require the construction of a sanitary sewer service line from the existing sewer main in South A Street to the Project. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the Project site during the construction period will be covered by the General Construction Permit issued by the State of California Water Resources Control Board. A San Joaquin Valley Air Pollution District permit and dust requirements will be adhered to during the construction period. Construction activities should not result in significant Project impacts or cumulative impacts to the environment. Therefore, the impact is ***less than significant.***

Mitigation Measures: None are required.

c. <u>Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</u>

Less than Significant Impact.

<u>Stormwater</u>

The City of Madera provides stormwater collection and disposal for the Project site. Stormwater collection for the site will be provided a proposed 18-inch diameter storm drain pipeline that will run

from the southwest corner of the Project site to the existing Knox Basin located at the northeast corner of South A Street and Knox Street (Akel Engineering Group, Inc. 2014SD).

Collection System

The stormwater collection system that will serve the campus does not exist. The storm drainage master plan has designated the construction of an 18-inch diameter storm drain pipeline from the Knox basin west in South A Street to the southwest corner of the Project site to provide drainage service for the 20 acres located north of South A Street, south of Sunrise Avenue and west of Tozier Street (Road 28) (Akel Engineering Group, Inc. 2014SD). The pipeline was sized to convey runoff from a medium density residential development (average effective imperviousness of 50-percent) to the Knox Basin while providing minimum freeboard at inlets and manholes located along the system (Akel Engineering Group, Inc. 2014SD). The Project will have a typical effective imperviousness of 0.60 (Akel Engineering Group, Inc. 2014SD).

Disposal

Stormwater disposal is provided by the Knox Basin, which is located at the northeast corner of South A Street and Knox Street, approximately 600 feet west of the Project site. The basin has an existing capacity of 16 acre-feet and can be expanded to 20 acre-feet.

Project Impacts

The Project will have four significant impacts to the site hydrology:

5. It will increase rainfall runoff discharge rates as compared to existing and planned land uses
6. It will increase rainfall runoff volume rates as compared to existing and planned land uses
7. It will reduce groundwater recharge at the site due to increased imperviousness
8. It will block drainage from the remaining 4.31 acres of undeveloped property to the north of the Project site from reaching the master planned collection point on South A Street

Rainfall runoff discharge rates and volumes will increase as a result in the following improvements to the site:

- Street frontages will be improved and pavement widths will convert pervious area to impervious area
- Additional hardscape, roofs, and parking areas will convert pervious surface area to impervious surface area

- Grading will occur and concrete surface drainage improvements will be added which will channel runoff and increase the speed at which it travels
- Storm drain inlets and underground storm drainage collection systems will be added which will further channel runoff increase the speed at which it travels

These improvements will result in an increase in peak runoff rate and runoff volume from the existing condition. The storm drainage master plan anticipated that the Project area (runoff area of 15.6 acres) and the 4.31 acres to the north of the Project would develop as a single family residential land use. This development pattern will also increase imperviousness and provide more efficient channelization of runoff, which will increase both peak runoff discharge rate and runoff volume from the site. The master plan included the installation of an 18-inch diameter storm drain pipeline from the Knox Basin to the southwest corner of the Project to mitigate the increase in peak runoff rate from the Project area due to the residential development and planned on increasing the storage volume within the Knox basin from 16 acre-feet to 20 acre-feet to provide additional storage volume within the basin (Akel Engineering Group, Inc. 2014SD).

The Project will result in a slight increase in runoff volume from the Project site area over the runoff volume from the planned single family residential of 0.73 acre-feet (1,180 cubic yards).

The Project will also alter the anticipated grading patterns of the Storm Drainage Master Plan. The Master Plan envisioned that the entire undeveloped area, including the 14.25 acre school site and the remaining 4.31 acres to the north of the school, would drain southerly to the southwest corner of the Project site. The development of the school will make this drainage pattern impossible to implement. The result is that the remaining 4.31 acres, which, when fully developed at the single family residential land use, will discharge a peak runoff rate of 1.33 cubic feet per second (cfs) that cannot drain to the master planned collection point on South A Street.

Grading of the site will have the potential to increase dust in the air and sediment in the runoff from the site.

Mitigation Measures: HYD – 1 The increase in runoff volume will be mitigated through the excavation of additional volume within the Knox basin to increase the storage volume to 20.73 acre-feet. Storage of the increased runoff in the Knox basin will allow the runoff that did not percolate into the groundwater at the site to do so in the basin.

The Project will mitigate the increase in runoff discharge rate from the site at South A Street. At the time of development, a Project storm drainage report will be prepared which will determine the peak runoff rates from the Project site and the remaining 4.31 acres to the north at planned land uses. It will also determine the size of storm drain pipeline required to convey the runoff discharge rates from the Project

site and the remaining 4.31 acres to the north to the Knox Basin while conforming to the City of Madera storm drainage design requirements. The report will be submitted to the City of Madera for review, comment, and approval. The Project will construct a storm drainage pipeline from South A Street to the north property line of the Project site through a dedicated storm drainage easement. This will provide drainage service to the remaining 4.31 acres to the north that meets the requirements of the storm drainage report.

Implementation of the recommendations of the storm drainage report and construction of the storm drain pipeline through the Project site to the north property line will mitigate the increased runoff rates and volume from the site and blockage of runoff from the remaining 4.31 acres to the north. These impacts will not result in significant Project or cumulative impacts to the environment. As a result, impacts would be ***less than significant after mitigation***.

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

Less Than Significant Impact. The City of Madera provides domestic water to the Project site through a network of groundwater wells and pumps and water distribution system. The campus consumptive water uses will include sinks, urinals, toilets, and landscape irrigation. Cooling water may be used depending on the Heating, Ventilation, and Air Conditioning (HVAC) system installed on the campus. Food will not be prepared and dishes will not be washed at the campus. Showers will not be provided on the campus either. Landscape irrigation will be the largest use of water, comprising an estimated 86-percent of the water use.

Service to the site will be provided by constructing a domestic water service, an irrigation water service, and a fire service from the existing 12-inch diameter water main in South A Street to the campus. Materials for the services will be Polyvinyl Chloride pipe or High Density Polyethylene pipe with cast iron valves. The service lines will be installed in trenches that will be excavated, backfilled and compacted. Temporary pavement will be installed where pavement has been removed in South A Street to install the water services. Permanent pavement will be installed with the street improvements for the campus, which will improve the north side of South A Street from Mariposa Avenue to North Tozier Avenue. Water meters and backflow prevention devices will be installed for the domestic and irrigation water services. The fire service will be installed with backflow prevention and a fire detection check valve.

The water system that serves the Project site is fully developed. Wells 17, 31, and 34 are in service and are connected to the water main distribution grid system. The water main distribution grid system

consisting of 12-inch diameter pipelines is in place and is available to provide service to the site. The system will provide a minimum pressure of 35 pounds per square inch (psi) during peak hour demand and a normal minimum pressure of 40 psi (Akel Engineering Group, Inc 2014W).

The system is capable of meeting fire flow demands for the Project area in its current planned land use configuration of Medium Density Residential, which is 1500 gpm for two hours (Akel Engineering Group, Inc 2014W). Institutional fire flow rates are listed in the City of Madera Water Master Plan as 2500 gpm for three hours (Akel Engineering Group, Inc 2014W). The water supply to meet fire flow demands is provided within the City's infrastructure by a one million gallon tank and Well No. 26 (Akel Engineering Group, Inc 2014W). Modeling of the transmission system should be performed to verify that the system can provide the higher file flows at the minimum required pressure of 20 psi.

The Project will have an estimated domestic water demand of 2279 gallons per day/acre based on 850 students, a Project area of 14.25 acres, and the typical water demand per student of 38.2 gallons/day. Typical staff uses are included in the per student demand (Gleick, et al. 2003). The Water Master Plan assigned the Project site a land use designation of medium density residential, which has an average daily water demand rate of 2850 gallons/acre (Akel Engineering Group, Inc 2014W). The water system modeling for the Water Master Plan determiend that the existing water distribution system that services the Project is able to meet the demands during the peak hour and peak daily plus fire flow.

The development of this Project will replace 14.25 acres of Thompson seedless grapes with an elementary school campus. Thompson seedless grapes have an estimated water use of use of 8.3 acre feet per year (Williams, et al. 2003). The Project has an estimated water use of 3.3 acre feet per year (Briley 2015). The Project water use, while still a consumptive use which will contribute to the depletion of the groundwater supplies, will result in less depletion than the existing use and not exceed that of the planned use for the Project area. Therefore the Project impacts will not be significant. Cumulative impacts will occur that are unavoidable, but will be less than the impacts from the current use or the planned use of the Project site.

The Project should not require the construction of any additional water distribution, storage, or supply systems. The Project will construct service lines from the existing 12-inch diameter water main in South A Street to serve the Project. The Project will result in temporary impacts during the construction of the water services. These impacts could include disruptions to traffic, increased dust, increased sediments in rainfall runoff, and increased air emissions from construction equipment. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the Project site during the construction period will be covered by the General Construction Permit issued by the State of California Water Resources Control Board. A San Joaquin Valley Air Pollution District permit

and dust requirements will be adhered to during the construction period. Construction activities should not result in significant Project impacts or cumulative impacts to the environment.

Therefore, the proposed Project will not result in additional groundwater use that was not already accounted for by the City. As such, there is ***a less than significant impact*** to this impact area.

Mitigation Measures: None are required.

e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. See Responses a. and b. The proposed Project will not result in additional production of wastewater that would necessitate expansion of the City's WWTP. There is ***a less than significant impact.***

Mitigation Measures: None are required.

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

Less than Significant Impact. Proposed Project construction and operation will generate solid waste. Solid waste from the site during operation, as well as any construction debris that is not recycled will likely be received at the Fairmead Landfill at 21739 Road 19 in Chowchilla, CA. The Landfill is operated by Caglia Environmental and is the landfill that is used by the City of Madera for their municipal waste. Based on information provided on their website (www.cagliaenvironmental.com), the site has sufficient capacity to serve the site and the area for decades to come. Any impacts will be ***less than significant.***

Mitigation Measures: None are required.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

Less than Significant Impact. See Response f, above. The proposed Project will comply with all federal, state and local statutes and regulations related to solid waste. As such, any impacts would be ***less than significant.***

Mitigation Measures: None are required.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

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

RESPONSES

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the proposed Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Mitigation measures have been incorporated in the Project design to reduce all potentially significant impacts to ***less than significant***.

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

Less than Significant Impact. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc). The impact is ***less than significant***.

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

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the Project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the Project design to reduce all potentially significant impacts to ***less than significant.***

Chapter 4

MMRP

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Madera Unified School District Road 28 Elementary School Project. The MMRP lists mitigation measures recommended in the IS/MND for the proposed Project and identifies monitoring and reporting requirements as well as conditions recommended by responsible agencies who commented on the project.

The first column of the Table identifies the mitigation measure. The second column, entitled "Party Responsible for Implementing Mitigation," names the party responsible for carrying out the required action. The third column, "Implementation Timing," identifies the time the mitigation measure should be initiated. The fourth column, "Party Responsible for Monitoring," names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last column will be used by MUSD to ensure that individual mitigation measures have been monitored.

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
BIO-1 A preconstruction nesting bird survey is recommended if construction activities will take place between February 1st and August 1st. The survey should follow the Swainson's Hawk Technical Advisory Committees May 31, 2000 Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. If nesting Swainson's Hawk is observed within the one-half mile buffer area, consultation with CDFW should be sought.	MUSD	Prior to Construction	MUSD	
CUL-1 The following measures shall be implemented: • Before initiation of construction or ground-disturbing activities associated with the Project, MUSD shall require all construction personnel to be alerted to the possibility of buried cultural resources, including historic, archeological and paleontological resources; • The general contractor and its supervisory staff shall be responsible for monitoring the construction Project for disturbance of cultural resources; and • If a potentially significant historical, archaeological, or paleontological resource, such as structural features, unusual	MUSD	Prior to and during construction	MUSD	

	Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
	amounts of bone or shell, artifacts, human remains, or architectural remains or trash deposits are encountered during subsurface construction activities (i.e., trenching, grading), all construction activities within a 100-foot radius of the identified potential resource shall cease until a qualified archaeologist evaluates the item for its significance and records the item on the appropriate State Department of Parks and Recreation (DPR) forms. The archaeologist shall determine whether the item requires further study. If, after the qualified archaeologist conducts appropriate technical analyses, the item is determined to be significant under California Environmental Quality Act, the archaeologist shall recommend feasible mitigation measures, which may include avoidance, preservation in place or other appropriate measure, as outlined in Public Resources Code section 21083.2. MUSD shall implement said measures.				
CUL-2	MUSD will incorporate into the construction contract(s) a provision that in the event a fossil or	MUSD	Prior to and during construction	MUSD	

	Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
	fossil formations are discovered during any subsurface construction activities for the proposed Project (i.e., trenching, grading), all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the appropriate representative at MUSD, who shall coordinate with the paleontologist as to any necessary investigation of the find. If the find is determined to be significant under CEQA, MUSD shall implement those measures, which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code section 21083.2.				
HYD-1	The increase in runoff volume will be mitigated through the excavation of additional volume within the Knox basin to increase the storage volume to 20.73 acre-feet. Storage of the increased runoff in the Knox basin will allow the runoff that did not percolate into the groundwater at the site to do so in the basin. The Project will mitigate the increase in runoff discharge rate from the site at South A Street. At the time of development, a Project storm drainage report will be prepared which will determine the peak runoff rates from the Project site and the	MUSD	Prior to construction	MUSD	

	Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
	remaining 4.31 acres to the north at planned land uses. It will also determine the size of storm drain pipeline required to convey the runoff discharge rates from the Project site and the remaining 4.31 acres to the north to the Knox Basin while conforming to the City of Madera storm drainage design requirements. The report will be submitted to the City of Madera for review, comment, and approval. The Project will construct a storm drainage pipeline from South A Street to the north property line of the Project site through a dedicated storm drainage easement. This will provide drainage service to the remaining 4.31 acres to the north that meets the requirements of the storm drainage report.				
NO-1	Construction activities shall be limited to between 6:00 A.M. and 9:00 P.M. Monday through Friday and between 7:00 A.M. and 5:00 PM on Saturday or Sunday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on holidays (President's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving, Day after Thanksgiving, Christmas Day, and New Year's Day).	MUSD	During construction	MUSD	
NO-2	The construction contract shall require the construction contractor to ensure that construction equipment noise is minimized by muffling and shielding intakes and exhaust on construction equipment (in accordance with the manufacturer's				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
specifications) and by shrouding or shielding impact tools.				

Impact TR-1 At the intersection of Lake Street and Sunrise Avenue the Project would contribute to a decrease in the LOS from B in the existing condition to E in 2035 during the a.m. peak hour. Mitigation Measure TR-1: Peak-hour traffic signal warrants are not expected to be satisfied based on the projected traffic volumes. In addition, all-way stop control is not expected to mitigate the future LOS D. Widening of Sunrise Avenue to provide four lanes is also not expected to be feasible based on the proximity of existing buildings to the existing roadway along Sunrise Avenue and the continuation to 9th Street. Therefore, to address the Project impact it is recommended that traffic signals be planned at the intersection of Lake Street and Tozer Street and installed if warranted based on observed traffic volumes in the future. With implementation of these improvements the intersection would operate at LOS B during the a.m. and p.m. Project peak hours. The Project is responsible only for its fair share of the ultimate mitigation. It should be noted that the ultimate design of the intersection should consider the p.m. peak hour between approximately 4:00 p.m. and 6:00 p.m., which was beyond the scope of this study. Impact TR-2 At the intersection of Tozer Street and Sunrise Avenue the Project would contribute to a decrease	MUSD	On-going	MUSD	

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
in the LOS from C in the existing condition to F in 2035 during the a.m. and p.m. peak hours. Mitigation Measure TR- 2 Peak-hour traffic signal warrants are expected to be satisfied based on the projected 2035 traffic volumes. It is recommended that traffic signals be installed at the intersection of Tozer Street and Sunrise Avenue in the future. Protected left-turn phasing is recommended, which requires dedicated left-turn lanes on all approaches. The length of the left-turn lanes should be per City of Madera standards and should be long enough to accommodate the queue lengths presented in Table 10 of this report. In addition, a dedicated right-turn lane is recommended on all four approaches to the intersection. Future signalization should include construction of crosswalks, curb ramps, and sidewalks connecting to existing sidewalks on Sunrise Avenue and to the proposed school. With implementation of these improvements the intersection would operate at LOS C during the a.m. and p.m. Project peak hours. The Project is responsible only for its fair share of the ultimate mitigation. It should be noted that the ultimate design of the intersection should consider the p.m.				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
peak hour between approximately 4:00 p.m. and 6:00 p.m., which was beyond the scope of this study. Impact TR-3 At the intersection of Lilly Street and the Sunrise Avenue the Project would contribute to a decrease in the LOS from C in the existing condition to F in 2035 during the a.m. peak hour and from C in the existing condition to D in 2035 during the p.m. peak hour. Mitigation Measure TR-3 City staff has indicated that the intersection of Lilly Street and the Sunrise Avenue is not a candidate for signalization or all-way stop control based on the spacing between major intersections. The recommended mitigation for substandard levels of service for intersections along Sunrise Avenue between Tozer Street and Lake Street is signalization of the intersection of Knox Avenue and Sunrise Avenue. There is a high degree of connectivity between streets on both sides of Sunrise Avenue that will allow traffic to redistribute to the future traffic signals.				

Chapter 5

Preparers and References

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Appendices

Appendix A

LESA



AGRICULTURAL LAND CONVERSION STUDY

Road 28 New Elementary School

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April 2015

TABLE OF CONTENTS

ACRONYMS 0

SECTION ONE – INTRODUCTION 1

1.1 Purpose and Analysis Methods 1

1.2 Proposed Project Location 3

SECTION TWO – REGULATORY SETTING 5

2.1 Federal 5

2.2 State of California 5

2.3 Madera County 9

SECTION THREE – ENVIRONMENTAL SETTING 10

3.1 State of California 10

3.2 Madera County 12

3.3 Proposed Project Site 15

3.3.1 Agricultural Crops and Yields 15

3.3.2 Land Classifications 16

3.3.3 Soil Suitability 16

3.3.4 Williamson Act Contracts 18

3.3.5 Water 18

3.3.6 Climate 19

SECTION FOUR – FARMLAND CONVERSION 20

4.1 Methodology 20

4.1.1 Land Evaluation and Site Assessment 20

SECTION FIVE – IMPACT ANALYSIS 25

5.1 Farmland Conversion 25

5.2 Zoning or Williamson Act Contract Conflicts 25

5.3 Loss or Conversion of Forest Land 25

5.4 Other Conversion Factors 26

5.5 Cumulative Impacts 26

ACRONYMS

AB	Assembly Bill
APN	Assessor's Parcel Number
CDFA	California Department of Food and Agriculture
CEQA	California Environmental Quality Act
DOC	California Department of Conservation
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
IFM	Important Farmland Maps
LCC	Land Capability Classification System
LESA	Land Evaluation and Site Assessment
MSL	Mean Sea Level
NRCS	Natural Resources Conservation Service
PRC	Public Resources Code
SCE	Southern California Edison
SUP	Special Use Permit
UDB	Urban Development Boundary
USDA	United States Department of Agriculture
WRCC	Western Regional Climate Center
ZOI	Zone of Influence

SECTION ONE – INTRODUCTION

Agriculture in the United States has been historically afflicted with many challenges such as weather, pests, and disease, as well as fluctuating markets, the need for capital investments, and rapidly advancing technology. In recent decades, however, the pressures for growth have led to the significant conversion of farmland to non-farm use. Clearly, the loss of farmland resources and subsequent land use conflicts that have arisen as a result of non-farm growth have been a legitimate cause for concern. The loss of agricultural lands affects many local economies, threatens the way of life for many farmers, and calls into question the ability of this rapidly-developing world to provide food for this population growth. These challenges, among others, are facing Madera County, which is located in the San Joaquin Valley, California's top agricultural producing region[1].

The study area includes the portions of Madera County that will likely face the most intense growth pressures related to urbanization. While the San Joaquin Valley is an important producer of agricultural products worldwide, it is also one of the areas of California that is projected to bear massive future growth as the State's population is expected to reach 50 million by 2050[2]. Growth within the San Joaquin's farming counties is caused by growth restrictions and excessive cost of housing in coastal and urban counties, and relatively inexpensive land sold by willing farmers. Due to these factors, land use regulating agencies across the Valley must act to manage future urban growth while preserving important agricultural lands for future use.

1.1 Purpose and Analysis Methods

This document is an Agricultural Land Conversion Study (Study) for the construction and operation of a new K-6 School Site in Madera Unified School District (Project). The new school will house approximately 875 students and associated staff on approximately 19 acres of land immediately east of the City of Madera, in western Madera County, California. The site is currently zoned I-A (Institution Area) as of July 4, 2014. The site previously had a agricultural

[1] United States Environmental Protection Agency, Pacific Southwest, Region 9 Strategic Plan, 2011-2014. http://www.epa.gov/region9/strategicplan/sanjoaquin.html. Accessed November, 2014.
[2] California Department of Finance, Press Release – New Population Projections: California To Surpass 50 Million In 2049. http://www.dof.ca.gov/research/demographic/reports/projections/p-1/documents/Projections_Press_Release_2010-2060.pdf. Accessed November, 2014.

designation. Projects involving changes in land use sometimes convert agricultural lands to non-agricultural uses. Conserving productive agricultural land requires a project-specific evaluation of the direct and indirect effects, as well as the cumulative effects of the agricultural land conversion. This Study provides a checklist of items that should be considered by those analyzing the proposed Project site. In order to analyze the proposed Project's potential impact to agricultural lands, this Study utilized factors identified in the California Department of Conservation's California Agricultural Land Evaluation and Site Assessment (LESA) Model (see Appendix B).

Madera Unified School District, as a Lead Agency bases a determination of agricultural resources significance on the thresholds established by the California Environmental Quality Act (CEQA) Guidelines. The Environmental Checklist Form of the CEQA Guidelines contains a list of impacts that may be deemed potentially significant. The Lead Agency should address questions from this checklist that are relevant to a project's environmental effects. The following significance thresholds are contained in Appendix G of the CEQA Guidelines.

Agricultural Resources *– In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agricultural and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:*

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

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

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

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

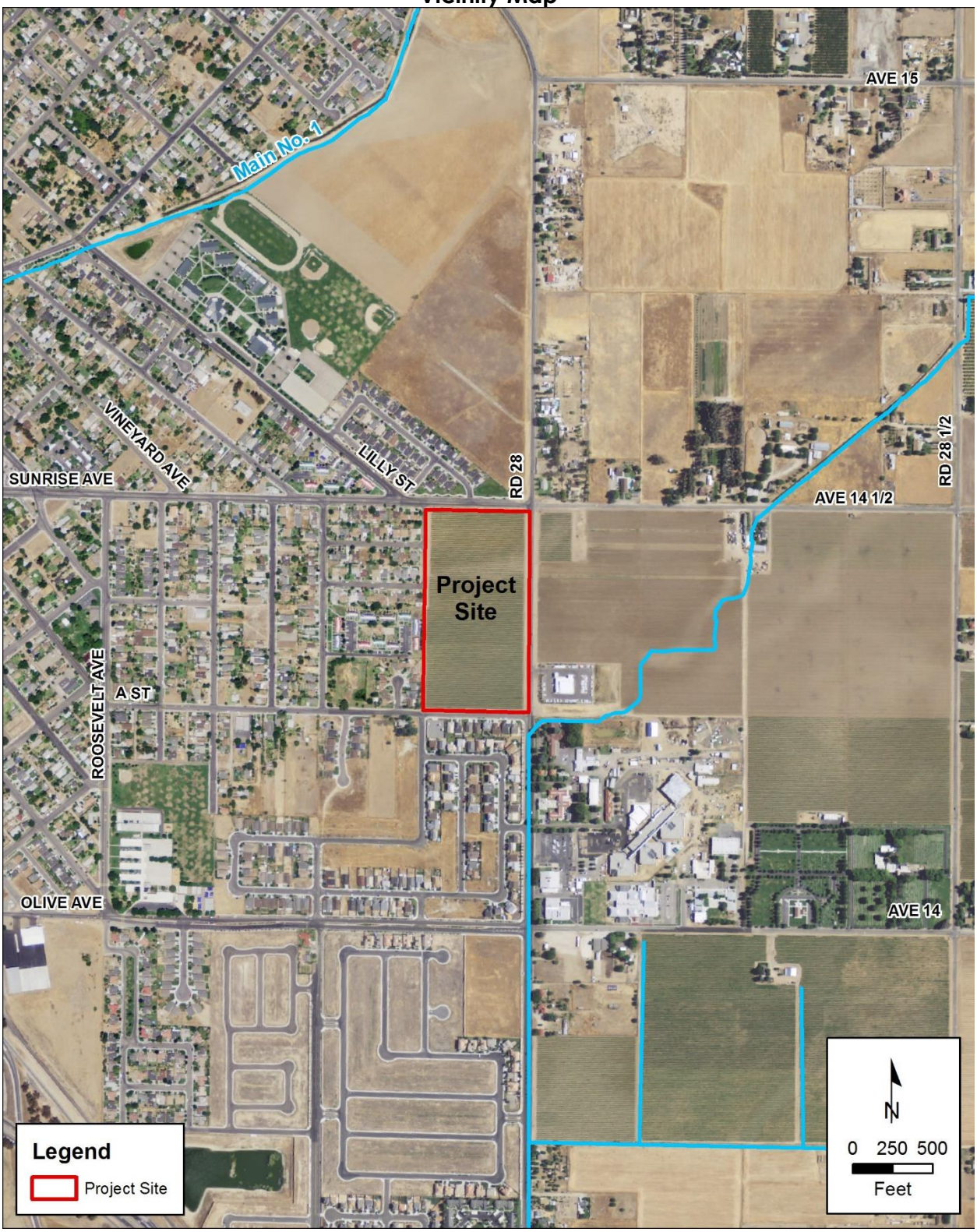
e) *Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?*

This study was conducted in the context of CEQA (California Public Resources Code Sections 21000 et seq.).

1.2 Proposed Project Location

The proposed Project will be located at the southwest corner of Sunrise Avenue and Road 28, immediately east of the City of Madera. Specifically, the proposed Project will be located on Assessor Parcel Number (APN) 035-221-001 with a physical address of 14450 Road 28, and is within an unincorporated area of Madera County, California (See Figure 1). The parcel is located within the southwestern quarter of Section 19, Township 11S, and Range 18E MDB&M, and is within the Madera 7.5 Minute USGS Quadrangle. The City of Madera is located immediately adjacent to the west and the Fresno County northern boundary is located approximately nine miles to the south. Two state highways provide regional access to the proposed Project site: State Route 99, located approximately 1.2 miles west of the site, and State Route 145, approximately 1.2 miles north of the site. The area to the east surrounding the proposed Project site consists largely of rural agricultural land and homesteads, while the surrounding land to the north, west and south consists of the City of Madera.

Figure 1
Vicinity Map



SECTION TWO – REGULATORY SETTING

2.1 Federal

Farmland Protection Policy Act (7 USC 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs Federal programs to be compatible with State and local policies for the protection of farmlands. Congress passed the Agriculture and Food Act of 1981 (Public Law 97–98) containing the FPPA—Subtitle I of Title XV, Sections 1539–1549. The final rules and regulations were published in the Federal Register on June 17, 1994.

The FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, Federal programs are administered to be compatible with State, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. The FPPA does not authorize the Federal Government to regulate the use of private or non-Federal land or, in any way, affect the property rights of owners.

For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of Statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forestland, pastureland, cropland, or other land, but not water or urban built-up land.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a Federal agency or with assistance from a Federal agency.[3]

2.2 State of California

California Department of Conservation, Division of Land Resource Protection

[3] USDA Natural Resources Conservation Service. Farmland Protection Policy Act. http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/. Accessed November, 2014.

The California Department of Conservation (DOC) applies the Natural Resources Conservation Service (NRCS) soil classifications to identify agricultural lands. Pursuant to the DOC's Farmland Mapping and Monitoring Program (FMMP), these designated agricultural lands are included in the Important Farmland Maps (IFM) used in planning for the present and future of California's agricultural land resources. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a description of all the categories mapped by the FMMP[4].

- **Prime Farmland**. Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Farmland of Statewide Importance**. Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Unique Farmland**. Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

- **Farmland of Local Importance**. Lands that produce dryland grains (barley and wheat); lands that have physical characteristics that would qualify for "Prime" or "Statewide Important" farmlands except for the lack of irrigation water; and lands that currently support confined livestock, poultry, and/or aquaculture operations.

- **Grazing Land**. Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association,

[4] California Department of Conservation Division of Land Resource Protection. A Guide to the Farmland Mapping and Monitoring Program, 2004 Edition. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp_guide_2004.pdf. Accessed November, 2014.

University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- **Urban and Built-up Land**. Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land**. Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Sections 51200–51297.4, and therefore is applicable only to specific land parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. However, an agricultural preserve must consist of no less than 100 acres. In order to meet this requirement, two or more parcels may be combined if they are contiguous, or if they are in common ownership.

The Williamson Act program is administered by the DOC, in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in

the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners.

As defined by the Williamson Act, prime agricultural land includes: (1) Class I and II soils as classified by the NRCS; (2) land that qualifies for rating 80 through 100 in the Storie Index Rating by the University of California, Division of Agricultural Sciences; (3) land that supports livestock used for the production of food and fiber and with at least one animal unit per acre; 4) land planted with fruit or nut-bearing crops that yield not less than $200 per acre annually during commercial bearing periods; or (5) land that has returned from the production of unprocessed agricultural plant products and annual gross value of not less than $200 per acre for three of the previous five years[5].

The Williamson Act states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit. California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also Section 51238 states that board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with Section 51238.1. Further, California Government Code Section 51238.1 allows a board or council to allow as compatible any use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves.
- The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.

[5] Government Code, Section 51201(c)(1)-(5)).

- The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses.

Public Resources Code Section 21060.1

The Public Resource Code (PRC) Section 21060.1 defines agricultural land for the purposes of assessing environmental impacts using the FMMP. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California.

2.3 Madera County

Madera County General Plan

The Madera County General Plan Policy Document (adopted October 24, 1995) has policies that apply to projects within Madera County that serve to protect farmland. General Plan policies that are generally applicable to the proposed Project are listed below:

5.A.1: The County shall maintain agriculturally-designated areas for agricultural uses and direct urban uses to designated new growth areas, existing communities, and/or cities.

5.A.2: The County shall discourage the conversion of prime agricultural land to urban uses unless an immediate and clear need can be demonstrated that indicates a lack of land for non-agricultural uses.

5.A.3: The County shall seek to ensure that new development and public works projects do not encourage further expansion of urban uses into designated agricultural areas.

5.A.5: The County shall allow the conversion of existing agricultural land to urban uses only within designated urban and rural residential areas, new growth areas, and within city spheres of influence where designated for urban development on the General Plan *Land Use Diagram.*

5.A.13: The County shall require development within or adjacent to designated agricultural areas to incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.

5.A.14: The County shall continue to enforce the provisions of its *Right-to-Farm Ordinance* and of the existing state nuisance law.

SECTION THREE – ENVIRONMENTAL SETTING

3.1 State of California

State of California Agricultural Production

The sales value generated by California agriculture increased by 3.2% between the 2011 and 2012 crop years. The State's 80,500 farms and ranches received a record $44.7 billion for their output, up from the $43.3 billion received in 2011. California's increase in revenue was led by the grape industry, followed by the cattle sector and almond production, respectively[6].

Grape production generated $4.45 billion in cash receipts in 2012, up 15% from the previous record high received in 2011. Production was virtually the same, but prices received by growers increased from $578 per ton of grapes in 2011 to $666 per ton in 2012. Revenue generated from the cattle sector improved to a record high for the third year in a row as cash receipts were nearly $3.3 billion for the crop year. Receipts increased nearly 17% from 2011 despite production increasing by only 5%. Almond cash receipts increased for the third year in a row despite decreased production. Cash receipts increased 8.5% due to a rise in prices from $1.99 per pound of almonds in 2011 to $2.20 per pound in 2012[7].

The dairy industry, California's leading commodity in cash receipts, generated $6.9 billion for milk production in 2012, down 10% from the record production of 2011. Milk production

[6] United States Department of Agriculture. California Agricultural Statistics, 2012 Crop Year. http://www.nass.usda.gov/Statistics_by_State/California/Publications/California_Ag_Statistics/Reports/2012cas-all.pdf. Accessed November, 2014.
[7] Ibid.

increased less than one percent, but a drop in prices resulted in an overall reduction in cash receipts for the crop year. Milk prices received by producers fell from $18.54 per hundred pounds of milk sold in 2011 to $16.52 in 2012. As the leading dairy producing state in the country, California produced nearly 21% of the nation's supply in 2012[8].

State of California Farmland Conversion

Of California's approximately 100 million acres of land, 43 million acres are used for agriculture. Of this, 16 million acres are grazing land and 27 million acres are cropland. Only about nine million acres of irrigated land are considered to be Prime, Unique or of Statewide Importance.[9]

Irrigated farmland in California decreased by nearly 263 square miles (168,039 acres) between 2008 and 2010, as documented by the FMMP.[10] Prime Farmland comprised 61% of the loss at 102,554 acres. Urban development, which totaled 44,504 acres, decreased by 39% relative to the 2006-2008 period. The 2010 urban land increase was the lowest recorded in the FMMPs history, which likely reflects the recent recession.[11] While urbanization is an important component of agricultural land conversion, economic and resource availability factors also lead to more intensive farming or cessation of land from irrigated uses.

Land was removed from irrigated categories – to uses aside from urban – at a rate of three percent lower than the prior Conversion Report (260,412 acres in 2008 and 252,473 acres in 2010). Land idling and reversion to dry farming were responsible for more than 84% of this type of conversion. The remaining 16% were conversions to Other Land, which includes miscellaneous uses such as wetland restoration, aggregate mining, abandoned development projects, and rural residences.[12]

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[8] Ibid.
[9] California Department of Food and Agriculture. AgVision 2030 White Paper. Agricultural Land Loss & Conversion. July 2009. http://www.cdfa.ca.gov/agvision/docs/Agricultural_Loss_and_Conservation.pdf. Accessed November, 2014.
[10] California Department of Conservation, Division of Land Resource Protection. Farmland Mapping and Monitoring Program California Farmland Conversion Report 2008-2010. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2008-2010/fcr/FCR%200810%20complete.pdf. Accessed November, 2014.
[11] Ibid.
[12] California Department of Conservation, Division of Land Resource Protection. Farmland Mapping and Monitoring Program California Farmland Conversion Report 2008-2010.

3.2 Madera County

Madera County Agricultural Production

Agricultural products are one of Madera County's most important resources. As seen in Table 1, between 2010 and 2013 gross agricultural production values for Madera County increased steadily.

Table 1
Madera County Agricultural Production Values (2010[13] and 2013[14])

Commodity Type	2010 Gross Production Value ($)	2013 Gross Production Value ($)	$ Net Change (2010-2013)
Almonds, Nuts & Hulls	270,916,000	623,483,000	352,567,000
Grapes	232,740,000	373,835,000	141,095,000
Milk	236,610,000	323,112,000	86,502,000
Pistachios	239,702,000	161,853,000	-77,849,000
Cattle & Calves	43,586,000	55,210,000	11,624,000
Replacement Heifers	38,252,000	38,740,000	488,000
Pollination	26,410,000	31,714,000	5,304,000
Alfalfa, Hay & Silage	25,534,000	29,283,000	3,749,000
Corn, Grain & Silage	18,374,000	29,035,000	10,661,000
Total	**1,132,124,000**	**1,666,265,000**	**534,141,000**

Similar to the gross production values demonstrated in Table 3.1, although not as pronounced, overall numbers of harvested acreage have increased approximately six percent, from 2010 to 2013, as seen in Table 2.

http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2008-2010/fcr/FCR%200810%20complete.pdf. Accessed November, 2014.

[13] Madera County Agricultural Crop Report 2010.

[14] Madera County Agricultural Crop Report 2013.

Table 2
Madera County Harvested Acreage (2010[15] and 2013[16])

Commodity Type	2010 Harvested Acreage	2013 Harvested Acreage
Field Crop Acreage	105,400	79,170
Fruit and Nut Acreage	199,970	224,410
Nursery Acreage	840	320
Vegetable Acreage	4,720	6,400
Rangeland Acreage	353,000	392,900
Total	**663,930**	**703,200**

Madera County agricultural crops and commodities vary annually on their individual rankings based on the amount of acreage dedicated to each commodity. Table 3 identifies the ranking for the top 10 commodities during years 2000, 2005, 2010 and 2013. According to County records, and as depicted below, almonds, nuts & hulls have consistently ranked in the top three commodities over the past 14 years, while grapes, milk, pistachios, cattle & calves, replacement heifers, alfalfa & silage, and poultry have consistently been ranked within the top ten agricultural commodities, even though their individual rankings have varied from year to year.

Table 3
Madera County Agricultural Commodity Values and Rankings

Commodity Type	2013 Value ($)[17]	2013 Rank[18]	2010 Rank[19]	2005 Rank[20]	2000 Rank[21]
Almonds, Nuts & Hulls	623,483,000	1	1	1	3
Grapes	373,835,000	2	4	2	1
Milk	323,112,000	3	3	3	2
Pistachios	161,853,000	4	2	4	5

[15] Madera County Agricultural Crop Report 2010.
[16] Madera County Agricultural Crop Report 2013.
[17] Ibid.
[18] Ibid.
[19] Madera County Agricultural Crop Report 2010.
[20] Madera County Agricultural Crop Report 2005.
[21] Madera County Agricultural Crop Report 2001.

Cattle & Calves	55,210,000	5	5	7	9
Replacement Heifers	38,740,000	6	6	5	4
Pollination	31,714,000	7	7	-	-
Alfalfa, Hay & Silage	29,283,000	8	8	6	6
Corn, Grain & Silage	29,035,000	9	-	-	-
Poultry	20,985,000	10	10	9	10

Madera County Farmland Conversion

In line with the State of California, Madera County has also seen a decrease in FMMP-designated Prime Farmland, with the total inventoried Prime Farmland land down over six percent, as seen in Table 4; however, important farmland (Prime Farmland, Farmland of Statewide Importance and Unique Farmland) as a whole has increased by almost 2.5 percent.[22] Unlike the State of California average, which has steadily declined; total farmland in Madera County has actually increased by just under nine percent, from 1990 to 2010, as seen in Table 4.

Table 4
Madera County FMMP-Designated Land (1990-2010)

Farmland Category	1990[23]	2008[24]	2010[25]
Prime Farmland	103,799	97,491	97,095
Farmland of Statewide Importance	86,397	85,136	84,755

[22] California Department of Conservation, Division of Land Resource Protection. Farmland Mapping and Monitoring Program California Farmland Conversion Report 2008-2010. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2008-2010/fcr/FCR%200810%20complete.pdf. Accessed November, 2014.
[23] Madera County General Plan Background Document. Adopted October 25, 1995. Table 6-1.
[24] California Department of Conservation, Division of Land Resource Protection. Farmland Mapping and Monitoring Program California Farmland Conversion Report 2008-2010. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2008-2010/fcr/FCR%200810%20complete.pdf. Accessed November, 2014.
[25] Ibid.

Unique Farmland	156,347	163,973	165,931
Important Farmland Subtotal	**356,543**	**346,600**	**347,781**
Farmland of Local Importance	39,542	16,143	13,801
Grazing Land	404,199	399,501	400,604
Total	700,284	762,501	762,186

3.3 Proposed Project Site

The 19-acre proposed Project site is currently approximately 19 acres of actively farmed grape vineyards (raisin variety).

3.3.1 Agricultural Crops and Yields

According to a Phase I Environmental Site Assessment, prepared on November 6, 2014, by Krazan & Associates, Inc., the site has been utilized for agricultural purposes from 1946 to the present. Most recently, the site has been actively farmed with grapes. Grapes are ranked number two among the top 10 crops grown in Madera County for the year 2013 with a value of $373,835,000. The Madera County 2013 Crop Report indicates an acre produced a yield of 3.14 tons with a crop value of $1,654 per ton.

The Project site yields and total value for grape vineyards are provided in Table 5.

Table 5
Project Site Crop Yield[26]

Crops	Bearing Acreage	Per Acre Yield/Ton	Total Tons	Unit Value per Ton ($)	Total Value ($)
Grapes (dried raisins)	19	3.14	59.66	1,654	98,678

[26] Madera County Agricultural Crop Report 2013.

3.3.2 Land Classifications

According to the FMMP, the proposed Project site is mapped as containing 12.6 acres of Prime Farmland, 4.3 acres of Unique Farmland, and 1.8 acres of Farmland of Statewide Importance.[27]

3.3.3 Soil Suitability

Soils

The proposed Project site is composed of three different soil types, as seen in Table 6.

Table 6
Site Soils[28]

Soil Type	Site acres (percent of site)	Soil Characteristics
Borden loam, 0-1 % slopes	12.6 (67%)	Alluvium derived from granite and over stratified alluvium derived from granite. Well drained with no frequency of ponding or flooding.
San Joaquin sandy loams, 0-3% slopes	4.3 (23.2%)	Alluvium derived from granite, moderately well drained with no frequency of ponding or flooding.
Tujunga loamy sand, 0-3% slopes	1.8 (9.8%)	Sandy alluvium derived from granite, somewhat excessively drained with occasional flooding but no ponding occurrences.

Land Capability Classification

The Land Capability Classification System is used by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) to determine a soil's agricultural productivity. The Land Capability Classification indicates the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils

[27] United States Department of Agriculture, NRCS, Web Soil Survey: USDA Soil Survey of Madera Area, Accessed November 2014. Attachment A
[28] United States Department of Agriculture, NRCS, Web Soil Survey: USDA Soil Survey of Madera Area, Accessed November 2014. Attachment A

are grouped according to their limitations for field crops, the risk of damage if they are used for crops and the way they respond to management. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating (Class I). The "prime" soil classification indicates the absence of soil limitations, which if present, would require the application of management techniques (e.g., drainage, leeching, special fertilizing practices) to enhance production. A general description of soil classifications, as defined by NRCS, is provided in Table 7 and the site-specific soil classifications can be seen in Table 8.

Table 7
Land Capability Classification[29]

Soil Classification	Description
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants, or that require special conservation practices.
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations; impractical to remove soils that limit their use largely to pastures or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife habitat, or water supply, or to aesthetic purposes.

Storie Index

The Storie Index is a soil rating based on soil properties that govern a soil's potential for cultivated agriculture in California. Four factors that represent the inherent characteristics and qualities of the soil are considered in the index rating: profile characteristics, texture of the

[29] United States Department of Agriculture, NRCS, Web Soil Survey: USDA Soil Survey of Madera Area, Accessed November 2014. Attachment A

surface layer, slope, and other factors (e.g., drainage, salinity). A score ranging from 0 to 100 percent is determined for each factor, and the scores are then multiplied together to derive an index rating. Storie Index ratings have been combined into six grade classes as follows: Grade 1 (excellent), 100 to 80, Grade 2 (good), 79 to 60; Grade 3 (fair), 59 to 40; Grade 4 (poor), 30 to 20, Grade 5 (very poor), 19 to 10, and Grade 6 (nonagricultural), less than 10. The Storie index of the proposed Project site can be seen in Table 8.

Table 8
Site Ratings[30]

Soil Type	Site Acres (% of site)	Classification	Storie Index
Borden loam, 0-1 % slopes	12.6 (67%)	2- moderate limitations	1 (excellent)
San Joaquin sandy loams, 0-3% slopes	4.3 (23.2%)	4- very severe limitations	4 (poor)
Tujunga loamy sand, 0-3% slopes	1.8 (9.8%)	3- severe limitations	2 (good)

3.3.4 Williamson Act Contracts

As discussed in Section 2.1, the California Land Conservation Act, also known as the Williamson Act, is a voluntary program that allows agricultural property owners to have their property assessed on the basis of its agricultural production rather than at the current market value. The proposed Project site is under a Williamson Act Contract; however, non-renewal has been filed and the Contract will be terminated in 2015.

3.3.5 Water

The proposed Project lies within the San Joaquin River hydrological basin and is within the San Joaquin River Hydrologic Region Plan area. More than one-half of Madera County's water supply for agriculture, municipal, and domestic use is provided by groundwater.[31]Annual crop use per acre averages several times the amount of average precipitation and as such, agriculture

[30] United States Department of Agriculture, NRCS, Web Soil Survey: USDA Soil Survey of Madera Area, Accessed November 2014. Attachment A
[31] Madera County. AB3030 Groundwater Management Plan. January 2002. http://www.water.ca.gov/groundwater/docs/GWMP/SJ-5_MaderaCounty_GWMP_FinalDraft_2002.pdf. Accessed November, 2014.

depends heavily on groundwater and surface water irrigation during the growing season.[32] Site surface water is provided by Madera Irrigation District; however, during times of extreme drought, can become extremely unreliable.

According to water well measurements maintained by the California Department of Water Resources between the years 2000 and 2010, water surface elevations in the proposed Project area has ranged from 168.5 feet to 167.9 feet.[33]

3.3.6 Climate

The proposed Project site is located in the southern Central Valley of California; this area has the rainy winters and dry summers that are characteristic of a Mediterranean climate. The Central Valley has greater temperature extremes than the coastal areas because it is less affected by the moderating influence of the Pacific Ocean.

The area is semi-arid with mild winters and hot, dry summers. The Western Regional Climate Center (WRCC) provides quality climate data derived from stationary weather stations throughout the western United States. WRCC has developed a data set for monthly climate for the Madera area (1928 to 2013); this data set is based on weather readings taken from the Madera (045233) Station. The monthly average maximum is 98.2°F in July and the monthly average minimum is 35.9°F in January.[34] The average rainfall is approximately 10.99 inches per year, with the majority of rainfall occurring from November through April.[35]

[32] Madera County. AB3030 Groundwater Management Plan. January 2002. http://www.water.ca.gov/groundwater/docs/GWMP/SJ-5_MaderaCounty_GWMP_FinalDraft_2002.pdf. Accessed November, 2014.
[33] California Department of Water Resources, Water Data Library. http://www.water.ca.gov/waterdatalibrary/groundwater/hydrographs/brr_hydro.cfm?CFGRIDKEY=17514. Accessed November, 2014.
[34] Western Regional Climate Center. Period of Record Monthly Climate Summary, Madera, California. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5233. Accessed November, 2014.
[35] Ibid.

SECTION FOUR – FARMLAND CONVERSION

4.1 Methodology

This study follows the California Land Evaluation Site Assessment Model to assess the proposed Project's potential impacts to agricultural lands.

4.1.1 Land Evaluation and Site Assessment

The California Land Evaluation and Site Assessment Model (LESA) provides guidelines for rating the relative quality of land resources based on specific measurable features. It is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process."[36] It is designed to make determinations of the potential significance of a project's conversion of agricultural lands.

The LESA is composed of six different factors, which are divided into two sets: Land Evaluation and Site Assessment factors. Two Land Evaluation factors (Land Capability Classification Rating and Storie Index Rating) are based upon measures of soil resources quality and intended to measure the inherent, soil-based qualities of land as they relate to agricultural suitability. Four Site Assessment factors (Project Size Rating, Water Resource Availability Rating, Surrounding Agricultural Lands Rating, and Surrounding Protected Resource Lands Rating) are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land.

The two sets of factors are evenly weighted, meaning the two Land Evaluation factors and four Site Assessment factors are of equal importance; however, for a given project, each of these six factors is separately rated in a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. This final project score becomes the basis for making a determination of the potential impacts' level of significance for the project, based upon a range of established scoring thresholds.

[36] Public Resources Code Section 21095

Land Evaluation Factors

The LESA includes two Land Evaluation factors, discussed below, that are separately rated.

The Land Capability Classification Rating (LCC): The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops and the risk of damage to soils when used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating (Class I). Specific subclasses are also utilized to further characterize soils.

The Storie Index Rating: The Storie Index provides a numeric rating (based upon a zero to 100 scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are considered in the Storie Index rating: profile characteristics, texture of the surface layer, slope, and other factors such as drainage or salinity. In some situations, only the United States Department of Agriculture's LCC information may be available. In those cases, the Storie Index ratings can be calculated from information contained in soil surveys by qualified soil scientists; however, if limitation of time and/or resources restrict the derivation of the Storie Index rating for a given project, it may be possible to adapt the Land Evaluation by relying solely upon the LCC rating.

Site Assessment Factors

The four Site Assessment factors that are separately rated and included in the LESA as discussed below.

The Project Size Rating: The Project Size rating is based upon identifying acreage figures for three separate groupings of soil classes within the project site, and then determining what grouping generates the highest Project Size score. The Project Size Rating relies upon acreage figures that were tabulated under the Land Capability Classification Rating.

The Water Resources Availability Rating: The Water Resources Availability rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought.

The Surrounding Agricultural Land Rating: Determination of the Surrounding Agricultural Land rating is based upon identification of a project's Zone of Influence (ZOI), which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced by, the agricultural land use of the subject project site. The Surrounding

Agricultural Land rating is designed to provide a measurement of the level of agricultural land use for lands close to a given project. The LESA rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has relatively small percentage of surrounding land in agricultural production. The definition of the ZOI that accounts for surrounding lands (up to a minimum of 0.25 mile from the project boundary) is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use. Figure 2 shows the ZOI surrounding the proposed Project site and the FMMP classifications. There are 290.49 acres of land within the ZOI of the Project site; of those lands, 26.20 acres are Prime Farmland and 19.05 acres are under Williamson Act Contract. Approximately 178 acres are considered Urban and Built Up while 58 acres are considered Vacant or Disturbed Land. The remaining acres are designated as various types of farmland.

The Surrounding Protected Resource Land Rating: The Surrounding Protected Resource Land rating is essentially an extension of the Surrounding Agricultural Land rating, and it is scored in a similar manner. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as a park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban and industrial uses

Final LESA Scoring

A single LESA score is generated for a given project after all the individual Land Evaluation and Site Assessment factors have been scored and weighted. The LESA is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors and 50 percent is derived from the Site Assessment factors. The final LESA score was determined for the proposed Project and the modeling results are described in Table 8.

Figure 2
Project Zone of Influence

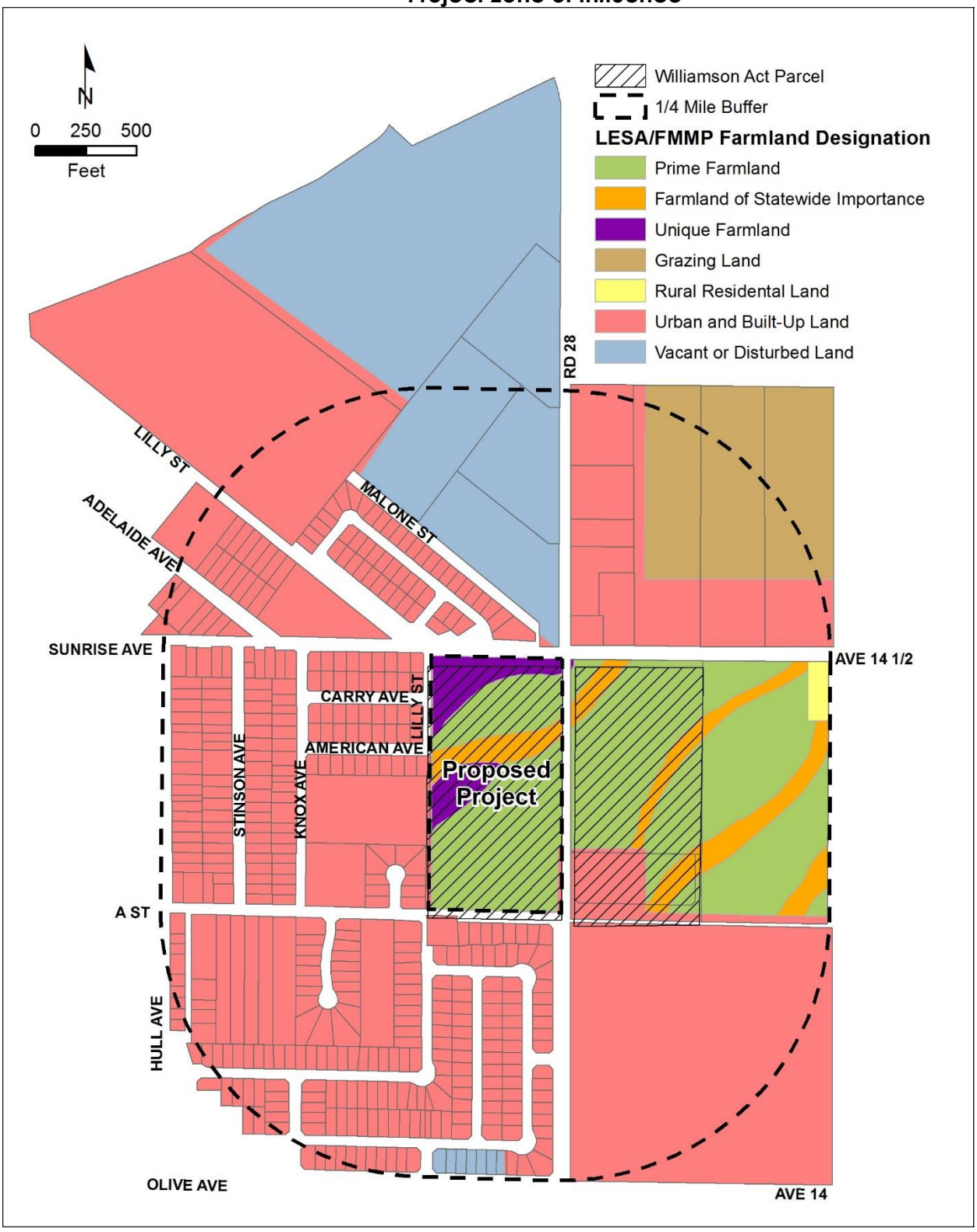


Table 8
Land Evaluation and Site Assessment Model Scoring Summary

Category	Factor	Raw Points	Factor Weight	Weighted Points	Comments
Land Evaluation	Land Capability Class	69.74	0.25	17.44	LCC is rated at a Class II, III & IV
	Storie Index	1.97	0.25	0.45	Storie Index is rated at a 1, 2 & 4
		Subtotal	**0.50**		
Site Assessment	Project Size	30	0.15	4.5	Project size is 18.8 acres
	Water Resource Availability	50	0.15	7.5	The site relies on surface water which is not guaranteed during a severe drought.
	Surrounding Agricultural Land	0	0.15	0	18% of the ZOI is in agricultural production.
	Surrounding Protected Resource Lands	0	0.05	0	There are three parcels of protected land immediately west of the site.
		Subtotal	**0.50**		
			Final Score		**29.89**

Thresholds of Significance

The LESA is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the CEQA process. Scoring thresholds are based upon both the total LESA score and the component Land Evaluation (LE) and Site Assessment (SA) separate subscores. In this manner, the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high LE score but a very low SA score, or vice-versa). The LESA scoring thresholds are described in Table 9 and the model worksheets can be seen in Attachment B.

Table 9
LESA Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 points	Not considered significant
40 to 59 points	Considered significant only if LE and SA subscores are each greater than or equal to 20
60 to 79 points	Considered significant unless either LE or SA subscore is less than 20
80 to 100 points	Considered significant

According to the LESA Threshold of Significance, the total score of 29.89 for the proposed Project site is considered less than significant.

SECTION FIVE – IMPACT ANALYSIS

5.1 Farmland Conversion

The proposed Project includes constructing and operating a K-6 elementary school on approximately 19 acres of land that is currently farmed. Of the 19 acres, 12.6 acres are designated as Prime Farmland, 4.3 as Unique Farmland, and 1.8 acres as Farmland of Statewide Importance. As such, a LESA, provided by the California Department of Conservation, was completed to quantify the significance of taking the 19 acres out of farmland production. The site scored a 29.89, which is well under the significance thresholds for farmland conversion. The low score is largely due to the urban and built up land within the City of Madera, immediately west of the proposed Project site. Any impacts would be less than significant.

Level of Significance: Less than Significant.

5.2 Zoning or Williamson Act Contract Conflicts

The proposed Project site is currently owned by Madera County and is under a Williamson Act Contract; however, non-renewal on the Contact was filed in 2005 and the Contract will expire in 2015. The proposed Project is also consistent with the I-A zoning and as such, any impacts resulting from land use conflicts will be less than significant.

Level of Significance: Less than Significant.

5.3 Loss or Conversion of Forest Land

This impact evaluates the potential for the proposed Project to conflict with existing Forest Land zoning or result in the loss of forest land or result in the conversion of forest land to non-forest use. There is no forest land zoning on the proposed Project site and there are no forest

uses on the site. No loss of forest land would occur and no conflicts would forest land zoning would occur. Therefore, no impacts would occur.

Level of Significance: No Impact.

5.4 Other Conversion Factors

As noted above, the proposed Project is not located within a forest land zone or would require the change of a forest land zone. As such, there would be no impact.

Level of Significance: No Impact.

5.5 Cumulative Impacts

No significant impacts to agricultural resources, including agricultural or forest conversion or conflicts with zoning or Williamson Act will occur as a result of Project implementation. As such, no cumulative impacts are anticipated to occur.

Level of Significance: No Impact.

Attachment A

NRCS Soil Report

United States Department of Agriculture

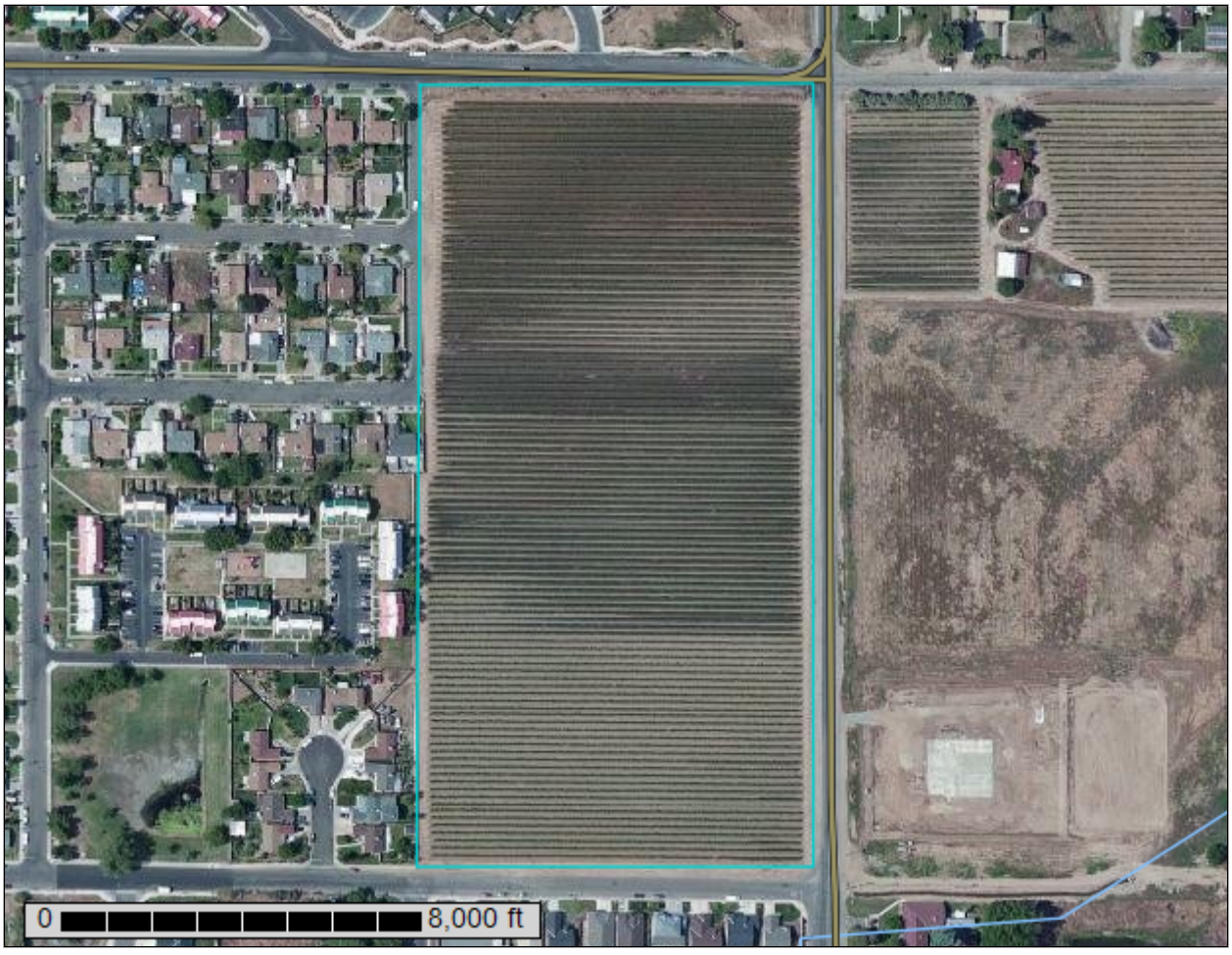
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Madera Area, California

New K-6 School Site



November 12, 2014

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....7
Soil Map.....8
Legend.....9
Map Unit Legend.....10
Map Unit Descriptions.....10
Madera Area, California.....12
BmA—Borden loam, 0 to 1 percent slopes.....12
SaA—San Joaquin sandy loams, 0 to 3 percent slopes.....13
TwA—Tujunga loamy sand, 0 to 3 percent slopes.....14
Soil Information for All Uses.....16
Suitabilities and Limitations for Use.....16
Land Classifications.....16
Farmland Classification.....16
Irrigated Capability Class.....20
References.....25

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madera Area, California
Survey Area Data: Version 8, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2010—Jul 3, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Madera Area, California (CA651)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BmA	Borden loam, 0 to 1 percent slopes	12.6	67.1%
SaA	San Joaquin sandy loams, 0 to 3 percent slopes	4.3	23.2%
TwA	Tujunga loamy sand, 0 to 3 percent slopes	1.8	9.8%
Totals for Area of Interest		**18.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments

on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Madera Area, California

BmA—Borden loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hk44
Elevation: 1,000 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 225 to 250 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Borden and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Borden

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite over stratified alluvium derived from granite

Typical profile

H1 - 0 to 17 inches: stratified sandy loam, stratified fine sandy loam, stratified loam
H1 - 0 to 17 inches: stratified sandy loam, stratified fine sandy loam, stratified loam
H1 - 0 to 17 inches: stratified sandy loam
H2 - 17 to 28 inches:
H2 - 17 to 28 inches:
H2 - 17 to 28 inches:
H3 - 28 to 60 inches:

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Very high (about 16.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C

Minor Components

Pachappa
Percent of map unit: 5 percent

Hanford
Percent of map unit: 5 percent

Grangeville
Percent of map unit: 5 percent

SaA—San Joaquin sandy loams, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: hk9w
Elevation: 50 to 500 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition
San joaquin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Joaquin

Setting
Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
H1 - 0 to 11 inches: sandy loam
H2 - 11 to 19 inches: clay
H3 - 19 to 23 inches: indurated
H4 - 23 to 60 inches: stratified sandy loam to loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 19 to 23 inches to duripan
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water storage in profile: Very low (about 1.7 inches)

Interpretive groups
Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D

Minor Components

Cometa
Percent of map unit: 5 percent

Rocklin
Percent of map unit: 5 percent

Alamo
Percent of map unit: 4 percent
Landform: Depressions

Unnamed, ponded
Percent of map unit: 1 percent
Landform: Depressions

TwA—Tujunga loamy sand, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: hkbs
Elevation: 10 to 1,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Tujunga and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from granite

Typical profile
H1 - 0 to 11 inches: loamy sand
H2 - 11 to 24 inches: stratified sand to loamy sand

H3 - 24 to 60 inches: stratified gravelly sand to gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A

Minor Components

Dinuba

Percent of map unit: 5 percent

Hanford

Percent of map unit: 5 percent

Delhi

Percent of map unit: 5 percent

Soil Information for All Uses

Suitabilities and Limitations for Use

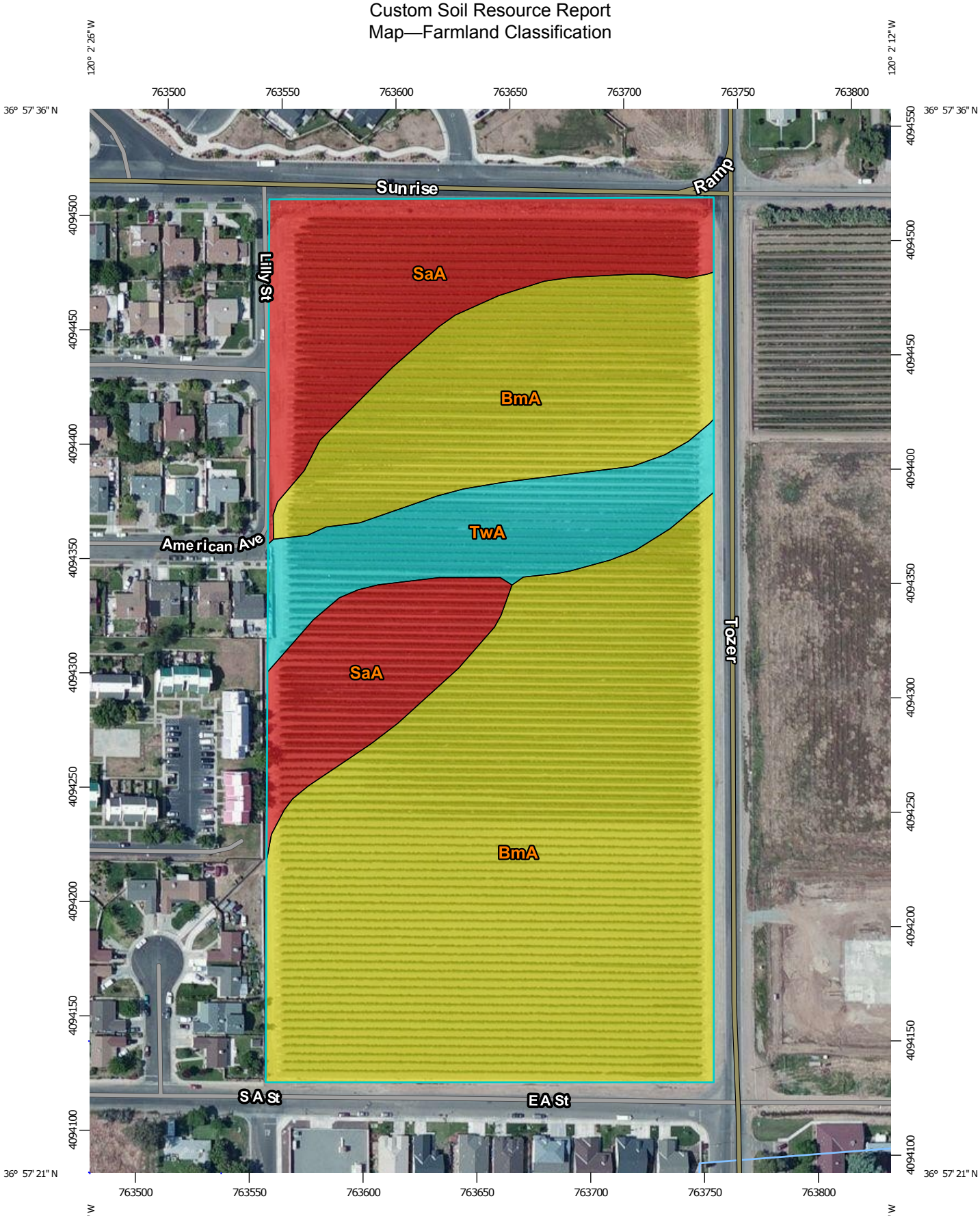
The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.



Map Scale: 1:2,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madera Area, California
Survey Area Data: Version 8, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2010—Jul 3, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Madera Area, California (CA651)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
BmA	Borden loam, 0 to 1 percent slopes	Prime farmland if irrigated	12.6	67.1%
SaA	San Joaquin sandy loams, 0 to 3 percent slopes	Not prime farmland	4.3	23.2%
TwA	Tujunga loamy sand, 0 to 3 percent slopes	Farmland of statewide importance	1.8	9.8%
Totals for Area of Interest			**18.8**	**100.0%**

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Irrigated Capability Class

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels-capability class, subclass, and unit. Only class and subclass are included in this data set.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Custom Soil Resource Report
Map—Irrigated Capability Class



Map Scale: 1:2,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Capability Class - I
- Capability Class - II
- Capability Class - III
- Capability Class - IV
- Capability Class - V
- Capability Class - VI
- Capability Class - VII
- Capability Class - VIII
- Not rated or not available

Soil Rating Lines
- Capability Class - I
- Capability Class - II
- Capability Class - III
- Capability Class - IV
- Capability Class - V
- Capability Class - VI
- Capability Class - VII
- Capability Class - VIII
- Not rated or not available

Soil Rating Points
- Capability Class - I
- Capability Class - II
- Capability Class - III
- Capability Class - IV
- Capability Class - V
- Capability Class - VI
- Capability Class - VII
- Capability Class - VIII
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madera Area, California
Survey Area Data: Version 8, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2010—Jul 3, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Irrigated Capability Class

Irrigated Capability Class— Summary by Map Unit — Madera Area, California (CA651)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
BmA	Borden loam, 0 to 1 percent slopes	2	12.6	67.1%
SaA	San Joaquin sandy loams, 0 to 3 percent slopes	4	4.3	23.2%
TwA	Tujunga loamy sand, 0 to 3 percent slopes	3	1.8	9.8%
Totals for Area of Interest			**18.8**	**100.0%**

Rating Options—Irrigated Capability Class

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Attachment B

LESA Worksheets

NOTES

Final LESA Score Sheet

Calculation of the Final LESA Score:

(1) Multiply each factor score by the factor weight to determine the weighted score and enter in Weighted Factor Scores column.
(2) Sum the weighted factor scores for the LE factors to determine the total LE score for the project.
(3) Sum the weighted factor scores for the SA factors to determine the total SA score for the project.
(4) Sum the total LE and SA scores to determine the Final LESA Score for the project.

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1> 69.74	0.25	17.44
Storie Index	<2> 1.79	0.25	0.45
LE Subtotal		***0.50***	17.89
SA Factors			
Project Size	<3> 30	0.15	4.5
Water Resource Availability	<4> 50	0.15	7.5
Surrounding Agricultural Land	<5> 0	0.15	0
Protected Resource Land	<6> 0	0.05	0
SA Subtotal		***0.50***	12
		Final LESA Score	29.89

For further information on the scoring thresholds under the California Agricultural LESA Model, consult Section 4 of the Instruction Manual.

NOTES

Calculation of the Land Evaluation (LE) Score

Part 1. Land Capability Classification (LCC) Score:

(1) Determine the total acreage of the project.
(2) Determine the soil types within the project area and enter them in **Column A** of the **Land Evaluation Worksheet** provided on page 2-A.
(3) Calculate the total acres of each soil type and enter the amounts in **Column B**.
(4) Divide the acres of each soil type (**Column B**) by the total acreage to determine the proportion of each soil type present. Enter the proportion of each soil type in **Column C**.
(5) Determine the LCC for each soil type from the applicable Soil Survey and enter it in **Column D**.
(6) From the LCC Scoring Table below, determine the point rating corresponding to the LCC for each soil type and enter it in **Column E**.

LCC Scoring Table

LCC Class	I	IIe	IIs,w	IIIe	IIIs,w	IVe	IVs,w	V	VI	VII	VIII
Points	100	90	80	70	60	50	40	30	20	10	0

(7) Multiply the proportion of each soil type (**Column C**) by the point score (**Column E**) and enter the resulting scores in **Column F**.
(8) Sum the LCC scores in **Column F**.
(9) Enter the LCC score in box <1> of the **Final LESA Score Sheet** on page 10-A.

Part 2. Storie Index Score:

(1) Determine the Storie Index rating for each soil type and enter it in **Column G**.
(2) Multiply the proportion of each soil type (**Column C**) by the Storie Index rating (**Column G**) and enter the scores in **Column H**.
(3) Sum the Storie Index scores in **Column H** to gain the Storie Index Score.
(4) Enter the Storie Index Score in box <2> of the **Final LESA Score Sheet** on page 10-A.

Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
BmA	12.6	0.67	2s	80	53.6	1	.67
SaA	4.3	0.232	4s	40	9.28	4	0.928
TwA	1.8	0.098	3e	70	6.86	2	0.196
Totals	18.8	(Must Sum to 1.0)		***LCC Total Score***	69.74	***Storie Index Total Score***	1.794

Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
	12.6	1.8	4.3
Total Acres	12.6	1.8	4.3
Project Size Scores	30	0	0

Highest Project Size Score 30

NOTES

Calculation of the Site Assessment (SA) Score

Part 1. Project Size Score:.

(1) Using **Site Assessment Worksheet 1** provided on page 2-A, enter the acreage of each soil type from **Column B** in the **Column - I, J or K -** that corresponds to the LCC for that soil. (Note: While the Project Size Score is a component of the Site Assessment calculations, the score sheet is an extension of data collected in the Land Evaluation Worksheet, and is therefore displayed beside it).
(2) Sum **Column I** to determine the total amount of class I and II soils on the project site.
(3) Sum **Column J** to determine the total amount of class III soils on the project site.
(4) Sum **Column K** to determine the total amount of class IV and lower soils on the project site.
(5) Compare the total score for each LCC group in the Project Size Scoring Table below and determine which group receives the highest score.

Project Size Scoring Table

Class I or II		Class III		Class IV or Lower	
Acreage	Points	Acreage	Points	Acreage	Points
>80	100	>160	100	>320	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
10<	0	20-39	30	40<	0
		10-19	10		
		10<	0		

(6) Enter the **Project Size Score** (the highest score from the three LCC categories) in box <3> of the **Final LESA Score Sheet** on page 10-A.

NOTES

Part 2. Water Resource Availability Score:

(1) Determine the type(s) of irrigation present on the project site, including a determination of whether there is dryland agricultural activity as well.

(2) Divide the site into portions according to the type or types of irrigation or dryland cropping that is available in each portion. Enter this information in **Column B** of **Site Assessment Worksheet 2. - Water Resources Availability**.

(3) Determine the proportion of the total site represented for each portion identified, and enter this information in **Column C**.

(4) Using the Water Resources Availability Scoring Table, identify the option that is most applicable for each portion, based upon the feasibility of irrigation in drought and non-drought years, and whether physical or economic restrictions are likely to exist. Enter the applicable Water Resource Availability Score into **Column D**.

(5) Multiply the Water Resource Availability Score for each portion by the proportion of the project area it represents to determine the weighted score for each portion in **Column E**.

(6) Sum the scores for all portions to determine the project's total Water Resources Availability Score

(7) Enter the Water Resource Availability Score in box <4> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1	Surface water	1.00	50	50
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	50

*surface water not guaranteed during severe drought years.

Water Resource Availability Scoring Table

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

NOTES

Part 3. Surrounding Agricultural Land Use Score:

(1) Calculate the project's Zone of Influence (ZOI) as follows:
(a) a rectangle is drawn around the project such that the rectangle is the smallest that can completely encompass the project area.
(b) a second rectangle is then drawn which extends one quarter mile on all sides beyond the first rectangle.
(c) The ZOI includes all parcels that are contained within or are intersected by the second rectangle, less the area of the project itself.
(2) Sum the area of all parcels to determine the total acreage of the ZOI.
(3) Determine which parcels are in agricultural use and sum the areas of these parcels
(4) Divide the area in agriculture found in step (3) by the total area of the ZOI found in step (2) to determine the percent of the ZOI that is in agricultural use.
(5) Determine the Surrounding Agricultural Land Score utilizing the Surrounding Agricultural Land Scoring Table below.

Surrounding Agricultural Land Scoring Table

Percent of ZOI in Agriculture	Surrounding Agricultural Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Surrounding Agricultural Land Score in box <5> of the **Final LESA Score Sheet** on page 10-A.

Site Assessment Worksheet 3.
Surrounding Agricultural Land and Surrounding Protected Resource Land

A	B	C	D	E	F	G
Zone of Influence						
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (A/B)	Percent Protected Resource Land (A/C)	Surrounding Agricultural Land Score (From Table)	Surrounding Protected Resource Land Score (From Table)
290.49	53.21	19.05	18.3	34.3	0	0

NOTES

Part 4. Protected Resource Lands Score:

The Protected Resource Lands scoring relies upon the same Zone of Influence information gathered in Part 3, and figures are entered in Site Assessment Worksheet 3, which combines the surrounding agricultural and protected lands calculations.

(1) Use the total area of the ZOI calculated in Part 3. for the Surrounding Agricultural Land Use score.
(2) Sum the area of those parcels within the ZOI that are protected resource lands, as defined in the California Agricultural LESA Guidelines.
(3) Divide the area that is determined to be protected in Step (2) by the total acreage of the ZOI to determine the percentage of the surrounding area that is under resource protection.
(4) Determine the Surrounding Protected Resource Land Score utilizing the Surrounding Protected Resource Land Scoring Table below.

Surrounding Protected Resource Land Scoring Table

Percent of ZOI Protected	Protected Resource Land Score
90-100	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
<40	0

(5) Enter the Protected Resource Land score in box <6> of the **Final LESA Score Sheet** on page 10-A.

Appendix B

Air Emission Output Tables

MUSD New School Site

Madera County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	850.00	Student	1.63	71,062.86	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.9	**Precipitation Freq (Days)**	51
Climate Zone	3			**Operational Year**	2016
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The new school site is 18.96 acres

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2016
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.9037	2.6203			0.0629	0.1649	0.2277	0.0207	0.1582	0.1789						280.8854
Total	**0.9037**	**2.6203**			**0.0629**	**0.1649**	**0.2277**	**0.0207**	**0.1582**	**0.1789**						**280.8854**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.9037	2.6203			0.0629	0.1649	0.2277	0.0207	0.1582	0.1789						280.8851
Total	**0.9037**	**2.6203**			**0.0629**	**0.1649**	**0.2277**	**0.0207**	**0.1582**	**0.1789**						**280.8851**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3277	8.0000e-005				3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005						0.0161
Energy	0.0101	0.0917				6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003						100.4559
Mobile	0.9360	2.9488			0.8865	0.0387	0.9252	0.2380	0.0355	0.2735						1,282.2629
Waste						0.0000	0.0000		0.0000	0.0000						70.5711
Water						0.0000	0.0000		0.0000	0.0000						2.5553
Total	**1.2738**	**3.0406**			**0.8865**	**0.0457**	**0.9322**	**0.2380**	**0.0425**	**0.2805**						**1,455.8612**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3277	8.0000e-005				3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005						0.0161
Energy	0.0101	0.0917				6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003						100.4559
Mobile	0.9360	2.9488			0.8865	0.0387	0.9252	0.2380	0.0355	0.2735						1,282.2629
Waste						0.0000	0.0000		0.0000	0.0000						70.5711
Water						0.0000	0.0000		0.0000	0.0000						2.5553
Total	**1.2738**	**3.0406**			**0.8865**	**0.0457**	**0.9322**	**0.2380**	**0.0425**	**0.2805**						**1,455.8612**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	1/28/2016	5	20	
2	Site Preparation	Site Preparation	1/29/2016	2/1/2016	5	2	
3	Grading	Grading	2/2/2016	2/5/2016	5	4	
4	Building Construction	Building Construction	2/6/2016	11/11/2016	5	200	
5	Paving	Paving	11/12/2016	11/25/2016	5	10	
6	Architectural Coating	Architectural Coating	11/26/2016	12/9/2016	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 106,594; Non-Residential Outdoor: 35,531 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	6.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Paving	Paving Equipment	1	8.00	130	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	30.00	12.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0291	0.2826				0.0175	0.0175		0.0163	0.0163						22.6827
Total	**0.0291**	**0.2826**				**0.0175**	**0.0175**		**0.0163**	**0.0163**						**22.6827**

3.2 Demolition - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.9000e-004	1.0300e-003			1.6100e-003	1.0000e-005	1.6200e-003	4.3000e-004	1.0000e-005	4.4000e-004						1.4622
Total	**5.9000e-004**	**1.0300e-003**			**1.6100e-003**	**1.0000e-005**	**1.6200e-003**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**						**1.4622**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0291	0.2826				0.0175	0.0175		0.0163	0.0163						22.6826
Total	**0.0291**	**0.2826**				**0.0175**	**0.0175**		**0.0163**	**0.0163**						**22.6826**

3.2 Demolition - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.9000e-004	1.0300e-003			1.6100e-003	1.0000e-005	1.6200e-003	4.3000e-004	1.0000e-005	4.4000e-004						1.4622
Total	**5.9000e-004**	**1.0300e-003**			**1.6100e-003**	**1.0000e-005**	**1.6200e-003**	**4.3000e-004**	**1.0000e-005**	**4.4000e-004**						**1.4622**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003						0.0000
Off-Road	2.4400e-003	0.0258				1.4000e-003	1.4000e-003		1.2900e-003	1.2900e-003						1.6260
Total	**2.4400e-003**	**0.0258**			**5.8000e-003**	**1.4000e-003**	**7.2000e-003**	**2.9500e-003**	**1.2900e-003**	**4.2400e-003**						**1.6260**

3.3 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.0000e-005	6.0000e-005			1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005						0.0900
Total	**4.0000e-005**	**6.0000e-005**			**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						**0.0900**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003						0.0000
Off-Road	2.4400e-003	0.0258				1.4000e-003	1.4000e-003		1.2900e-003	1.2900e-003						1.6260
Total	**2.4400e-003**	**0.0258**			**5.8000e-003**	**1.4000e-003**	**7.2000e-003**	**2.9500e-003**	**1.2900e-003**	**4.2400e-003**						**1.6260**

3.3 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.0000e-005	6.0000e-005			1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005						0.0900
Total	**4.0000e-005**	**6.0000e-005**			**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						**0.0900**

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003						0.0000
Off-Road	3.9800e-003	0.0421				2.2800e-003	2.2800e-003		2.1000e-003	2.1000e-003						2.6710
Total	**3.9800e-003**	**0.0421**			**9.8300e-003**	**2.2800e-003**	**0.0121**	**5.0500e-003**	**2.1000e-003**	**7.1500e-003**						**2.6710**

3.4 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	1.3000e-004			2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005						0.1800
Total	**7.0000e-005**	**1.3000e-004**			**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**						**0.1800**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003						0.0000
Off-Road	3.9800e-003	0.0421				2.2800e-003	2.2800e-003		2.1000e-003	2.1000e-003						2.6710
Total	**3.9800e-003**	**0.0421**			**9.8300e-003**	**2.2800e-003**	**0.0121**	**5.0500e-003**	**2.1000e-003**	**7.1500e-003**						**2.6710**

3.4 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	1.3000e-004			2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005						0.1800
Total	**7.0000e-005**	**1.3000e-004**			**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**						**0.1800**

3.5 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3292	2.0546				0.1366	0.1366		0.1318	0.1318						186.5527
Total	**0.3292**	**2.0546**				**0.1366**	**0.1366**		**0.1318**	**0.1318**						**186.5527**

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0221	0.1116			6.9800e-003	1.8400e-003	8.8200e-003	1.9900e-003	1.6900e-003	3.6800e-003						23.2846
Worker	0.0136	0.0238			0.0372	3.0000e-004	0.0375	9.8800e-003	2.8000e-004	0.0102						33.7424
Total	**0.0356**	**0.1354**			**0.0441**	**2.1400e-003**	**0.0463**	**0.0119**	**1.9700e-003**	**0.0138**						**57.0270**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3292	2.0546				0.1366	0.1366		0.1318	0.1318						186.5525
Total	**0.3292**	**2.0546**				**0.1366**	**0.1366**		**0.1318**	**0.1318**						**186.5525**

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0221	0.1116			6.9800e-003	1.8400e-003	8.8200e-003	1.9900e-003	1.6900e-003	3.6800e-003						23.2846
Worker	0.0136	0.0238			0.0372	3.0000e-004	0.0375	9.8800e-003	2.8000e-004	0.0102						33.7424
Total	**0.0356**	**0.1354**			**0.0441**	**2.1400e-003**	**0.0463**	**0.0119**	**1.9700e-003**	**0.0138**						**57.0270**

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4400e-003	0.0660				4.0400e-003	4.0400e-003		3.7200e-003	3.7200e-003						6.2457
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**6.4400e-003**	**0.0660**				**4.0400e-003**	**4.0400e-003**		**3.7200e-003**	**3.7200e-003**						**6.2457**

3.6 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.9000e-004	5.2000e-004			8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004						0.7311
Total	**2.9000e-004**	**5.2000e-004**			**8.1000e-004**	**1.0000e-005**	**8.1000e-004**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**						**0.7311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4400e-003	0.0660				4.0400e-003	4.0400e-003		3.7200e-003	3.7200e-003						6.2457
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**6.4400e-003**	**0.0660**				**4.0400e-003**	**4.0400e-003**		**3.7200e-003**	**3.7200e-003**						**6.2457**

3.6 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.9000e-004	5.2000e-004			8.1000e-004	1.0000e-005	8.1000e-004	2.1000e-004	1.0000e-005	2.2000e-004						0.7311
Total	**2.9000e-004**	**5.2000e-004**			**8.1000e-004**	**1.0000e-005**	**8.1000e-004**	**2.1000e-004**	**1.0000e-005**	**2.2000e-004**						**0.7311**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4941					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	1.8400e-003	0.0119				9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004						1.2798
Total	**0.4959**	**0.0119**				**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**						**1.2798**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.4000e-004	2.4000e-004			3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004						0.3374
Total	**1.4000e-004**	**2.4000e-004**			**3.7000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3374**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4941					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	1.8400e-003	0.0119				9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004						1.2798
Total	**0.4959**	**0.0119**				**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**						**1.2798**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.4000e-004	2.4000e-004			3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004						0.3374
Total	**1.4000e-004**	**2.4000e-004**			**3.7000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**						**0.3374**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9360	2.9488			0.8865	0.0387	0.9252	0.2380	0.0355	0.2735						1,282.2629
Unmitigated	0.9360	2.9488			0.8865	0.0387	0.9252	0.2380	0.0355	0.2735						1,282.2629

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	1,096.50	0.00	0.00	2,345,867	2,345,867
Total	1,096.50	0.00	0.00	2,345,867	2,345,867

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Elementary School	14.70	6.60	6.60	65.00	30.00	5.00	63	25	12

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.363278	0.068626	0.188451	0.184424	0.064139	0.009522	0.015955	0.088690	0.002874	0.000813	0.008511	0.001185	0.003534

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Mitigated	0.0101	0.0917				6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003						100.4559
NaturalGas Unmitigated	0.0101	0.0917				6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003						100.4559

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	1.87109e+006	0.0101	0.0917				6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003						100.4559
Total		**0.0101**	**0.0917**				**6.9700e-003**	**6.9700e-003**		**6.9700e-003**	**6.9700e-003**						**100.4559**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	1.87109e+006	0.0101	0.0917				6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003						100.4559
Total		**0.0101**	**0.0917**				**6.9700e-003**	**6.9700e-003**		**6.9700e-003**	**6.9700e-003**						**100.4559**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	564239				0.0000
Total					**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	564239				0.0000
Total					**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3277	8.0000e-005				3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005						0.0161
Unmitigated	0.3277	8.0000e-005				3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005						0.0161

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0494					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2775					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	7.8000e-004	8.0000e-005				3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005						0.0161
Total	**0.3277**	**8.0000e-005**				**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**						**0.0161**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0494					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.2775					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	7.8000e-004	8.0000e-005				3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005						0.0161
Total	**0.3277**	**8.0000e-005**				**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**						**0.0161**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				2.5553
Unmitigated				2.5553

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	2.0606 / 5.2987				2.5553
Total					**2.5553**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	2.0606 / 5.2987				2.5553
Total					**2.5553**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				70.5711
Unmitigated				70.5711

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	155.13				70.5711
Total					**70.5711**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	155.13				70.5711
Total					**70.5711**

9.0 Operational Offroad

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

10.0 Vegetation

Appendix C

Biological Report

February 5, 2014
File No. LEC1J100

Ms. Emily Bowen
Principal Environmental Planner
Crawford and Bowen Planning, Inc.
113 N Church Street, Suite 302
Visalia, California 93291

SUBJECT: **Report of Findings for Biological Assessment, Approximately 19 Acres APN #035-221-001 Southwest corner of Sunrise Avenue and Road 28 Madera County, California**

Dear Ms. Bowen:

This letter documents results of a biological resources assessment and field reconnaissance survey, conducted by Aevum Ecological Consulting, LLC (Aevum) on behalf of Crawford and Bowen Planning, Inc. (Crawford and Bowen), on an approximately 19 acre parcel (APN #035-221-001) at the southwest corner of Sunrise Avenue and Road 28. This parcel is being considered for development of school facilities within the Madera Unified School District.

This report provides a general description of the ecological setting at the parcel under consideration, but the methods employed for the survey do not constitute a specific protocol-level focused species survey, a jurisdictional delineation, or the necessary requirements of a rare plant survey. The survey is intended to serve as an initial evaluation of on-site biological habitat conditions, potential special-status species habitats and potential presence of wetlands and other Waters of the United States that may fall under the regulatory or jurisdictional purview of various State and Federal agencies. Such agencies may include: the California Department Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and/or California Regional Water Quality Control Board (CRWQCB). A separate environmental analysis may be required to satisfy the California Environmental Quality Act (CEQA).

METHODS

A records search for special status[1] species known from the Madera 7.5 minute USGS quadrangle was performed using the California Natural Diversity Data Base (CNDDB). A summary of these records is provided in Attachment 1.

To determine the potential for special status species to occur, Aevum biologists, Justin Jack and Kat Calderala, conducted a general reconnaissance-level, biological habitat assessment survey at the site on November 30th, 2014. Weather at the time of the survey was overcast, with winds approximately 0 to 3 miles per hour (mph) from the east with the temperature approximately 55° Fahrenheit.

[1] Special-status species are those species listed by the Federal Endangered Species Act or the California Endangered Species Act as threatened or endangered; species classified by the California Department of Fish and Wildlife as fully-protected; or species classified by the California Native Plant Society (CNPS) as rare.

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The site was surveyed by walking a series of transects through the vineyard rows while visually scanning each row on either side site for potentially occurring special status species, or their critical habitat. Observed biological resources were recorded on data sheets, including dominant vegetation and observed wildlife habitats and species, the level of disturbance, as well as the presence of potential wetlands and/or any other jurisdictional features.

Table 1. Summary of special status species known from the Madera 7.5 minute USGS quadrangle.

Species	Federal Status	State Status	Other Status
California tiger salamander *Ambystoma californiense*	Threatened	Threatened	--
Swainson's hawk *Buteo swainsoni*	--	Threatened	--
Burrowing owl *Athene cunicularia*	--	--	State Species of Special Concern
Hoary bat *Lasiurus cinereus*	--	--	--
Blunt-nosed leopard lizard *Gambelia sila*	Endangered	Endangered	State Fully Protected
Coast horned lizard *Phrynosoma blainvillii*	--	--	State Species of Special Concern
Hairy Orcutt grass *Orcuttia pilosa*	Endangered	Endangered	CNPS 1B.1
Madera leptosiphon *Leptosiphon serrulatus*	--	--	CNPS 1B.2

FINDINGS

The site is located in southwestern Madera County, within the San Joaquin Valley. The proposed site is bordered on the north, west, and south sides by the city of Madera, California. The eastern perimeter is bordered by Road 28, which is within the jurisdiction of the county of Madera. The site is within the Madera 7.5 minute quadrangle. Topography of the site is comprised of a relatively flat parcel. The elevation of the site is approximately 275 feet above mean sea level (MSL). The site has been disturbed by ongoing agricultural operations, specifically the cultivation and harvest of Thompson grapes. Ruderal weeds were also present onsite along with various annual grasses and ornamental seedlings likely carried over from the surrounding neighborhoods. On-site hydrology observed at the time of the survey showed areas of shallow ponded water on the south side of the site from recent rain events. There is a roadside swale approximately six feet from top of bank to top of bank and is approximately two feet deep that runs the length of the northern border along Sunrise Avenue.

The site is planted with Thompson grapes irrigated by drip hose under each row. Approximately fifty percent of the leaves had fallen from the vines at the time of the survey. Ruderal weeds growing within the rows and on the adjacent perimeter include; annual grasses from the Poa family (*Poaceae sp.*), common mallow (*Malva neglecta*), telegraphweed (*Heterotheca sp.*), horseweed (*Conyza sp.*), black mustard (*Brassica nigra*), goosefoot (*Chenopodium sp.*), plantain (*Plantago sp.*), cranesbill (*Erodium sp.*), Russian thistle (*Salsola sp.*), and prickly lettuce (*Lactuca serriola*),

Animal species observed on site included black-tailed jackrabbit (*Lepus californicus*), red-tailed hawk (*Buteo jamaicensis*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), western scrub jay (*Aphelocoma californica*), American robin (*Turdus*

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migratorius), northern mockingbird (*Mimus polyglottos*), northern flicker (*Colaptes auratus*), ruby-crowned kinglet (*Regulus calendula*), American bushtit (*Psaltriparus minimus*), lark sparrow (*Chondestes grammacus*), white-crowned sparrow (*Zonotrichia leucophrys*), dark-eyed junco (*Junco hyemalis*), Brewer's blackbird (*Euphagus cyanocephalus*), and European starling (*Sturnus vulgaris*).

Neither the roadside swale on the northern border of the property or the areas of shallow ponded water on the south side of the site appeared to be jurisdictional in nature under the USACE as Waters of the United States and/or the CDFW Lake and Streambed Alternation Agreement. There did not appear to be any connectivity from the roadside swale to any other water course. It appeared to have been constructed in order to limit vehicle parking along the shoulder of Sunrise Avenue. The shallow ponded water on the south side of the site lacked appropriate obligate and facultative plants to be considered a wetland. According to the USFWS National Wetlands Inventory, there are no previously mapped wetlands within or adjacent to the subject property.

The likelihood of occurrence of special status species at the proposed site (listed in Table 1) are discussed in further detail below, along with their legal status and individual habitat requirements.

- California tiger salamander (CTS) (*Ambystoma californiense*) are threatened under the federal endangered species act and threatened under the California endangered species act. Populations require vernal pools or seasonal water for reproduction. CTS migrate from upland habitats to aquatic breeding sites during the first major rainfall events of fall and early winter and return to upland habitats after breeding. Due to the lack of these features, CTS have a very low potential to occur on or near the site.

- Blunt-nosed leopard lizard (BNLL) (*Gambelia sila*) are endangered under the federal endangered species act and endangered under the California endangered species act. The species is considered fully protected under state and federal law. BNLL habitat is usually comprised of alkali flats, sparsely vegetated plains, large washes, low foothills and canyon floors below 2,600 feet. Small rodent burrows are used for shelter, predator avoidance, and thermoregulation. Since these features are not found onsite, BNLL have a very low potential to occur on or near the site.

- Coast horned lizard (CHL) (*Phrynosoma blainvillii*) are listed as a state species of concern under CDFW designation. CHL require open areas of sandy soil and low vegetation in valleys, woodlands, chaparral, and lowlands typically along sandy washes. These habitat features do not exist on the site.

- Swainson's hawk (SWHA) (*Buteo swainsoni*) are threatened under the California endangered species act. SWHA require wide open landscapes for foraging. They are also known to use agricultural crops including; hay, grain, and row crops during foraging which does exist onsite. There are no large trees onsite that are of suitable use for nesting. Neighboring parcels do have suitable trees for nesting and known occurrences of SWHA have been documented in the vicinity of the site.

- Burrowing owl (BUOW) (*Athene cunicularia*) are listed as a state species of concern under CDFW designation. BUOW require open well drained terrain with short sparse vegetation and underground burrows. The vineyard rows limit the openness of the landscape. Suitable burrows were not observed onsite either. Due to the habitat features not being available, BUOW are unlikely to occur onsite.

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- Hoary bat (HOBA) (*Lasiurus cinereus*) do not meet the definition of a special-status species but are assigned a global and state ranking due to diminishing populations and are therefore listed in the CNDDB. No suitable bat roosting habitat was observed on the site.
- Hairy Orcutt grass (*Orcuttia pilosa*) is endangered under the federal endangered species act and endangered under the California endangered species act. The plant is also listed by the California Native Plant Society (CNPS) in list 1B.1. Hairy Orcutt grass grow in vernal pools on the remnant alluvial fans and stream terraces of the eastern Sacramento and San Joaquin Valleys. No vernal pools were observed during the reconnaissance and the site is far removed from remnant alluvial fans and stream terraces.
- Madera leptosiphon (*Leptosiphon serrulatus*) is listed by the CNPS in list 1B.2, which requires the species to be fully considered during preparation of environmental documents relating to the California Environmental Quality Act (CEQA). The species is known to grow on dry slopes, often on decomposed granite within the Sierra Nevada Mountain range. These general habitat characteristics are not found within the site.

RECOMMENDATIONS

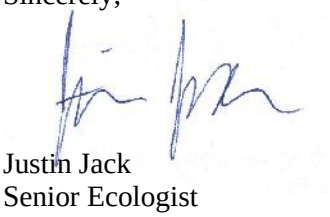
Depending on the scope, scale and timing of future site development, appropriate impact avoidance and minimization measure would be developed which are consistent with existing local, state and federal policies and procedures. A preconstruction nesting bird survey is recommended if construction activities will take place between February 1st and August 31st. The survey should follow the Swaison's Hawk Technical Advisory Committees May 31, 2000 Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. If a nesting Swainson's hawk is observed within the one-half mile buffer area, consultation with CDFW should be sought.

SUMMARY

The surveyed parcel is under cultivation as a vineyard and does not contain native habitat for species listed in Table 1. Special status species were not observed on site. The site does not comprise any federally designated critical habitat for threatened or endangered species. Areas just beyond the perimeter of the site did contain suitable trees for nesting as well as open land that could be used for foraging for Swainson's hawk. The site itself provides very marginal foraging habitat. The proposed project is unlikely to inhibit animal migration due to the parcels on the south, west, and north being developed with housing tracks. Vehicle traffic on Road 28 to the east also limits migration. There are currently no approved local or county Habitat Conservation Plans that conflict with development of the subject property.

Should you have any questions concerning the findings presented within this letter, please feel free to contact Justin Jack at (559) 281-2367.

Sincerely,



Justin Jack
Senior Ecologist
Aevum Ecological Consulting, LLC
8047 N 8th St
Fresno, CA 93720

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APPENDIX

Attachment 1
CNDDB Report

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REFERENCES

1. California Department of Fish and Wildlife. California Fish and Wildlife Code.

2. California Department of Fish and Wildlife. California Natural Diversity Data Base. The Resources Agency: Sacramento, California, 2014

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Appendix

Table 1
CNDDB Quad Species List

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Name	Taxonomic Sort
Animals - Amphibians	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	SSC	-	Madera	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Birds	Buteo swainsoni	Swainson's hawk	ABNKC19070	None	Threatened	-	-	Madera	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	Athene cunicularia	burrowing owl	ABNSB10010	None	None	SSC	-	Madera	Animals - Birds - Strigidae - Athene cunicularia
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	Madera	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Reptiles	Gambelia sila	blunt-nosed leopard lizard	ARACF07010	Endangered	Endangered	FP	-	Madera	Animals - Reptiles - Crotophytidae - Gambelia sila
Animals - Reptiles	Phrynosoma blainvillii	coast horned lizard	ARACF12100	None	None	SSC	-	Madera	Animals - Reptiles - Phrynosomatidae - Phrynosoma blainvillii
Plants - Vascular	Orcuttia pilosa	hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	-	1B.1	Madera	Plants - Vascular - Poaceae - Orcuttia pilosa
Plants - Vascular	Leptosiphon serrulatus	Madera leptosiphon	PDPLM09130	None	None	-	1B.2	Madera	Plants - Vascular - Polemoniaceae - Leptosiphon serrulatus

Appendix D

Cultural Records Search

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

FRESNO
KERN
KINGS
MADERA
TULARE

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 46 MEC
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289 FAX (661) 654-2415
E-mail: ssjvic@csub.edu

To: Emily Bowen
Crawford Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291

Record Search 15-292

Date: August 3, 2015

Re: Madera Unified School District: New School Site (APN 035-221-001)

County: Madera

Map(s): Madera 7.5'

CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law. The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, Historic Property Directory (3/18/13), California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. 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.

PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there have been no previous cultural resource studies conducted within the project area. There have been two studies conducted within the one-half mile radius, MA-00925 and MA-01003.

Record Search 15-292

KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

There are no recorded cultural resources within the project area or within a one-half mile radius and it is not known if any exist in most of this area.

There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

COMMENTS AND RECOMMENDATIONS

We understand this project consists of the construction of a new Kindergarten through 6th Grade school on an 18.96 acre parcel currently occupied by grape vineyards. Though it is not known if cultural resources exist in much of this area, the proximity of the project area to the Fresno River establishes a moderate cultural resource sensitivity level, as indigenous people utilized these areas as permanent villages, temporary camps and task specific sites. Additionally, agriculture does not constitute development, as it does not destroy cultural resources but merely moves them around with the plow zone. As such, prior to ground disturbance activities, we recommend a qualified, professional archaeologist conduct a field survey to determine if cultural resources are present. A referral list of qualified professionals is available at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission will consult their "Sacred Lands Inventory" file in order to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:

Celeste M. Thomson, Coordinator **Date:** August 3, 2015

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Appendix E

Geotech. Inv. Report

RMA GeoScience
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GEOTECHNICAL CONSULTANTS

August 21, 2015 Project No. 14-G63-0

Ms. Rosalind Cox
Director of Facilities Planning & Construction Management
Madera Unified School District
1205 S. Madera Ave.
Madera, CA 93637

Subject: Geotechnical Investigation and Geohazards Study
New Road 28 Elementary School
Northwest Corner of Road 28 and "A" Street
Madera, California

Dear Ms. Cox:

In accordance with your request, and in conjunction with the preparation of the CEQA compliance documents and project design, we have performed a geotechnical investigation and geohazards study for the subject project. This work was performed in accordance with Section 1803*A* of the 2013 CBC. The results of our geotechnical investigation and geohazards study are presented in the accompanying report, which includes a description of site conditions and potential geologic hazards, results of our field exploration and laboratory testing, conclusions, and preliminary recommendations.

We appreciate this opportunity to be of service to you. If you have any questions regarding this report, please do not hesitate to contact us at your convenience.

Respectfully submitted,

RMA GeoScience





George P. Hattrup, PE|GE
Senior Geotechnical Engineer
GE 2353





Martha P. Sgriccia, PG|CEG
Project Engineering Geologist
CEG 2494

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Mr. Jack Brewer, ASDI Engineering (pdf copy)
Mr. John Ellis, Northstar Engineering Group (pdf copy)
Mr. Travis Crawford, Crawford & Bowen Planning, Inc. (pdf copy)

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GEOTECHNICAL CONSULTANTS

GEOTECHNICAL INVESTIGATION AND GEOHAZARDS STUDY
NEW ROAD 28 ELEMENTARY SCHOOL
NORTHWEST CORNER OF ROAD 28 AND "A" STREET
MADERA, CALIFORNIA

for

Director of Facilities Planning & Construction Management
Madera Unified School District
1205 S. Madera Ave.
Madera, CA 93637

August 21, 2015

Project No. 14-G63-0

TABLE OF CONTENTS

		PAGE
	EXECUTIVE SUMMARY	1
1.00	**INTRODUCTION**	2
1.01	Purpose	2
1.02	Scope of the Investigation	2
1.03	Site Location and Description	2
1.04	Planned Improvements	3
1.05	Investigation Methods	3
2.00	**FINDINGS**	3
2.01	Geologic Setting	3
2.02	Earth Materials	4
2.03	Expansive Soils	4
2.04	Surface and Groundwater Conditions	4
2.05	Faults	4
2.06	Historic Seismicity	4
2.07	Flooding Potential	5
2.08	Landslides	5
2.09	Other Geologic Hazards	5
3.00	**CONCLUSIONS AND RECOMMENDATIONS**	6
3.01	General Conclusion	6
3.02	General Earthwork and Grading	6
3.03	Earthwork Shrinkage	6
3.04	Site Preparation and Earthwork Construction	7
3.05	Imported Fill Material	8
3.06	Fill and Cut Slopes	8
3.07	Utility Trench Backfill	8
3.08	Faulting	9
3.09	Seismic Design Parameters	9
3.10	Liquefaction and Secondary Earthquake Hazards	10
3.11	Foundations	11
3.12	Lateral Load Resistance	12
3.13	Pole Type Foundations	12
3.14	Interior Slabs on Grade	13
3.15	Miscellaneous Concrete Flatwork	14

TABLE OF CONTENTS
(Continued)

		PAGE
3.16	Footing Excavation and Slab Preparations	14
3.17	Drainage and Moisture Proofing	15
3.18	Cement Type and Corrosion Potential	15
3.19	Temporary Slopes and Shoring	16
3.20	Pavement Sections	16
3.21	Plan Review	17
3.22	Geotechnical Observation and Testing During Grading	17
3.23	Post-Grading Geotechnical Observation and Testing	17
4.00	**CLOSURE**	17

FIGURES

Figure 1	Site Location Map
Figure 2	Regional Geologic Map
Figure 3a	Fault Activity Map
Figure 3b	Fault Activity Map Legend
Figure 4	Boring Location Map
Figure 5	Geologic Cross Section

APPENDICES

Appendix A	Field Investigation
Appendix B	Laboratory Tests
Appendix C	References

EXECUTIVE SUMMARY

This report presents the results of a geotechnical investigation and geologic hazards (geohazards) study conducted by RMA GeoScience for the proposed new elementary school at the northwest corner of Road 28 and "A" Street in Madera, California. The project site is located in the east-central part of Madera as shown on the Site Location Map, Figure 1. This report has been prepared in accordance with Section 1803*A* of the 2013 California Building Code (CBC).

The project site is underlain by deep alluvial soils that generally consist of medium dense to dense silty sand, relatively clean sand, and sandy silt layers within the depth explored (51 feet). Historically, the project site has been used for agricultural purposes and has recently been used as a vineyard. Thus, in addition to stripping and removing surface organics, large and/or concentrated zones of roots will need to be removed during the grading associated with the structural and civil improvements. On-site soils may be considered to have a low to medium expansion potential and have a very low corrosion potential with respect to reinforced concrete. However, on-site soils should be considered corrosive with respect to buried metal conduits. Provided earthwork construction is performed in accordance with our recommendations, the planned school building can be supported on shallow continuous or spread footings.

Groundwater was not encountered within the depth explored (51 feet) at the time of our recent field exploration. California Department of Water Resources data indicates that the depth to groundwater in the site vicinity has ranged from a depth of 58 feet in 1958 to a depth of greater than 150 feet in recent years. In addition, the site is located within an unshaded area of Flood Zone X, which is a "minimal risk area outside the 1-percent and .2-percent-annual-chance floodplains. No base flood elevations or base flood depths are shown within these zones." Furthermore, the site does not lie within the limits of inundation in the event of a catastrophic dam failure

The site is not located within the boundaries of an Earthquake Fault Zone for fault-rupture hazard as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no faults are known to pass through or near the property. The nearest active or potentially active earthquake fault zone (evidence of displacement within the past 1.6 million years) is located roughly 40 miles to the west of the site along the San Joaquin Fault System. Based on the two deep test borings that were drilled for this investigation, the soil profile at the site corresponds with Site Class D for seismic design purposes. The peak earthquake ground acceleration adjusted for site class effects (PGA_M) is 0.32g and, based on the PSH Deaggregation tool on the USGS website, a Modal Magnitude (M_M) of 5.2 is considered applicable for the design level earthquake.

Conditions conducive to liquefaction to occur are not present at the site, particularly due to the depth of groundwater and the relative density of on-site soils. However, there is a potential for non-saturated silty sand and relatively clean sand layers to experience seismic settlement during a design level earthquake. Of particular concern are silty sand and sand layers where the corrected Standard Penetration Test (SPT) blowcount is less than 15 blows per foot, which were encountered in Boring B-1 at depths of approximately 32.5 to 37 feet, and in Boring B-5 at depths of approximately 18 to 21 feet and from 28 to 35 feet. Based on our analysis, which takes into account the PGA_M of 0.32g and the M_M of 5.2, the settlement of non-saturated sands due to earthquake ground motion is expected to be on the order of one-quarter to one-half inch.

Finally, based on the site location and topographic characteristics, geologic hazards related to methane gas, hydrogen-sulfide gas, tar seeps, slope failure, volcanic eruption, tsunamis, seiches, Radon-222 gas, naturally occurring asbestos, hydrocollapse, and regional land subsidence are not expected to impact the planned elementary school.

1.00 INTRODUCTION

1.01 Purpose

A geotechnical investigation and geohazards study has been completed for the planned new elementary school to be located northwest of Road 28 and "A" Street in Madera, California. The purpose of the investigation was to summarize geotechnical and geologic conditions at the site, to assess their potential impact on the proposed development, and to develop preliminary geotechnical engineering design parameters.

1.02 Scope of the Investigation

The general scope of this investigation included the following:

- Review of published and unpublished geologic, seismic, groundwater and geotechnical literature.
- Contacting of underground service alert and the County of Madera to locate onsite utility lines.
- Logging, sampling, and backfilling of 23 exploratory borings drilled with a CME-45 drill rig.
- Laboratory testing of representative soil samples.
- Geotechnical evaluation of the compiled data.
- Preparation of this report presenting our findings, conclusions and preliminary recommendations.

As part of the geohazards study associated with our geotechnical investigation, our scope of services included addressing applicable items in California Geological Survey – Note 48, Checklist for the review of engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Service Buildings, October 2013.

Our scope of work did not include a preliminary site assessment for the potential of hazardous materials onsite. However, a Phase 1 Environmental Site Assessment has been prepared for this project by Krazan & Associates, Inc. (see report dated November 6, 2014, Krazan Project No. 014-14168). In addition, a Preliminary Environmental Assessment Report dated April 29, 2015, was prepared by Geocon Consultants, Inc. for the subject project, which was formally approved by the Department of Toxic Substances Control on May 5, 2015. Based on these reports, there does not appear to be any hazardous materials or contaminated soils at the project site, which would require mitigation prior to developing the project site.

1.03 Site Location and Description

The new K-6 elementary school will be located on an 18.96-acre parcel that was, until recently, a working vineyard. The project site lies on the east side of Madera at the northwest corner of Road 28 and "A" Street. The location of the site relative to nearby streets and other improvements is indicated on Figure 1, Site Location Map. Its geographic position is 36.9572° north latitude and 120.0389° west longitude.

The existing ground surface is relatively flat and the elevation above mean sea level at the project site varies from approximately 272 feet at the south end of the site to approximately 275 feet at the north end of the site. At the time of our initial field exploration (Borings B-1 through B-6) near the end of March 2015, the vines had been removed above the ground surface and the ground cover consisted of a moderate to heavy growth of weeds. Following the development of a revised site plan by the Project Architect, another field exploration (Borings B-7 through B-23) was performed at the end of July 2015, at which time the site had been disked and there was a minor growth of weeds (see Picture 3 below). As indicated in the referenced Phase 1 Environmental Site Assessment, there was a house and other related improvements at the project site that were located along Road 28 approximately 300 feet south of Sunrise Avenue. Although the old

structures and related foundations were removed many years ago, a septic tank and related leach field are still present at the site. The septic tank was exposed during the recent removal of the grape vines and is located at approximately 36.95896° north latitude and 120.03786° west longitude (see Pictures 1 and 2 below). Shortly after it was exposed, the septic tank was covered with a steel plate. There is also an underground irrigation pipe and related risers along the east side of the site as shown by Picture 3.



Picture 1: Existing Septic Tank, looking southeast towards Road 28 (2/10/15).



Picture 2: Septic Tank from west side (2/10/15).



Picture 3: Along west side of Road 28 looking south (7/30/15).

1.04 Planned Improvements

Based on a site plan provided by S.I.M. Architects, and as illustrated on Figure 4, the new Road 28 Elementary School will include:

- Six, single-story buildings with footprint areas ranging from approximately 6,000 to 11,800 square feet;
- An allowance for the installation of four portable classroom buildings;
- Paved driveways, bus loading lane, and two parking lots; and
- Various landscaping and play areas including a hard-court with 6 basketball courts, playground apparatus, and softball and soccer fields.

It is anticipated that the new buildings will have light gauge metal or wood framed walls with a slab-on-grade floor and shallow concrete foundations. Based on the type of construction, it is anticipated that maximum column and wall loads (dead plus live without seismic) will be less than 50 kips and 2 kips per lineal foot, respectively. It is expected that less than 2 feet of cut or fill will be required to achieve the finished pad elevations for the planned building improvements.

1.05 Investigation Methods

Our investigation consisted of office research, field explorations, laboratory testing, review of the compiled data, and preparation of this report. It has been performed in a manner consistent with generally accepted engineering and geologic principles and practices, and has incorporated applicable requirements of California Building Code. Definitions of

technical terms and symbols used in this report include those of the ASTM International, the California Building Code, and commonly used geologic nomenclature.

Technical supporting data are presented in the attached appendices. Appendix A presents a description of the methods and equipment used in performing the field exploration and logs of our subsurface exploration. Appendix B presents a description of our laboratory testing and the test results. Finally, references are presented in Appendix C.

2.00 FINDINGS

2.01 Geologic Setting

The subject site is centrally located within the San Joaquin Valley which comprises the southern half of the Great Valley geomorphic province. The valley is approximately 250 miles long and 50 to 70 miles wide and is bounded on the east by the Sierra Nevada Mountains and on the west by the Coast Ranges. A thick sequence of marine and non-marine sediments, up to 6 miles deep, has been deposited in the valley from the late Mesozoic through the Cenozoic.

According to Bartow (1991) the San Joaquin valley is a westward-tilting structural trough where the east flank is broad and gently inclined as opposed to the western flank which is relatively narrow. The sediments along the eastern side of the valley rest on the fault block of the Sierra Nevada pluton. The west side of the valley is thought to be underlain by mafic and ultramafic rocks (Page, 1986).

According to regional maps and cross sections prepared by Bartow (1991) roughly between 1,500 to 3,000 feet of Quaternary and Tertiary age sediments underlie the site and rest on basement complex bedrock. Shelton, et. al (2012) report up to 3,000 feet of late Tertiary to Quaternary age sediments in the Madera area. The sediments derived from the Sierra Nevada Mountains to the east comprise alluvial fan and fluvial deposits with interbedded lacustrine deposits.

A Regional Geologic Map depicting the approximate location of the site is presented as Figure 2.

2.02 Earth Materials

The soils encountered in the test borings generally consisted of 2 to 7 feet thick layers of sandy silt with varying amounts of clay, silty sand, and relatively clean sand. The layers varied in thickness and did not appear to be horizontally contiguous across the project site. The consistency of the soils was predominantly stiff to hard for layers that were predominantly silt or clay and medium dense to dense for the sandier soils. However, a relative loose layer of sand was encountered in Boring B-4 at 4.5 feet and a soft sandy clay layer with scattered organic material was encountered in Boring B-5 at a depth of 35.5 to 38 feet. As indicated above, the soils encountered in the test borings are related to alluvial deposits that are estimated to be approximately 1,500 to 3,000 feet deep in the vicinity of the project site.

A Boring Location Map showing the locations of the test borings and a geologic cross section are presented as Figures 4 and 5, respectively. Because the project site is underlain by deep alluvial deposits, only one geologic cross section was prepared. Logs of our exploratory borings are presented in Appendix A, which provide more detailed information of the soils that were encountered to the maximum depths explored (51 feet) at the project site.

2.03 Expansive Soils

Expansion index and Atterberg Limits tests indicate that near surface soils range from low to moderately expansive. Results of expansion index and Atterberg Limits tests are presented in Appendix B.

2.04 Surface and Groundwater Conditions

No areas of ponding or standing water were present at the time of our study. Further, no springs or areas of natural seepage were observed at the project site. In addition, no groundwater was encountered in the test borings within the maximum depth explored of 51 feet.

According to the Groundwater Basin Contour Map for the Madera Groundwater Basin (Spring 2011) available at the California Department of Water Resource website, the depth to ground water is over 150 feet in the vicinity of the project site. Historical groundwater basin contour maps indicate the groundwater has gradually become deeper since 1958, when the groundwater depth at the project site was approximately 58 feet (elevation of approximately 218).

2.05 Faults

The site is not located within the boundaries of an Earthquake Fault Zone for fault-rupture hazard as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no faults are known to pass through the property. Figure 4a illustrates the location of the project site relative to nearby fault systems in California and Figure 4b provides a legend for the Fault Activity Map. The nearest active or potentially active earthquake fault zone (evidence of displacement within the past 1.6 million years) is located approximately 40 miles to the west/southwest of the site along the San Joaquin Fault System.

2.06 Historic Seismicity

According to the California Historical Earthquakes Online Database maintained by the California Geological Survey, there have been no historic earthquakes with a magnitude greater than or equal to 5.5 epicentered within 30 miles of the site. The nearest large historic earthquakes in the California have been epicentered at least 55 miles away the site, as summarized in the table below.

Large Historic Earthquakes

Event	Year	Magnitude	Distance from Site (Miles)
Parkfield	1922	6.3	62
Mammoth Lakes	1980	6.2	83
Mammoth Lakes	1980	6.0	83
Coalinga	1983	6.4	50

Our research of regional geologic and seismic data did not reveal any known instances of ground failure in the vicinity of the site associated with regional seismic activity. Seismic design parameters relative to the requirements of the 2013 California Building Code are presented in Section 3.09.

2.07 Flooding Potential

According to Federal Emergency Management Agency (Flood Insurance Rate Map #06039C1160E, effective on September 26, 2008), the site is located within an unshaded area of Flood Zone X, which is a "minimal risk area outside the 1-percent and .2-percent-annual-chance floodplains. No base flood elevations or base flood depths are shown within these zones."

Control of surface runoff originating from within and outside of the site should, of course, be included in design of the project.

2.08 Landslides

Since there are no natural or manmade slopes in the vicinity of the project site, landsliding is not a hazard at this property.

2.09 Other Geologic Hazard Considerations

California Geological Survey Note 48 (2011) identifies a number of exceptional geologic hazards that can occur at individual sites, but do not occur statewide. Evaluation of these exceptional conditions is referred to as a conditional geologic assessment by Note 48. Specific assessment items listed in Note 48 are addressed in the table below.

CONDITIONAL GEOLOGIC ASSESSMENT

Hazard	Assessment	Reference
Methane gas, hydrogen-sulfide gas, tar seeps	Not applicable, site is not located within an oil field identified as a high risk area for hazardous gas accumulations.	See Section 1.03
Volcanic eruption	Not applicable, site is not in a known hazard area for volcanic eruptions.	Miller, 1989 (U.S.G.S. Bulletin 1847)
Flooding	The proposed development area is not located within the boundaries of a 100-year flood zone.	See Section 2.07
Tsunami and seiches inundation	Not applicable.	See Section 3.10
Radon-222 gas	Not applicable, typically a concern in the California Coast Ranges.	See Section 2.01 and CGS Note 48.
Naturally occurring asbestos	Not applicable, site is not in an area likely to contain naturally occurring asbestos.	Churchill and Hill, 2000 (DMG OFR 2000-19).
Hydrocollapse due to anthropic use of water	Due to the density of underlying soils, hydrocollapse due to anthorpic use of water is unlikely.	See Sections 2.01, 2.02, and 3.10. Appendices A and C.
Regional land subsidence	The site is not identified in an area of large historic subsidence witin the California Central Valley. Control of subsidence will dependent upon proper jurisdictional management of groundwater resources.	City of Madera General Plan, October 7, 2009 and Borches and Carpenter, 2014.
Clays and cyclic softening	Soils within the upper 50 feet of the ground surface are primarily granular rather than clays. Expansive properties of near-surface soils have been considered in foundation design.	See Sections 3.04 and 3.11

3.00 CONCLUSIONS AND RECOMMENDATIONS

3.01 General Conclusion

Based on specific data and information contained in this report, our understanding of the project and our general experience in engineering geology and geotechnical engineering, it is our professional judgment that the proposed development is geologically and geotechnically feasible. Our review of geological literature and the field exploration performed for this project did not indicate any unusual conditions at the site that would entail special design considerations or construction procedures. However, the near-surface soils have a low to moderate expansion potential and exhibit a relatively low relative density. Specific geotechnical recommendations are presented below to address these soil conditions and provide information for other members of the design team to prepare the project plans and specifications for the new elementary school.

3.02 General Earthwork and Grading

All grading should be performed in accordance with Section 3.04 of this report and the project plans and specifications. In the event of conflicts between this report and the project plans or specifications, this report shall govern.

It is also recommended that all earthwork and grading be performed in accordance with Appendix J of the 2013 California Building Code and all applicable governmental agency requirements. In the event of conflicts between this report and Appendix J, this report shall govern. It should be noted that all references to maximum dry density, optimum moisture content, and relative compaction are based on ASTM D 1557 laboratory test procedures.

3.03 Earthwork Shrinkage

Shrinkage is the decrease in volume of soil upon removal and recompaction, or scarifying and recompacting, expressed as a percentage of the original in-place volume. Based on our observations of the existing field conditions and lab testing data, a shrinkage factor in the range of 10 to 15 percent is considered applicable for this project.

The degree to which fill soils are compacted and variations in the insitu density of existing soils will influence earth volume changes. Consequently, some adjustments in grades near the completion of grading could be required to balance the earthwork.

3.04 Site Preparation and Earthwork Construction

All vegetation, organic rich soils (soils containing more than 2 percent organics by weight), trash, and debris, including the septic tank and leach field system that is in the area of the former house and existing underground utilities (see Section 1.03), should be cleared from the grading area and removed from the site. If allowed by the landscape architect, organic-rich soils can be placed in the upper 12 inches of landscape areas at the site. Based on our field exploration, the site should be stripped to a depth of approximately (6) inches. In addition, the roots related to the recently removed grape vines will need to be removed or grubbed out and properly disposed of so they are not mixed into over-excavated soils that will be used as engineered fill. In landscape or ball field areas that lie outside of building and paved (AC pavement or concrete flatwork) areas as defined below, the landscape architect or Project Civil Engineer should specify the required stripping and grubbing that must be performed as part of the site development. Prior to performing the over-excavation recommended below, the stripped and grubbed surfaces should be reviewed and approved by the Project Geotechnical Engineer. After the removal of deleterious materials, stripping of organic-rich soils, and removal of grape vine roots, the following over-excavation must be done within the area of the planned improvements:

- Within the area of the planned building improvements plus 5 feet horizontally beyond the perimeter of the building additions, the subgrade must be over-excavated at least 2 feet below the bottom of foundations or at least 2.5 feet below the stripped subgrade surface, whichever is lower.
- Within the area of planned asphalt or concrete pavements and concrete flatwork plus one foot horizontally, the subgrade must be over-excavated at least 18 inches below the stripped surface or at least 12 inches below the finished subgrade surface, whichever is lower.

Following the over-excavation indicated above, a designated representative for the Project Geotechnical Engineer must review the exposed ground surface and determine if any additional over-excavation is required.

The over-excavated ground surface in all areas determined to be satisfactory for the support of fills must be scarified to a minimum depth of 8 inches. Scarification should continue until the soils are broken down and free from lumps or clods and until the scarified zone is uniform. The moisture content of the scarified zone shall be adjusted to at least the optimum moisture content. The scarified zone must then be uniformly compacted to at least 90% relative compaction within the building pad area and concrete flatwork and to at least 95% within paved areas that will be subject to vehicular traffic.

Removed and/or over-excavated soils free of organics and other deleterious material may be used as engineered fill. Fill material should be placed in nearly horizontal layers, uniformly moisture conditioned to at least optimum moisture content, and then compacted in layers that do not exceed approximately 6 inches in thickness. Thicker lifts may be placed if testing indicates the compaction procedures are such that the required compaction is being achieved and the geotechnical consultant approves their use. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to insure uniformity of material in each layer. Engineered fill must be compacted to achieve a relative compaction of at least 90% except for the upper 12 inches of subgrade below asphalt or concrete pavement sections subject to vehicular traffic, which must be compacted to at least 95 percent.

The above recommendations are based on the assumption that soils encountered during field exploration are representative of soils throughout the site. However, there can be unforeseen and unanticipated variations in soils between points of subsurface exploration. Hence, over-excavation depths must be verified, and adjusted if necessary, at the time of grading. In addition, any contaminated or expansive soils within three (3) feet of the finished subgrade surface, must be removed and properly disposed of offsite.

3.05 Imported Fill Material

Imported fill materials that will be placed within building, pavement, or concrete flatwork areas must be non-hazardous and be obtained from a single, uniform source that meets the following criteria:

Maximum Particle Size:	3 inches
Percent Passing 3/4 inch Sieve:	90% - 100%
Percent Passing #4 Sieve:	65% - 100%
Percent Passing #200 Sieve:	20% - 50%
Maximum Expansion Index:	30
Soluble Sulfates < 1,000 mg/kg	
Soluble Chlorides < 200 mg/kg	
Minimum Soil Resistivity > 2,000 ohm-cm	
pH in the range of 6.5 to 8.5	

3.06 Fill and Cut Slopes

Due to the low gradient of the property, it appears that construction of cut and fill slopes will not be required. If such slopes are proposed, they should be inclined no steeper than 2 horizontal to 1 vertical. In addition, appropriate landscaping measures should be taken to protect the face of slopes from erosion.

3.07 Utility Trench Backfill

Except for the relatively clean sandy soils that are present in the northeastern part of the project site (in the vicinity of Boring B-23), the onsite soils will not be suitable for use as pipe bedding for buried utilities. All pipes should be bedded in a sand or crushed aggregate imported material as specified by the Project Civil Engineer. We recommend the bedding material have a Sand Equivalent (SE) of at least 30 and meet the following gradation limits:

Maximum Particle Size:	1"
Percent Passing 3/4 inch Sieve:	80% - 100%
Percent Passing 3/8 inch Sieve:	60% - 100%
Percent Passing #4 Sieve:	50% - 100%
Percent Passing #30 Sieve:	15% - 50%
Percent Passing #200 Sieve:	0% - 8%

Bedding materials should be compacted to at least 90% relative compaction (ASTM D1557) by mechanical methods. The geotechnical consultant should review and approve of proposed bedding materials prior to use.

The on-site soils are expected to be suitable as trench backfill provided they are screened of organic matter and other deleterious material. Trench backfill must be compacted to at least 90% relative compaction (ASTM D1557) and the upper 12 inches of trench backfill beneath pavement sections should be compacted to at least 95% relative compaction. Trench backfill should be compacted using mechanical methods; no jetting of backfill should be allowed. A minimum trench width of 24 inches or 18 inches plus the diameter of the utility line, whichever is greater, should be provided to permit uniform compaction on both sides of utility line and allow for a technician to perform in-place density tests. If narrower trenches are desired, a sand-cement slurry should be used to backfill the trenches to within 8 inches of the top of trench. The sand-cement slurry should contain at least 2 sacks of cement per yard of mix and have a 4- to 6-inch slump. In addition, slurry should be consolidated using a suitable vibratory or mechanical method.

All utility trench backfill within street right of ways, utility easements, under or adjacent to sidewalks, driveways, or building pads should be observed and tested by the geotechnical consultant to verify proper compaction. Trenches excavated adjacent to foundations should not extend within the footing influence zone defined as the area within a line projected at a 1:1 drawn from the bottom edge of the footing. Trenches crossing perpendicular to foundations should be excavated and backfilled prior to the construction of the foundations. The excavations should be backfilled in the presence of the geotechnical engineer and tested to verify adequate compaction beneath the proposed footing. Where utility crossings are located within 12 inches of bottoms of footings, conduits should be wrapped with polystyrene foam or other suitable material with a minimum thickness of one inch. Conduits extending through footings shall be "sleeved" as determined by the Project Structural Engineer.

Cal/OSHA construction safety orders should be observed during all underground work.

3.08 Faulting

Since the site is not located within the boundaries of an Earthquake Fault Zone and no faults are known to pass through the property, surface fault rupture within the site is considered unlikely.

3.09 Seismic Design Parameters

Seismic design parameters have been developed in accordance with Section 1613 of the 2013 California Building Code (CBC) using the online U.S. Geological Survey Seismic Design Maps Calculator (Version 3.1.0, ASCE 7-10 Standard) and a site location based on latitude and longitude. The calculator generates probabilistic and deterministic maximum considered earthquake spectral parameters represented by a 5-percent damped acceleration response spectrum having a 2-percent probability of exceedance in 50 years. The deterministic response accelerations are calculated as 150 percent of the largest median 5-percent damped spectral response acceleration computed on active faults within a region, where the deterministic values govern. The calculator does not, however, produce separate probabilistic and deterministic results. The parameters generated for the subject site are presented below:

2013 California Building Code (CBC) Seismic Parameters

Parameter	Value
Site Location	Latitude = 36.9572 degrees Longitude = -120.0389 degrees
Site Class	Site Class = D Soil Profile Name = Stiff Soil
Mapped Spectral Accelerations (Site Class D)	S_s (0.2-second period) = 0.655g S_1 (1-second period) = 0.264g
Site Coefficients (Site Class D)	F_a = 1.276 F_v = 1.871
Maximum Considered Earthquake Spectral Accelerations (Site Class D)	S_{MS} (0.2-second period) = 0.836g S_{M1} (1-second period) = 0.495g
Design Earthquake Spectral Accelerations (Site Class D)	S_{DS} (0.2-second period) = 0.56g S_{D1} (1-second period) = 0.33g

The above table shows that the mapped spectral response acceleration parameter for a 1-second period (S_1) is less than 0.75g and the spectral response acceleration parameters are S_{DS} = 0.56g and S_{D1} = 0.33g. Therefore, the Seismic Design Category has been determined from Tables 1613.3.5(1) and 1613.3.5(2) is D for all Occupancy Categories (CBC Section 1613.5.6). Consequently, as required for Seismic Design Categories C through F by CBC Section 1803.5.11, slope instability, liquefaction, total and differential settlement, and surface displacement by faulting or seismically lateral spreading or lateral flow have been evaluated. Applicable portions of CBC Section 1803.5.12 have also been evaluated including dynamic lateral loading of retaining walls.

Peak earthquake ground acceleration adjusted for site class effects (PGA_M) has been determined in accordance with ASCE 7-10 Section 11.8.3 as follows: $PGA_M = F_{PGA} \times PGA = 1.322 \times 0.239 = 0.32g$.

3.10 Liquefaction and Secondary Earthquake Hazards

Potential secondary seismic hazards that can affect land development projects include liquefaction, tsunamis, seiches, and seismically induced settlement, flooding, or landsliding.

Liquefaction

Liquefaction is a phenomenon where earthquake-induced ground vibrations increase the pore pressure in saturated, granular soils until it is equal to the confining, overburden pressure. When this occurs, the soil can completely loose its shear strength and enter a liquefied state. The possibility of liquefaction is dependent upon grain size, relative density, confining pressure, saturation of the soils, and intensity and duration of ground shaking. In order for liquefaction to occur,

three criteria must be met: "low density", coarse-grained (sandy) soils, a groundwater depth of less than about 50 feet, and a potential for seismic shaking from nearby large-magnitude earthquake.

California Geological Survey Note 48 defines low density soils as non-plastic alluvium, typically SPT $(N_1)_{60} < 30$. Although some low density sandy soils were encountered within the upper 50 feet at the site, the current and historical (past 57 years) groundwater depth is greater than 50 feet; therefore, the risk of liquefaction occurring during a design seismic event is considered negligible. Since liquefaction is unlike to occur at the site, it is our opinion that performance of seismic settlement calculations, evaluation of other liquefaction effects and determination of liquefaction mitigation options are not applicable.

It should be noted that the California Geological Survey has not yet prepared a Seismic Hazard Zone Map of potential liquefaction hazards for the quadrangle in which the site is located. In addition, there are no liquefaction hazard zones near the site according to the City of Madera and County of Madera General Plans. Because there are no mapped liquefaction hazard zones near the site, a map depicting such a zone relative to the site has not been prepared.

Tsunamis and Seiches

Tsunamis are sea waves that are generated in response to large-magnitude earthquakes. When these waves reach shorelines, they sometimes produce coastal flooding. Seiches are the oscillation of large bodies of standing water, such as lakes, that can occur in response to ground shaking. Tsunamis and seiches do not pose hazards due to the inland location of the site and lack of nearby bodies of standing water.

Seismically Induced Settlement

Seismically induced settlement occurs most frequently in areas underlain by loose, granular sediments. Taking into account that the (PGA_M) is 0.32g and the Modal Magnitude (M_M) for the design level earthquake is 5.2 (based on the PSH Deaggregation tool on the USGS website), sand or silty sand layers with a corrected SPT value [$(N_1)_{60}$] of less than 15 at the project site may be susceptible to seismically induced settlement. Damage as a result of seismically induced settlement is most dramatic when differential settlement occurs in areas with large variations in the thickness of underlying sediments. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement. Although there is a negligible risk of liquefaction-induced settlement, there is a moderate risk of seismic settlement due to the presence of relative loose silty sand or sand in the upper 50 feet at the project site. Of particular concern are silty sand and sand layers that were encountered in Boring B-1 at depths of approximately 32.5 to 37 feet and from 41 to 45 feet, and in Boring B-5 at a depth of approximately 27 to 35 feet. Based on our analysis (after Tokimatsu, K. and Seed, H.B., 1987), the seismically induced settlement will be in the range of ¼ to ½ inch during a design seismic event. Differential ground settlement on the order of ¼ inch over a distance of 50 feet are also anticipated.

Seismically Induced Flooding

Neither the City of Madera General Plan dated October 7, 2009, nor the Madera County General Plan (October 1995), indicate the site is located within a potential dam inundation area. In addition, there are no up gradient water reservoirs or dams located in close proximity of the site. Consequently seismically induced flooding at the site is unlikely.

Seismically Induced Landsliding

There are no cut or fill slopes that currently exist or are planned at the project site; therefore, the potential for seismically induced landsliding is nil.

3.11 Foundations

Isolated spread footings and/or continuous wall footings are recommended to support the proposed school buildings. If the grading recommendations are followed in Section 3.04 and footings are established in compacted fill materials, footings may be designed using the following allowable soil bearing values:

- Continuous Wall Footings:

  Footings having a minimum width of 12 inches and a minimum depth of 24 inches below the lowest adjacent grade have an allowable bearing capacity of 2,500 pounds per square foot (psf).

- Isolated Spread Footings:

  Footings having a minimum width of 24 inches and a minimum depth of 24 inches below the lowest adjacent grade have an allowable bearing capacity of 2,500 psf.

- Retaining Wall Footings:

  Footings for retaining walls should be founded a minimum depth of 18 inches and have a minimum width of 24 inches. Footings may be designed using the allowable bearing capacity and lateral resistance values recommended for continuous wall footings. However, when calculating passive resistance, the upper 6 inches of the footings should be ignored in areas where the footings will not be covered with concrete flatwork or asphalt pavement.

The above bearing capacities represent an allowable net increase in soil pressure over existing soil pressure and may be increased by one-third for short-term wind or seismic loads. The maximum expected settlement of footings designed with the recommended allowable bearing capacity is expected to be less than 1 inch with differential settlement on the order of ¼ inch for similarly loaded and sized footings.

Our lab testing indicates that the upper 3 to 4 feet of soils at the site have a low to moderate expansion potential. The type and dimensions of concrete, and the size and location of reinforcing steel, used in foundations should be specified by the Project Structural Engineer and should take into account the expansion potential of the onsite soils. As a minimum, reinforcement for continuous footings should include at least two #4 bars near both the top and bottom of footings.

3.12 Lateral Load Resistance

Lateral loads may be resisted by soil friction and the passive resistance of the soil. The following parameters are recommended.

- Allowable Passive Earth Pressure = 200 pcf (equivalent fluid weight, includes a factor of safety = 2.0)
- Coefficient of Friction (soil to footing) = 0.40 (includes a factor of safety = 1.5)
- Retaining structures should be designed to resist the following lateral active earth pressures:

Surface Slope of Retained Materials (Horizontal:Vertical)	Equivalent Fluid Weight (pcf)
Level	38
5:1	41
4:1	42
3:1	45
2:1	58

These active earth pressures are only applicable if the retained earth is allowed to strain sufficiently to achieve the active state. The required minimum horizontal strain to achieve the active state is approximately 0.0025H. Retaining structures should be designed to resist an at-rest lateral earth pressure if this horizontal strain cannot be achieved.

- At-rest Lateral Earth Pressure for level backfill = 60 pcf (equivalent fluid weight)

The Mononobe-Okabe method is commonly utilized for determining seismically induced active and passive lateral earth pressures and is based on the limit equilibrium Coulomb theory for static stress conditions. This method entails three fundamental assumptions (e.g., Seed and Whitman, 1970): Wall movement is sufficient to ensure either active or passive conditions, the driving soil wedge inducing the lateral earth pressures is formed by a planar failure surface starting at the heel of the wall and extending to the free surface of the backfill, and the driving soil wedge and the retaining structure act as rigid bodies, and therefore, experiences uniform accelerations throughout the respective bodies (U.S. Army Corps of Engineers, 2003, Engineering and Design - Stability Analysis of Concrete Structures).

- Seismic Lateral Earth Pressure for level backfill = 15 pcf (equivalent fluid weight).

The seismic lateral earth pressure given above is an inverted triangle, and the resultant of this pressure is an increment of force which should be applied to the back of the wall at 2/3 of the wall height and also applied as a reduction of force to the front of the wall in the upper 1/3 of the footing depth. Per CBC Section 1803.5.12 dynamic seismic lateral earth pressures shall be applied to foundation walls and retaining walls supporting more than 6 feet of backfill. Dynamic seismic lateral earth pressures may also be applied to shorter walls at the discretion of the structural engineer. The dynamic seismic lateral earth pressure will act in addition to the static active earth pressure given above.

3.13 Pole Type Foundations

It is anticipated that the flag pole, light poles, and any shade canopies will be supported on pole-type foundations or drilled piers. This type of foundation should be designed in accordance with Section 1807.3 of the 2013 CBC. However, it is recommended that an allowable lateral soil bearing pressure of 200 psf per foot of embedment be used to develop parameters S1 and S3 rather than one of the values given in Table 1806.2. This value includes a factor of safety of 2 and may be increased as indicated in Section 1806.3.4. In landscape areas, the upper two (2) feet of soil should be ignored when calculating the minimum depth of embedment.

An allowable end bearing pressure of 4,000 psf (includes a factor of safety of 3.0) and an allowable average skin friction of 180 psf (includes a factor of safety of 2.0) may be used to support vertical loads applied to pier foundations that embedded at least 6 feet. The end bearing should be ignored if the drilled pier excavation is not properly cleaned out prior to installing the reinforcing steel and placing concrete. In landscape areas, the skin friction within the upper two (2) feet of

embedded length should be ignored. The total settlement of pier foundations designed in accordance with these recommendations should not exceed one-half inch.

Prior to placing reinforcing steel or concrete, loose or disturbed soils should be removed from drilled pier excavations. A representative of the Geotechnical Engineer should observe the drilling and clean-out associated with the construction of pier foundations in order to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

3.14 Interior Slabs on Grade

Concrete floors with a minimum thickness of 4 inches are recommended for slabs on grade for the proposed building addition, considering normal floor loading conditions. Existing on-site soils within 5 feet of the ground surface may be considered to have a low to moderate expansion potential (EI = 50) for design purposes. If heavy concentrated or moving loads are anticipated, slabs should be designed using a modulus of subgrade reaction (k) of 150 psi/in when soils are prepared in conformance with the grading recommendations contained within the report. The reinforcement of slabs and the location of construction and control joints should be specified by the Project Structural Engineer. However, since the onsite soils have a low to moderate expansion potential (EI of around 50), interior slabs on grade should be reinforced with at least #4 rebar spaced 18 inches on center in both directions.

Special care should be taken on floors slabs to be covered with thin-set tile or other inflexible coverings. These areas should have suitable reinforcement that is placed at the mid-height of the slab, to mitigate drying shrinkage cracks. Alternatively, inflexible flooring may be installed with unbonded fabric or liners to prevent reflection of slab cracks through the flooring.

A moisture vapor retarder/barrier is recommended beneath all slabs-on-grade that will be covered by moisture-sensitive flooring materials such as vinyl, linoleum, wood, carpet, rubber, rubber-backed carpet, tile, impermeable floor coatings, adhesives, or where moisture-sensitive equipment, products, or environments will exist. We recommend that design and construction of the moisture vapor retarder/barrier conform to Section 1805 of the 2013 California Building Code and pertinent sections of American Concrete Institute (ACI) guidance documents 302.1R-04, 302.2R-06 and 360R-10.

The moisture vapor retarder/barrier should consist of a minimum 10 mils thick polyethylene with a maximum perm rating of 0.3 in accordance with ASTM E 1745. Seams in the moisture vapor retarder/barrier should be overlapped no less than 6 inches or in accordance with the manufacturer's recommendations. Joints and penetrations should be sealed with the manufacturer's recommended adhesives, pressure-sensitive tape, or both. The contractor must avoid damaging or puncturing the moisture vapor retarder/barrier and repair any punctures with additional polyethylene properly lapped and sealed.

The moisture vapor retarder/barrier may be placed directly beneath the floor slab with no intermediate granular fill layer. This method of construction will provide improved curing of the slab bottom and will eliminate potential problems caused by water being trapped in a granular fill layer. However, concrete slabs poured directly on a moisture vapor retarder/barrier can experience shrinkage cracking and curling due to differential rates of curing through the thickness of the slab. Therefore, for concrete placed directly on the moisture vapor retarder/barrier, we recommend a maximum water to cement ratio of 0.45 and the use of water-reducing admixtures to increase workability and decrease bleeding.

Alternatively, the slabs may be constructed over 2 inches of sand that is placed on the moisture vapor retarder/barrier. Granular fill should consist of clean, fine-graded materials with 100% passing the No. 4 sieve, 10% to 30% passing the No. 100 sieve, and less than 5% passing the No. 200 sieve. The granular layer should be moist but not saturated and uniformly compacted by making at least one pass with a vibratory base compactor or some other mechanical

method that is approved by the Project Geotechnical Engineer. If uneven, the surface of the sand should be trimmed to provide the full design thickness of the proposed slab. The granular fill layer should not be left exposed to rain or other sources of water such as wet-grinding, power washing, pipe leaks or other processes, and should be damp but not saturated at the time of concrete placement. Granular fill layers that become saturated should be removed and replaced prior to concrete placement.

3.15 Miscellaneous Concrete Flatwork

Miscellaneous concrete flatwork and walkways may be designed with a minimum thickness of 4 inches. Large slabs should be reinforced with a minimum of #4 rebar placed 18 inches on-center in both directions. The reinforcement must be placed at mid-height in the slab. Control joints should be constructed to create squares or rectangles with a maximum spacing of 12 feet. The Project Civil Engineer should provide design details and specifications for all exterior concrete flatwork include walkways. In addition, walkways should be separated from foundations with a thick expansion joint filler.

The subgrade beneath all miscellaneous concrete flatwork should be constructed in accordance with Section 3.04 of this report. The geotechnical engineer should monitor the moisture conditioning and compaction of the subgrade soils in order to verify compliance with our recommendations.

3.16 Footing Excavation and Slab Preparations

All footing excavations should be observed by the geotechnical consultant to verify that they have been excavated into competent soils. The foundation excavations should be observed prior to the placement of forms, reinforcement steel, or concrete. These excavations should be evenly trimmed and level. Prior to concrete placement, any loose or soft soils should be removed. Excavated soils should not be placed within slab or footing areas unless properly compacted (see Section 3.04).

Prior to the placement of the moisture barrier and sand, the subgrade soils underlying the slab should be observed by the geotechnical consultant to verify that all under-slab utility trenches have been properly backfilled and compacted, that no loose or soft soils are present, and that the slab subgrade has been properly compacted to a minimum of 90 percent relative compaction within the upper 12 inches.

Footings may experience an overall loss in bearing capacity or an increased potential to settle where located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse and/or a loss of serviceability. To reduce this risk, footings should extend below a 1:1 plane projected upward from the closest bottom of a parallel utility trench.

The subgrade below slabs on grade and walkways should be brought to a minimum of 0% and a maximum of 4% above their optimum moisture content for a depth of 6 inches prior to the placement of concrete. The geotechnical consultant should perform insitu moisture tests to verify that the appropriate moisture content has been achieved a maximum of 24 hours prior to the placement of concrete or moisture barriers.

3.17 Drainage and Moisture Proofing

Surface drainage should be directed away from the proposed structure into suitable drainage devices (see Section 1804.3 of the 2013 CBC). Neither excess irrigation nor rainwater should be allowed to collect or pond against building foundations or within low-lying or level areas of the lot. Surface waters should be diverted away from the tops of slopes and prevented from draining over the top of slopes and down the slope face.

Walls and portions thereof that retain soil and enclose interior spaces and floors below grade should be waterproofed and

damp-proofed in accordance with Section 1805 of the 2013 CBC.

Retaining structures should be drained to prevent the accumulation of subsurface water behind the walls. Backdrains should be installed behind all retaining walls exceeding 3 feet in height. A typical detail for retaining wall back drains is presented at the end of Appendix C. All backdrains should be outlet to suitable drainage devices. Retaining wall less than 3 feet in height should be provided with backdrains or weep holes. Damp-proofing and/or waterproofing should also be provided on all retaining walls exceeding 3 feet in height.

3.18 Cement Type and Corrosion Potential

Four soluble sulfate tests performed on shallow samples of soil indicate a soluble sulfate content in the range of 41.9 to 155 mg/kg (0.0042 to 0.0155 percent by weight). Thus, below-grade concrete at the subject site should have a negligible exposure to water-soluble sulfate in the soil. Our recommendations for concrete exposed to sulfate-containing soils are presented in the table below.

Recommendations for Concrete exposed to Sulfate-containing Soils

Sulfate Exposure	Water Soluble Sulfate (SO_4) in Soil (% by Weight)	Sulfate (SO_4) in Water (ppm)	Cement Type (ASTM C150)	Maximum Water-Cement Ratio (by Weight)	Minimum Compressive Strength (psi)
Negligible	0.00 - 0.10	0-150	--	--	2,500
Moderate	0.10 - 0.20	150-1,500	II	0.50	4,000
Severe	0.20 - 2.00	1,500-10,000	V	0.45	4,500
Very Severe	Over 2.00	Over 10,000	V plus pozzolan or slag	0.45	4,500

Use of alternate combinations of cementitious materials may be permitted if the combinations meet design recommendations contained in American Concrete Institute guideline ACI 318-11.

Our testing also indicates that there is a low soluble chloride content (34.5 to 71.0 mg/kg) in the onsite soils; therefore, no special protection of reinforcing steel will be required.

The soils were also tested for soil reactivity (pH) and electrical resistivity (ohm-cm). The test results indicate that the on-site soils have a pH in the range of 7.4 to 7.8 and a minimum electrical resistivity in the range of 1,610 to 2,130 ohm-cm. A neutral or non-corrosive soil has a value ranging from 5.5 to 8.4. Generally, soils that could be considered moderately corrosive to ferrous metals have minimum resistivity values of about 3,000 ohm-cm to 10,000 ohm-cm. Soils with resistivity values less than 3,000 ohm-cm can be considered corrosive and soils with resistivity values less than 1,000 ohm-cm can be considered extremely corrosive. In any case, buried metal conduits should have a protective coating in accordance with the manufacturer's specifications. A corrosion specialist should be consulted if more detailed recommendations are required.

3.19 Temporary Slopes and Shoring

Our geotechnical investigation indicates that excavations less than 4 feet in depth may be constructed with vertical sidewalls without shoring or shielding. Temporary excavations in existing alluvial soils that are deeper than 4 feet may be safely made at an inclination of 1:1 or flatter. If vertical sidewalls are required in excavations greater than 4 feet in

depth, the use of cantilevered or braced shoring is recommended. The following geotechnical parameters can be used to design a shoring system:

Moist Unit Weight of Soils:	125 pcf
Angle of Internal Friction (ø):	32°
Cohesion:	200 psf

Unless vehicles, equipment, materials, etc., are kept a minimum distance equal to the height of the excavation away from the edge of the excavation, a surcharge load equal to a uniform lateral pressure of 72 psf should be assumed to act on the shoring in addition to the earth pressure calculated using the above geotechnical parameters.

Vehicles, equipment, materials, etc. should be set back a minimum distance of 15 feet from the top edge of sloped or vertical excavations. Surface waters should be diverted away from temporary excavations and prevented from draining over the top of the excavation and down the slope face. During periods of heavy rain, the slope face should be protected with sandbags to prevent drainage over the edge of the slope, and a visqueen liner placed on the slope face to prevent erosion of the slope face.

Periodic observations of the excavations should be made by the geotechnical consultant to verify that the soil conditions have not varied from those anticipated and to monitor the overall condition of the temporary excavations over time. If at any time during construction conditions are encountered which differ from those anticipated, the geotechnical consultant should be contacted and allowed to analyze the field conditions prior to commencing work within the excavation.

Cal/OSHA construction safety orders should be observed during all underground work.

3.20 Pavement Sections

The project will include constructing new asphalt concrete (AC) driveways, parking lots, and hardscape play areas. It is anticipated that a Traffic Index (TI) of 6.0 will be applicable for bus lanes and driveways subject to delivery truck traffic and a TI of 5.0 will be applicable for all other new paved areas with vehicular traffic. Based on the laboratory testing that has been performed, a subgrade R-value of 11 has been used to develop the preliminary pavement sections given below. The structural section recommendations (AC over Class 2 Aggregate Base (AB)) given herein were developed using the procedures outlined in Chapter 630 of the California Highway Design Manual (Caltrans, 2012). This procedure uses the principle that the pavement structural section must be of adequate thickness to distribute the load from the design TI to the subgrade soils in such a manner that the stresses from the applied loads do not exceed the strength of the soil (R-value). Recommended structural sections are given below:

<u>New Asphalt Pavement (TI ≤ 5.0, R-Value = 11)</u>
3.0 inches of AC over 9.0 inches of Class 2 AB or
2.5 inches of AC over 10.0 inches of Class 2 AB

<u>New Asphalt Pavement (TI = 6.0, R-Value = 11)</u>
3.0 inches of AC over 12.5 inches of Class 2 AB

<u>New AC Hardscape with no Periodic Vehicle Traffic</u>
2.5 inches of AC over 4.0 inches of Class 2 AB

<u>New AC Hardscape with Periodic Vehicle Traffic</u>
2.5 inches of AC over 7.0 inches of Class 2 AB

Prior to paving, the subgrade should be prepared in accordance with Section 3.04 of this report. At a minimum, the upper 12 inches of subgrade soils should be at or above optimum moisture content and compacted to a minimum of 95% relative compaction. All aggregate base courses should also be moisture conditioned to within 2% of optimum moisture content and compacted to a minimum of 95% relative compaction.

3.21 Plan Review

Once formal grading and foundation plans are prepared for the subject project, this office should review the plans from a geotechnical viewpoint, comment on changes from the plan used during preparation of this report and revise the recommendations of this report where necessary.

3.22 Geotechnical Observation and Testing During Grading

The geotechnical engineer should be contacted to provide observation and testing during the following stages of grading:

- During the clearing and grubbing of the site.
- During the demolition of any existing structures, buried utilities or other existing improvements.
- During excavation and over-excavation of existing subgrade.
- During all phases of grading including ground preparation and filling operations.
- When any unusual conditions are encountered during grading.

A grading and compaction report summarizing conditions encountered during grading and the in-place density testing that was performed should be submitted upon completion of the earthwork construction.

3.23 Post-Grading Geotechnical Observation and Testing

After the completion of grading the geotechnical engineer should be contacted to provide additional observation and testing during the following construction activities:

- During trenching and backfilling operations of buried improvements and utilities to verify proper backfill and compaction of the utility trenches.
- After excavation and prior to placement of reinforcing steel or concrete within footing excavations to verify that footings are properly founded in competent materials.
- During fine or precise grading involving the placement of any fills underlying driveways, sidewalks, walkways, or other miscellaneous concrete flatwork to verify proper placement, mixing and compaction of fills.
- When any unusual ground or soil conditions are encountered during construction.

4.00 CLOSURE

The findings, conclusions and recommendations in this report were prepared in accordance with generally accepted engineering and geologic principles and practices. No other warranty, either expressed or implied, is made. This report has been prepared for Madera Unified School District to be used solely for the environmental impact report and design purposes. Anyone using this report for any other purpose must draw their own conclusions regarding required construction procedures and subsurface conditions.

The geotechnical and geologic consultant should be retained during the earthwork and foundation phases of construction to monitor compliance with the design concepts and recommendations and to provide additional recommendations as needed. Should subsurface conditions be encountered during construction that are different from those described in this report, this office should be notified immediately so that our recommendations may be re-evaluated.

FIGURES



Source: Google Earth, Imagery Date April 5, 2014

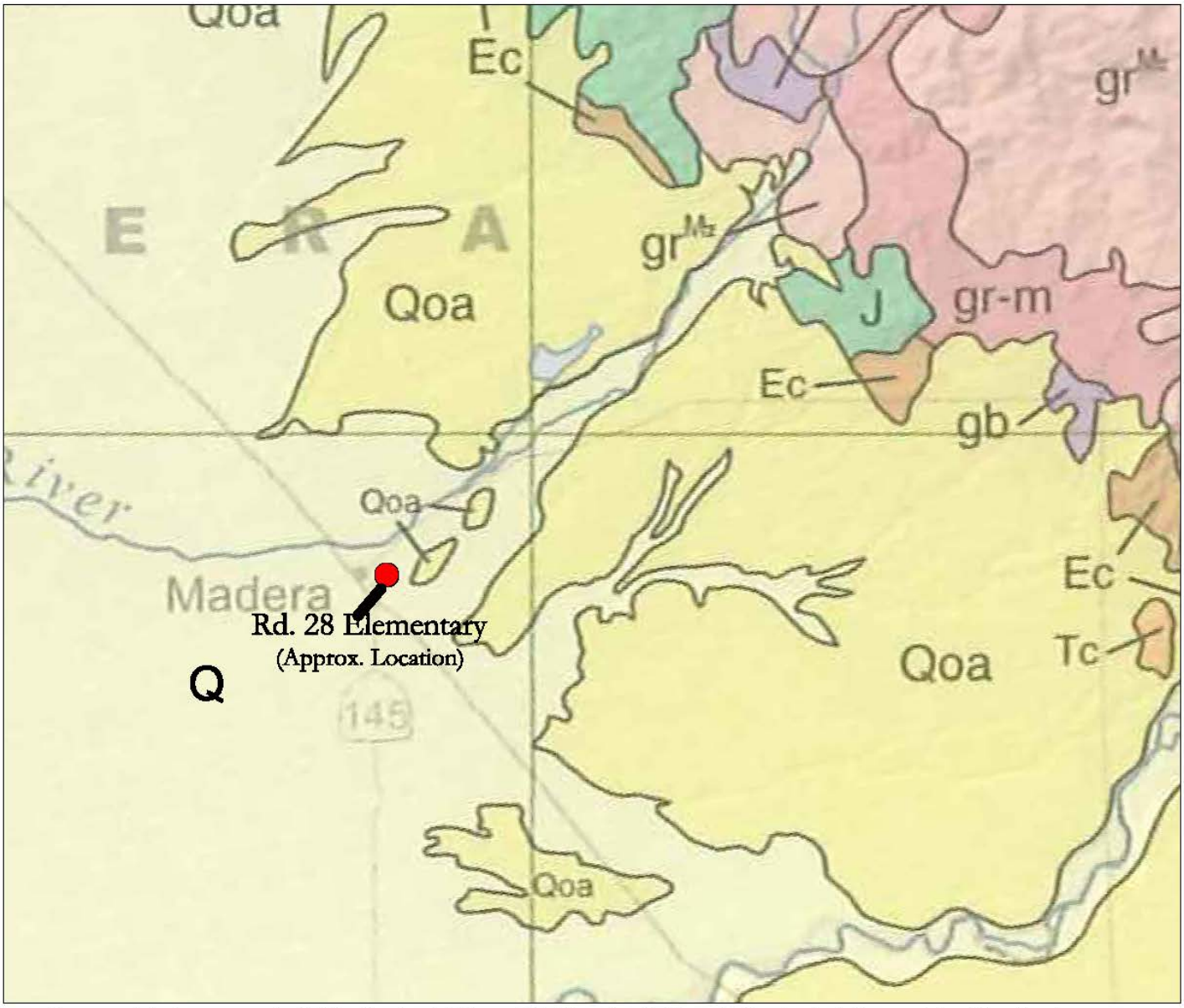
0 660 1,320 ft.

SITE VICINITY MAP
Road 28 Elementary School
Madera, CA

FIGURE 1

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Date:	April, 2015

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Source: Gutierrez, et.al., 2010, Geologic Map of California, California Geological Survey Map No. 2

Partial Legend

Q - Alluvium (Holocene)
Qoa - Older Alluvium (Pleistocene)
Ec - Sandstone, Shale, Conglomerate (Tertiary)
Tc - Undivided Sandstone, Shale, Conglomerate
Breccia and Lake Deposits (Tertiary)
gb - Gabbro (Mezozoic)
gr-m - Granite (Mesozoic)
M - Metasedimentary and Metavolcanic Rocks (Pre-Cretaceous)

N

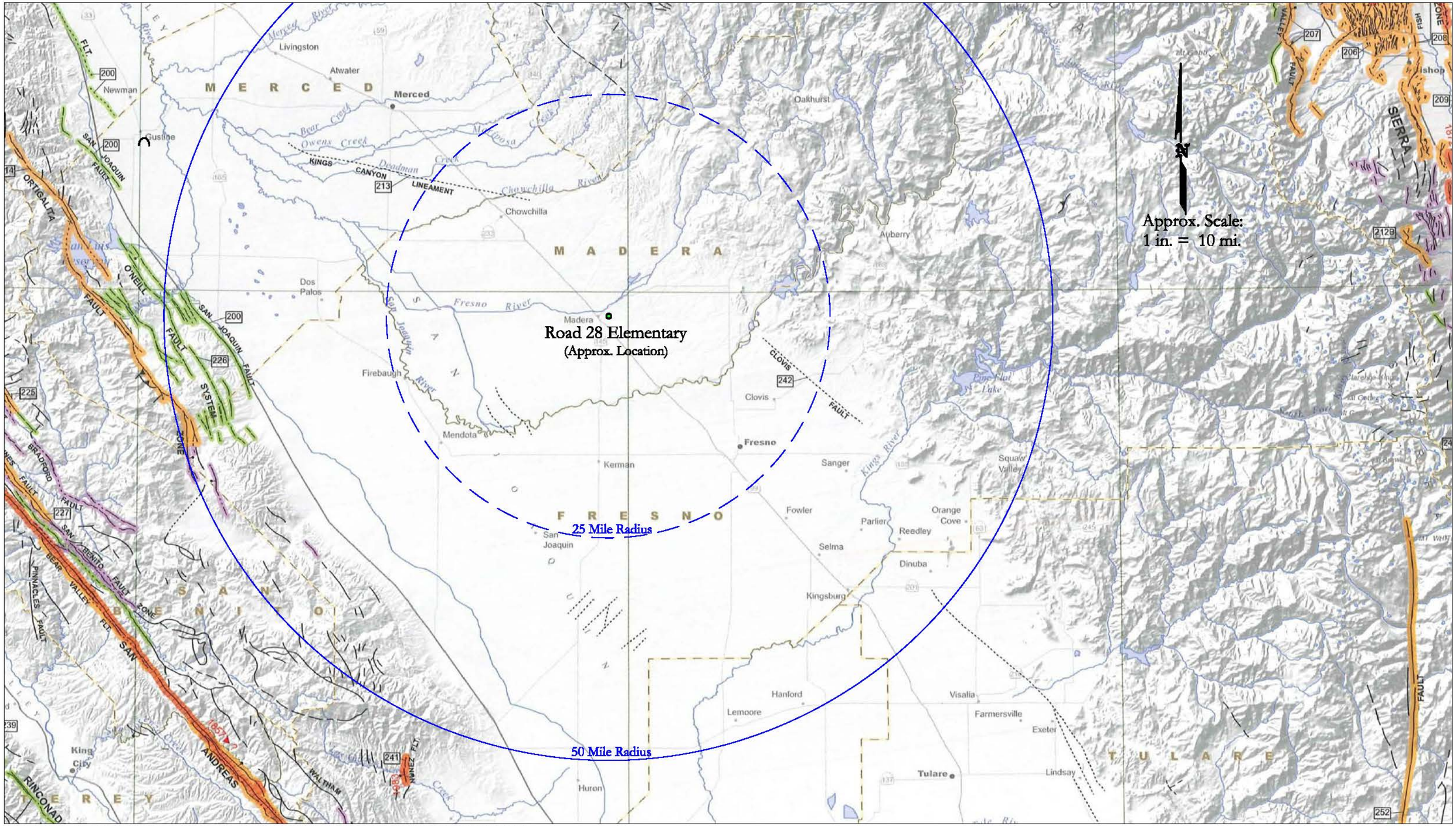
Approx. Scale:
1 in. = 3 mi.

REGIONAL GEOLOGIC MAP
Road 28 Elementary School
Madera, CA

FIGURE 2

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Date:	April, 2015



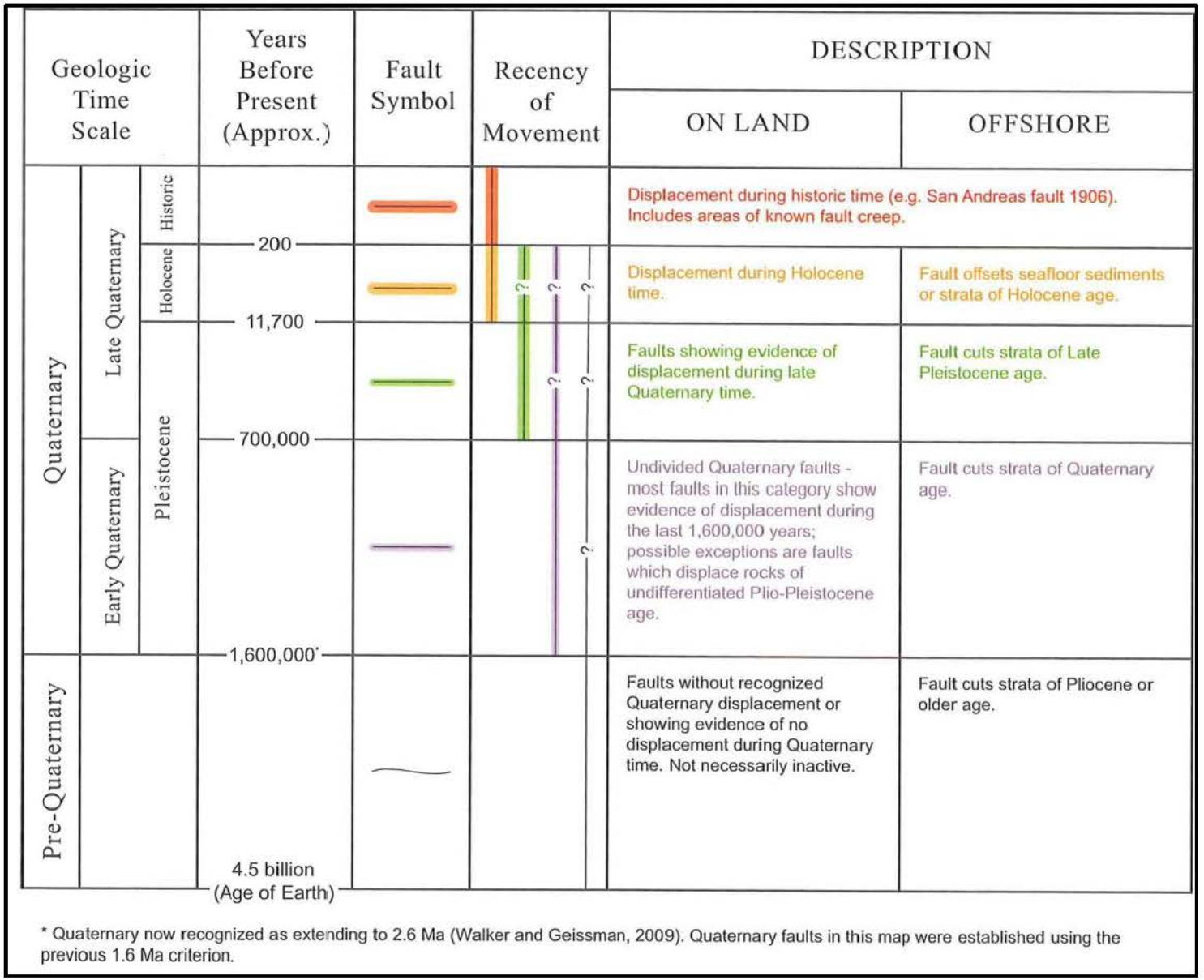
Source: Jennings, C.W., and Bryant, W.A, 2010, Fault Activity Map of California, California Geological Survey, Geologic Data Map No. 6.

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FAULT ACTIVITY MAP
Road 28 Elementary School
Madera, California

FIGURE 3a

RMA Job No.	14-G63-0
Date:	April, 2015



Source: Jennings, C.W., and Bryant, W.A, 2010, Fault Activity Map of California, California Geological Survey, Geologic Data Map No. 6.

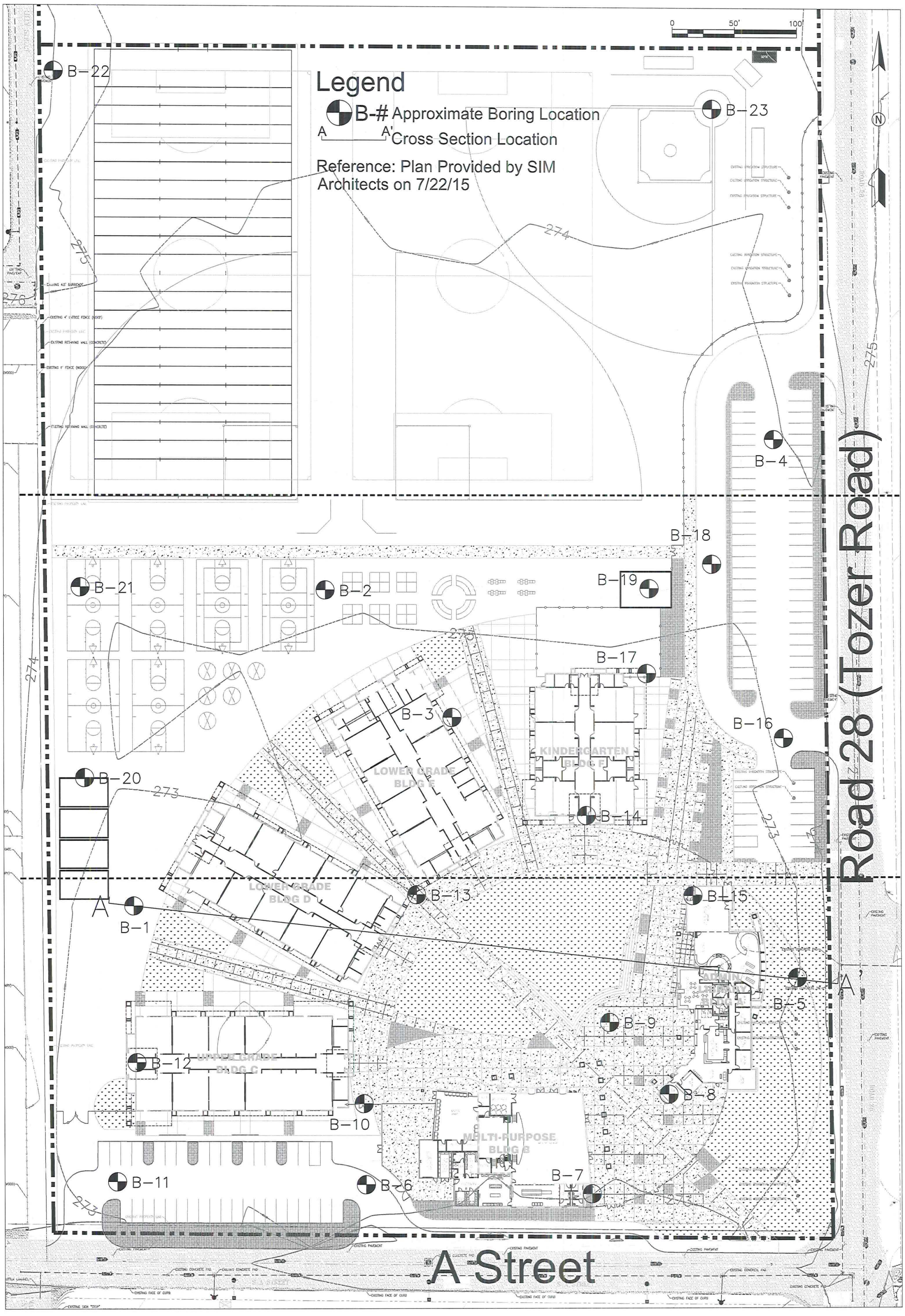
LEGEND

FAULT ACTIVITY MAP

FIGURE 3b

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Date:	April, 2015

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Figure 4
Boring Location Map

RMA Job No:	14-G63-0
Date:	Aug, 2015
Prepared By:	AMS

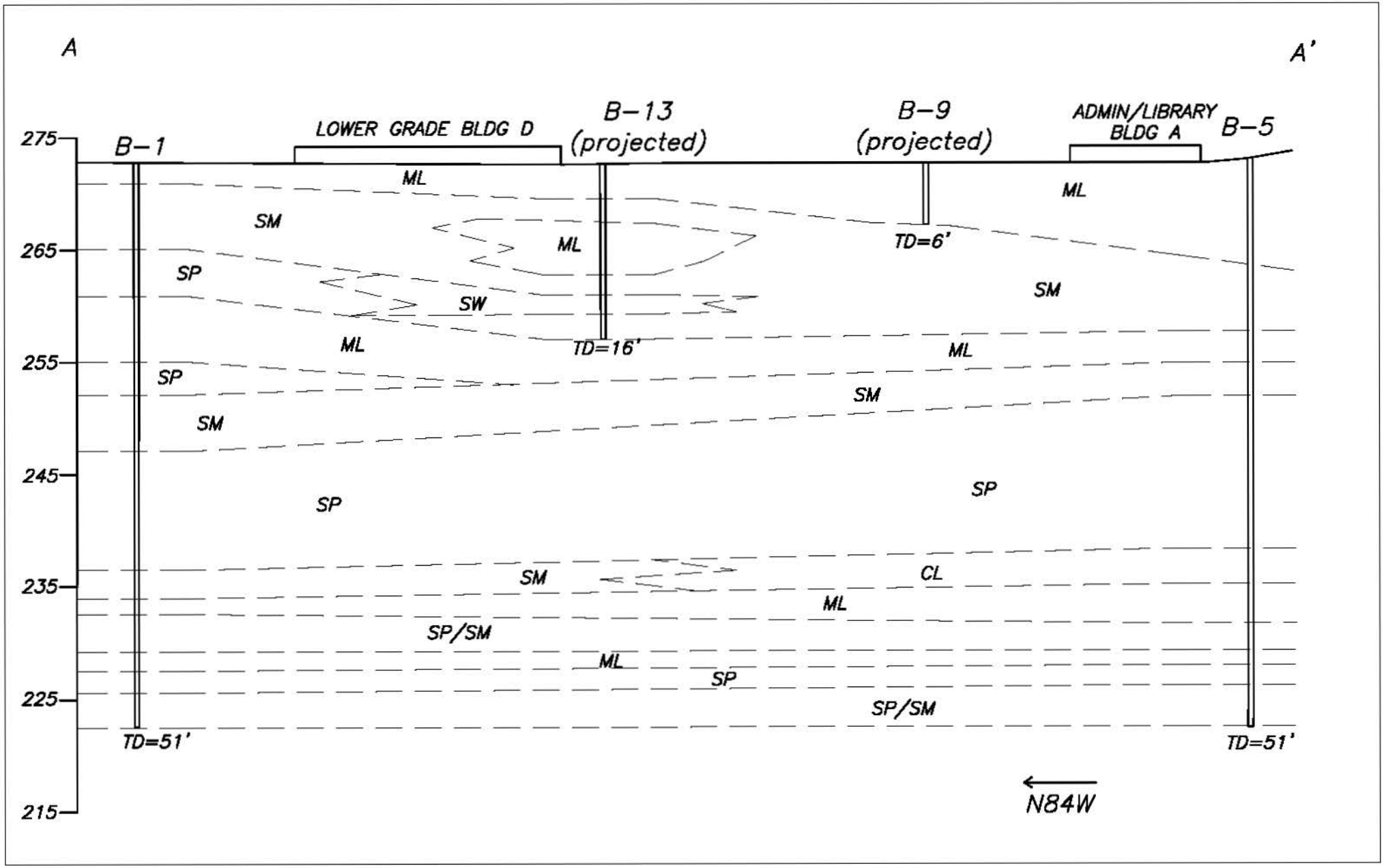


Figure 5
Geologic Cross Section
5x vertical exaggeration

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RMA Job No.	14-G63-0
Date:	Aug, 2015
Prepared By:	AMS

APPENDIX A

FIELD INVESTIGATION

APPENDIX A

FIELD INVESTIGATION

A-1.00 FIELD EXPLORATION

A-1.01 Number of Borings

Our subsurface investigation consisted of 23 borings drilled with a CME 45 drill rig equipped with either a 6" diameter hollow stem auger or a 4" diameter solid stem auger and a 140-pound auto-hammer. Six of the test borings (B-1 through B-6) were drilled on March 20, 2015, based on a preliminary Site Plan provided by the Project Architect. After a revised Site Plan was provided in July, 17 additional test borings (B-7 through B-23) were drilled on July 29 and 30, 2015.

A-1.02 Location of Borings

A Boring Location Map showing the approximate locations of the borings is presented as Figure 4.

A-1.03 Boring Logging

Logs of borings were prepared by one of our staff and are attached in this appendix (see Figures A1 through A23). The logs contain factual information and interpretation of subsurface conditions between samples. The strata indicated on these logs represent the approximate boundary between earth units and the transition may be gradual. The logs show subsurface conditions at the dates and locations indicated, and may not be representative of subsurface conditions at other locations and times.

Identification of the soils encountered during the subsurface exploration was made using the field identification procedure of the Unified Soils Classification System (ASTM D2488). A legend defining the terms used in describing the relative compaction, consistency or firmness of the soil, and moisture level is provided below. Bag or tube samples of the major earth units were obtained for laboratory inspection and testing.

I. SOIL STRENGTH/DENSITY

BASED ON STANDARD PENETRATION TESTS

Compactness of sand		Consistency of clay	
Penetration Resistance N (blows/Ft)	Compactness	Penetration Resistance N (blows/ft)	Consistency
0-4	Very Loose	<2	Very Soft
4-10	Loose	2-4	Soft
10-30	Medium Dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very Dense	15-30	Very Stiff
		>30	Hard

N = Number of blows of 140 lb. weight falling 30 in. to drive 2-in OD sampler 1 ft.

BASED ON RELATIVE COMPACTION

Compactness of sand		Consistency of clay	
% Compaction	Compactness	% Compaction	Consistency
<75	Loose	<80	Soft
75-83	Medium Dense	80-85	Medium Stiff
83-90	Dense	85-90	Stiff
>90	Very Dense	>90	Very Stiff

II. SOIL MOISTURE

Moisture of sands		Moisture of clays	
% Moisture	Description	% Moisture	Description
<5%	Dry	<12%	Dry
5-12%	Moist	12-20%	Moist
>12%	Very Moist, wet	>20%	Very Moist, wet

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LOG OF EXPLORATORY BORING

Job Number: 14-G63-0
Project: Road 28 Elementary School
Madera, California
Date Started: 3/20/2015
Date Completed: 3/20/2015

Boring No: B-1
Boring Location: See Figure 4
Drill Type: CME 45 with 7" Hollow Stem Auger & 140 lb Auto-Hammer

Sample Type: Undisturbed, Bulk
Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

Depth in Feet	Soil Type	SOIL DESCRIPTION	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear ϕ °	Direct Shear C psf	Soluble Sulfate, mg/kg
	ML	**Native:** Brown, Sandy SILT, hard, dry								
	SM	Brown, fine Silty SAND, dense, dry to moist below 3.5 feet	55	118.9	5.5					
5		. . . medium dense	12							
	SP	Light gray, fine to coarse SAND, medium dense, moist								
10		. . . brown with minor silt	21	82.5	2.3					
	ML	Brown and yellow brown, fine Silty SAND, medium dense, moist with 2" to 6" interlayer's of sandy SILT with Clay								
15			23							
	SP	Light gray, fine to coarse SAND, dense, moist								
20		. . . with scattered gravel		104.4	13.6					
	SM	Light gray SILT, hard, moist with rust colored veins	52	90.9	26.5					
	SM	Yellow brown, fine Silty SAND, medium dense, moist								
25	SP	Light gray, fine SAND, medium dense, moist	23							
		. . . fine to medium grained								
30			53	102.5	14.6					
35			15				4			

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Figure A1

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LOG OF EXPLORATORY BORING B-1 CONT'D

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

Depth in Feet	Soil Type	Sample: Undisturbed	Sample: Bulk	Description	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear: ϕ °	Direct Shear: C psf	Soluble Sulfate, mg/kg
	SP			Brown, fine to medium Silty SAND, medium dense, moist								
	SM											
40	ML	X		Light gray with rust-colored veins, Clayey SILT, hard, moist	55	77.2 100.2	10.6 18.2	(Disturbed Sample)				
				Gray, fine SAND, with SILT, dense, very moist								
	SP											
	SM			Brown, fine Silty SAND, medium dense, very moist								
	ML											
45				Gray brown, Clayey SILT, stiff, very moist	19							
	SP			Light gray, fine SAND, medium dense, moist								
				. . . fine to medium grained SAND, with occasional brown Silty SAND interlayers								
50	SP/ SM	X			42	98.0	4.3					
				Notes: 1) Boring terminated at 51'. 2) No groundwater measured in boring 10 minutes after boring was completed. 3) Boring backfilled with soil cuttings on 03/20/15.								
55												
60												
65												
70												

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LOG OF EXPLORATORY BORING

Job Number: 14-G63-0
Project: Road 28 Elementary School
Madera, California
Date Started: 3/20/2015
Date Completed: 3/20/2015

Boring No: B-2
Boring Location:
Drill Type: CME 45 with 7" Hollow Stem Auger and 140 lb Auto-Hammer

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

Depth in Feet	Soil Type	Sample Type: Undisturbed	Sample Type: Bulk	SOIL DESCRIPTION	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear: ϕ °	Direct Shear: C psf	Soluble Sulfate, mg/kg
	ML/ SM	X	/	**Native:** Brown, fine Sandy SILT/Silty SAND, medium dense, dry, with scattered roots	14	108.6	69.9		52			
5	SM			Light brown, fine Silty SAND, medium dense, moist	13							
10				Notes: 1) Boring terminated at 6'. 2) No groundwater encountered. 4) Boring backfilled with soil cuttings on 03/20/15.								
15												
20												
25												
30												
35												

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LOG OF EXPLORATORY BORING

Job Number: 14-G63-0
Project: Road 28 Elementary School
Madera, California
Date Started: 3/20/2015
Date Completed: 3/20/2015

Boring No: B-3
Boring Location:
Drill Type: CME 45 with 7" Hollow Stem Auger and 140 lb Auto-Hammer

Sample Type: Undisturbed, Bulk
Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

Depth in Feet	Soil Type	SOIL DESCRIPTION	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear ϕ °	Direct Shear C psf	Soluble Sulfate, mg/kg
	SP/ CL	**Native:** Brown, Silty CLAY with sand, very stiff to hard, dry with scattered roots				53	70			71
		…moist below 3'	38	117.1	9.7					
5		…hard to very hard	62	112.6	15.7					
	SM	Brown interlayered fine Silty SAND and Sandy SILT, medium dense, moist								
10	SM	Light brown, fine Silty SAND, medium dense, moist	19							
	SP	Light gray, fine to medium SAND, medium dense, moist with a light brown fine Silty SAND interlayer from 14.8' to 15.2'	17							
20			15							
25		Notes: 1) Boring terminated at 21'. 2) No groundwater encountered. 4) Boring backfilled with soil cuttings on 03/02/15.								
30										
35										

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LOG OF EXPLORATORY BORING

Job Number: 14-G63-0
Project: Road 28 Elementary School
Madera, California
Date Started: 3/20/2015
Date Completed: 3/20/2015

Boring No: B-4
Boring Location:
Drill Type: CME 45 with 7" Hollow Stem Auger and 140 lb Auto-Hammer

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

Depth in Feet	Soil Type	Sample Type: Undisturbed	Sample Type: Bulk	SOIL DESCRIPTION	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear: ϕ °	Direct Shear: C psf	Soluble Sulfate, mg/kg
	ML	X		**Native:** Brown, Sandy SILT, stiff, dry to moist	17	111.4	7.1		51			
5	SP			Light brown, fine Silty SAND, medium dense, moist	7							
				Notes: 1) Boring terminated at 6'. 2) No groundwater encountered. 4) Boring backfilled with soil cuttings on 03/20/15.								
10												
15												
20												
25												
30												
35												

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Figure A4

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LOG OF EXPLORATORY BORING

Job Number: 14-G63-0
Project: Road 28 Elementary School
Madera, California
Date Started: 3/20/2015
Date Completed: 3/20/2015

Boring No: B-5
Boring Location: See Figure 4
Drill Type: CME 45 with 7" Hollow Stem Auger & 140 lb Auto-Hammer

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

Depth in Feet	Soil Type	Sample Type: Undisturbed	Sample Type: Bulk	SOIL DESCRIPTION	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear: ϕ °	Direct Shear: C psf	Soluble Sulfate, mg/kg
	ML	X		**Native:** Brown, fine Sandy SILT and Silty SAND medium dense, moist	13					33	400	
5		X			17	105	16					
10	SM			Light brown, fine Silty SAND, medium dense, moist	13							
15	ML	X		Yellow brown, Clayey SILT, very stiff, moist	32	92.8	29.9					
	SM			Gray, fine Silty SAND, medium dense, moist								
20	SP			Light gray, fine SAND, medium dense, moist	12							
				. . . fine to medium grained								
25		X			28	100.1	2.6					
30					14							
				. . . very moist								
35		X				92.9	10.4					
	CL			Gray, Sandy CLAY, soft, very moist with scattered decaying organics	7	96.6	38.3					

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LOG OF EXPLORATORY BORING B-5 CONT'D

Sample Type: Undisturbed, Bulk

Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

Depth in Feet	Soil Type	Undisturbed	Bulk	Description	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear ϕ °	Direct Shear C psf	Soluble Sulfate, mg/kg
				. . . with varying amounts of fine sand	13				56			
	ML			Gray, fine Sandy SILT, medium dense, moist								
40					10				63			
	SP/ SM				28							
				Gray, fine SAND, with some Silt, medium dense, moist								
				Gray, Sandy SILT with CLAY, stiff, very moist								
45	ML											
	SP			Light gray, fine SAND, very dense, moist	46	101.4	4.9					
	SM			Gray, fine Silty SAND, medium dense, moist								
50												
	SP			Light gray, fine to medium SAND, medium dense, moist	26							
55				Notes: 1) Boring terminated at 51'. 2) Boring open to 45' after removing auger to 15'. No groundwater in bottom of boring after 10 minutes. 3) Boring backfilled with soil cuttings on 03/20/15.								
60												
65												
70												

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LOG OF EXPLORATORY BORING

Job Number: 14-G63-0
Project: Road 28 Elementary School
Madera, California
Date Started: 3/20/2015
Date Completed: 3/20/2015

Boring No: B-6
Boring Location:
Drill Type: CME 45 with 7" Hollow Stem Auger and 140 lb Auto-Hammer

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

Depth in Feet	Soil Type	Sample Type: Undisturbed	Sample Type: Bulk	SOIL DESCRIPTION	Blows/foot	Dry Density, pcf	Moisture Content, %	Expansion Index	% Passing #200 Sieve	Direct Shear: ϕ °	Direct Shear: C psf	Soluble Sulfate, mg/kg
0	ML	X		**Native:** Brown, Clayey SILT, very stiff, dry with scattered roots	26	108.9	9.8	46				35
5	SP	X		Brown, Sandy SILT, hard, dry	36	113.7	8.7					
10				Notes: 1) Boring terminated at 6'. 2) No groundwater encountered. 4) Boring backfilled with soil cuttings on 03/20/15.								
15												
20												
25												
30												
35												

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BORING NUMBER B-7

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed 7/29/2015

Ground Elevation: 273 Boring Diameter: 6"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Native: Light brown SANDY SILT with Clay, hard, dry			
	X	33	/	11.5	112			. . . Brown, moist below 12"	67		ML
5	X	36		16.7	112			. . . Decreasing clay content with depth			
								Brown SANDY SILT, stiff, moist			
10		10						Gray, fine to medium grained SAND interlayer from 10'-10.5'			SP
								Brown CLAYEY SILT, stiff, moist			ML
								Yellow brown, fine SILTY SAND, medium dense, moist			SM
15	■	33		16.1	103						
								Brown Clayey SILT, stiff, moist			ML
20		9									
								Boring terminated at 21' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
25											
30											

Material Description

■ Thin Wall Tube ☒ 2.5" Ring Sample ▨ Bulk Sample ◫ Standard Split Spoon Sample ▽ Static Water Table

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BORING NUMBER B-8

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.5 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
		15		7.4	92.1			Light brown SANDY SILT, stiff, dry	53		ML
5		33						Light brown fine SILTY SAND, dense, dry			SM
								Interlayered brown fine to coarse SILTY SAND, gray fine to coarse SAND, and brown fine SILTY SAND, medium dense, moist			SM/SP
10		24		10.8	106.8						
								Yellow brown fine SILTY SAND, medium dense, moist			SM
15		17									
								Brown Clayey SILT, very stiff, moist			ML
20								Boring terminated at 16' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
25											
30											

Material Description

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER B-9

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.6 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
0	■	39	▨	9.8	101			Light brown Sandy SILT with Clay, hard, dry	68		ML
5	▯	13						. . . decreasing clay with depth, brown, stiff, moist			ML
								Boring terminated at 6' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
10											
15											
20											
25											
30											

Material Description

■ Thin Wall Tube ⊠ 2.5" Ring Sample

▨ Bulk Sample ◫ Standard Split Spoon Sample ▽ Static Water Table

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BORING NUMBER B-10

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.6 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
	X	24	/	13.9	95	28	9	Light brown Sandy SILT with Clay, very stiff, dry	72		ML
								Brown Sandy SILT, stiff, moist			ML
5		19						Yellow brown fine SILTY SAND, medium dense, moist			SM
								Gray fine to coarse SAND, medium dense, moist			SP
10	■	31		4.8	112			Brown fine to coarse SILTY SAND interlayer from 10.6' to 11.1' (SM)			
								Gray with orange brown stringers, SILT, hard, moist			ML
15		44									
								Orange brown fine Silty SAND, medium dense, moist			SM
20		24						. . . fine to medium grained, less silt below 20.5'			
								Boring terminated at 21' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
25											
30											

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BORING NUMBER B-11

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.8 Boring Diameter: 6"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
0	■	29	▨	6.0	104			Light brown Sandy SILT, very stiff, dry	60		ML
5	▯	38						. . . hard			
								Boring terminated at 6' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
10											
15											
20											
25											
30											

■ Thin Wall Tube ▨ 2.5" Ring Sample ▨ Bulk Sample ▯ Standard Split Spoon Sample ▽ Static Water Table

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BORING NUMBER B-12

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.7 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
	X	82	/	9.3	112			Light brown Sandy SILT with Clay, very hard, dry	62		ML
								Light brown SANDY SILT, very stiff, dry			ML
5	X	24		3.0	108			Yellow brown fine Silty SAND, medium dense, moist			SM
								Gray fine to coarse SAND, medium dense, moist			SP
								. . . orange brown with minor silt			
10		18						Yellow brown Clayey SILT, very stiff, moist			ML
								Light gray fine SAND, medium dense, moist			SP
15		14									
								Boring terminated at 16' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
20											
25											
30											

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BORING NUMBER B-13

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.8 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
	2.5" Ring	35	Bulk	6.6	100	28	9	Light brown Sandy and Clayey SILT, hard, dry	70		ML
								Yellow brown fine SILTY SAND, medium dense, moist			SM
5	Thin Wall	27		13.9	113			Brown Sandy SILT, very stiff, moist			ML
								Brown Clayey SILT, very stiff, moist			ML
10	Standard Split Spoon	21						Yellow brown fine Silty SAND, medium dense, moist			SM
								Orange and gray fine to coarse SAND, medium dense, moist			SP
15	Standard Split Spoon	12						Yellow brown fine Silty SAND, medium dense, moist			SM
								Boring terminated at 16' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
20											
25											
30											

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BORING NUMBER B-14

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.8 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
		40		8.4	107	28	9	Light brown Sandy SILT, hard, dry . . . with clay from 2.5'-3'	67		ML
5		17						Yellow brown fine Silty SAND, medium dense, moist			SM
								Yellow brown Sandy SILT, very stiff, moist			ML
10		26		19.3	104			Yellow brown fine Silty SAND, medium dense, moist			SM
								Light gray fine to medium SAND, medium dense, moist			SP
15		10						. . . light yellow gray, fine to coarse grained			
20		15									
								Boring terminated at 21' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
25											
30											

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BORING NUMBER B-15

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.7 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
0	■	24	▨	8.4	105	28	10	Light brown SANDY SILT, very stiff, dry	66	43	ML
5	■	40		14.9	112			. . . with clay, moist			
10	▯	16						Light gray brown fine Silty SAND, medium dense, moist			SM
								Light orange gray fine to medium SAND, medium dense, moist			SP
15	▯	10									
								Boring terminated at 16' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
20											
25											
30											

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BORING NUMBER B-16

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 273.1 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
0	■	52	⧄	8.2	117			Light brown Sandy SILT with clay, hard, dry	62		ML
5	▯	28						Brown fine Silty SAND, dense, moist			SM
10								Boring terminated at 6' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
15											
20											
25											
30											

Material Description

■ Thin Wall Tube ⊠ 2.5" Ring Sample ⧄ Bulk Sample ▯ Standard Split Spoon Sample ▽ Static Water Table

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BORING NUMBER B-17

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/29/2015 Completed: 7/29/2015

Ground Elevation: 272.9 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
0	■	33	▨	7.0	110	28	9	Light brown Sandy SILT, very stiff, dry	65		ML
5	■	67		10.9	123			. . . hard, moist			
								Brown Clayey SILT, very stiff, moist			ML
10	▯	15						Light orange brown and gray fine SAND, medium dense, moist			SP
15	▯	13						Boring terminated at 16' No Groundwater Encountered Boring backfilled with soil cuttings on 7/29/15			
20											
25											
30											

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BORING NUMBER B-18

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/30/2015 Completed: 7/30/2015

Ground Elevation: 273.3 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
0	■	35	▨	7.3	113			Light brown SANDY SILT, very stiff, dry	59		ML
5								. . . brown, moist			
								Boring terminated at 6' No Groundwater Encountered Boring backfilled with soil cuttings on 7/30/15			
10											
15											
20											
25											
30											

■ Thin Wall Tube ⊠ 2.5" Ring Sample ▨ Bulk Sample ◫ Standard Split Spoon Sample ▽ Static Water Table

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BORING NUMBER B-19

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/30/2015 Completed: 7/30/2015

Ground Elevation: 273.2 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
0								Light brown SANDY SILT, hard, dry	58		ML
		47		7.6	112			. . . moist			
5		45									
								Light orange-brown fine Silty SAND, medium dense, moist			SM
10		34		5.7	116						
								Boring terminated at 11' No Groundwater Encountered Boring backfilled with soil cuttings on 7/30/15			
15											
20											
25											
30											

Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

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BORING NUMBER B-20

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/30/2015 Completed: 7/30/2015

Ground Elevation: 273.2 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
0								Light brown Sandy SILT with clay, hard, dry	54		ML
		55		8.6	114			. . . brown, moist			
5		20						. . . decreasing clay content, very stiff			
								Interlayered yellow brown fine SAND and Silty SAND with orange and gray fine to coarse SAND, medium dense, moist			SP/SM
10		23									
								Boring terminated at 11' No Groundwater Encountered Boring backfilled with soil cuttings on 7/30/15			
15											
20											
25											
30											

Thin Wall Tube | 2.5" Ring Sample | Bulk Sample | Standard Split Spoon Sample | Static Water Table

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BORING NUMBER B-21

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/30/2015 Completed: 7/30/2015

Ground Elevation: 273.5 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
	■	19	▨	8.2	114			Light brown fine SILTY SAND, medium dense, dry	31		SM
								. . . orange brown, moist			
5	▯	10						Light orange gray fine to medium SAND, medium dense, moist			SP
								Boring terminated at 6' No Groundwater Encountered Boring backfilled with soil cuttings on 7/30/15			
10											
15											
20											
25											
30											

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BORING NUMBER B-22

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/30/2015 Completed: 7/30/2015

Ground Elevation: 276 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table			
	■	68/10"	▨	4.0	132			Light brown fine Silty SAND, very dense, dry to moist	50		SM
								. . . orange brown below 1.5' and moderately cemented from 2' to 3'			
5	▯	61						Reddish brown fine to coarse SILTY SAND, very dense, moist			SM
								Boring terminated at 6' No Groundwater Encountered Boring backfilled with soil cuttings on 7/30/15			
10											
15											
20											
25											
30											

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BORING NUMBER B-23

Client: Madera Unified School District

Project Name: New Madera K-6 School Site

Project Number: 14-G63-0

Project Location: Madera

Date Started: 7/30/2015 Completed 7/30/2015

Ground Elevation: 274.2 Boring Diameter: 4"

Excavation Method: CME 45B Hollow Stem

Boring Location: See Figure 4

Depth (ft)	Drive Sample	Blow Count (N Value)	Bulk Sample	Moisture Content (%)	Dry Unit Weight (pcf)	Liquid Limit	Plasticity Index	Material Description	% Passing #200 Sieve	Expansion Index	USCS Classification
								Light brown fine to medium SAND with silt, loose, dry / medium dense below 1' and moist, brown below 1.5'	13		SP-SM
		12		3.9	110			Light gray fine to coarse SAND, medium dense, moist			SP
5		8						Yellow brown fine Silty SAND, medium dense, moist			SM
10		8						Orange and gray fine to medium SAND, medium dense, moist			SP
								Boring terminated at 11' No Groundwater Encountered Boring backfilled with soil cuttings on 7/30/15			
15											
20											
25											
30											

Thin Wall Tube; 2.5" Ring Sample; Bulk Sample; Standard Split Spoon Sample; Static Water Table

APPENDIX B

LABORATORY TESTS

APPENDIX B

B-1.00 LABORATORY TESTS

B-1.01 Expansion Tests

Expansion index tests were performed on three near-surface soil samples using the test methods outlined in ASTM D4829 (See Figures B1, B2, and B3).

B-1.02 Atterberg Limits

The liquid limit, plastic limit, and the plasticity index of three soil samples were determined using the standard test methods of ASTM D4318. The results of these tests are shown on Figures B4, B5, and B6.

B-1.03 Soluble Sulfates and Chlorides

Tests were performed in accordance with California Test Methods 417 and 422 on four near-surface soil samples obtained during the field exploration. These tests were performed by Dellavalle Laboratory, Inc. located in Fresno, California (see Table B1 for results).

B-1.04 Soil Reactivity (pH) and Minimum Electrical Resistivity

Four near-surface soil samples were tested for soil reactivity (pH) and minimum electrical resistivity using California Test Method 643 (see Table B1). The pH measurement determines the degree of acidity or alkalinity in the soils. The minimum electrical resistivity is used as an indicator of how corrosive the soil is relative to buried metallic items.

B-1.05 Percent Passing #200 Sieve

Twenty-three soil samples were tested in accordance with ASTM D1140 to determine the percent passing the #200 sieve (see Table B2). This represents the amount of silt and clay that is present in the soil.

B-1.06 Maximum Density

A test to determine the maximum density - optimum moisture relationship on a composite sample of the subgrade was performed in the laboratory using the standard procedures of ASTM D1557 (see Figure B7).

B-1.07 Direct Shear

Two 3-point direct shear tests were performed on representative near-surface samples of soil using the standard test method of ASTM D3080 (consolidated and drained). One test was performed on a sample that was derived from a ring sample (Boring B-5 at 2 feet) and another sample was performed on a sample remolded to 90% of the ASTM D1557 maximum density at approximately the optimum moisture content. Shear tests were performed on a direct shear machine of the strain-controlled type by Krazan, Inc. To simulate possible adverse field conditions, the samples were saturated prior to shearing. Three soil specimens were sheared at varying normal loads for each test and the results plotted to establish the angle of the internal friction and cohesion of the tested samples. The results of this test are shown on Figures B8 and B9.

B-1.08 Resistance Value (R-Value)

Resistance Value tests were performed on two representative samples of subgrade obtained from planned driveway/parking lot areas using test methods outlined in CTM 301 (see Figures B10 and B11).

B-1.09 Moisture Determination

The moisture content of tube samples obtained from the test borings was determined in accordance with ASTM D2216,

the standard method for determining the water content of soil using a drying oven. The mass of material remaining after oven drying is used as the mass of the solid particles. The results of these tests are provided on the boring logs in Appendix A.

B-1.10 Density of Split-Barrel Samples

The density of ring and tube samples, which were obtained using a split-barrel sampler, were determined in accordance with ASTM D2937. The results of these tests are provided on the boring logs in Appendix A.

TABLE B1: SUMMARY OF CORROSIVITY TESTS

Sample Location	Soluble Sulfates (mg/kg)	Soluble Chlorides (mg/kg)	pH	Minimum Resistivity (ohm-cm)
B-3 @ 0.5' – 3'	71	54	7.8	1,710
B-6 @ 0.5' – 3'	35	42	7.4	2,130
B-12 @ 1' – 3'	155	68	7.7	1,610
B-15 @ 1' – 3'	68	36	7.4	2,070

TABLE B2: PERCENT PASSING #200 SIEVE TEST RESULTS

Sample Location	Dry Weight Before Wash (grams)	Dry Weight After Wash (grams)	Percent Passing #200 Sieve
B-1 @ 34.5' – 36'	172.5	165.1	4
B-2 @ 0.5' – 2.5'	179.2	86.3	52
B-3 @ 0.5' – 2.5'	176.1	52.0	70
B-4 @ 0.5' – 2.5'	179.6	88.9	51
B-5 @ 36' – 37.5'	155.2	68.3	56
B-5 @ 39.5' – 41'	151.0	56.6	63
B-6 @ 0.5' – 2.5'	176.7	52.8	70
B-7 @ 1' – 3'	174.8	57.5	67
B-8 @ 1' – 3'	181.5	86.0	53
B-9 @ 0.5' – 3'	177.2	57.5	68
B-10 @ 1' – 3'	175.6	48.8	72
B-11 @ 0.5' – 3'	182.0	72.5	60
B-12 @ 1' – 3'	178.4	68.3	62
B-13 @ 1' – 3'	180.4	53.6	70
B-14 @ 2.5' – 3'	181.2	59.0	67
B-15 @ 1' – 3'	180.5	60.6	66
B-16 @ 0.5' – 3'	179.0	67.4	62
B-17 @ 1' – 3'	178.6	62.8	65
B-18 @ 0.5' – 3'	179.5	73.8	59
B-19 @ 2.0' – 2.5'	182.4	77.3	58
B-20 @ 1' – 3'	180.1	82.3	54
B-21 @ 0.5' – 3'	183.6	126.0	31
B-22 @ 0.5' – 2.5'	178.5	88.4	50
B-23 @ 0.5' – 1.5'	189.7	164.3	13

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Figure B1
Laboratory Test Form | ASTM D4829
Expansion Index of Soils

TEST DATA

INITIAL SET-UP DATA		FINAL TAKE-DOWN DATA	
Sample + Tare Weight (g)	779.4	Sample + Tare Weight (g)	814.8
Tare Weight (g)	366.0	Tare Weight (g)	366.0
Moisture Content Data		**Moisture Content Data**	
Wet Weight + Tare	50.0	Wet Weight + Tare	814.8
Dry Weight + Tare	45.7	Dry Weight + Tare	743.8
Tare Weight (g)	0	Tare Weight (g)	366.0
Moisture Content (%)	9.4%	Moisture Content (%)	18.8%
Initial Volume (ft^3)	0.007345	Final Volume (ft^3)	0.007661
Remolded Wet Density (pcf)	124.1	Final Wet Density (pcf)	129.2
Remolded Dry Density (pcf)	113.4	Final Dry Density (pcf)	108.7
Degree of Saturation	**52**	**Degree of Saturation**	**92%**

EXPANSION READINGS

Initial Gauge Reading (in)	0.000
Final Gauge Reading (in)	0.0534
Expansion (in)	0.0534

Uncorrected Expansion Index	53
Corrected Expansion Index, EI	55

Classification of Expansive Soil

EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Project Number:	14-G63-0	**Project Name:**	New Madera K-8 School Site
Lab ID:	15-0040-M	**Test Date:**	3/31/2015
Sampled By:	GPH	**Tested By:**	SM
Sample Date:	3/20/2015	**Sample location:**	B-3 @ 0.5' - 2.5'

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Figure B2
Laboratory Test Form | ASTM D4829
Expansion Index of Soils

TEST DATA

INITIAL SET-UP DATA		FINAL TAKE-DOWN DATA	
Sample + Tare Weight (g)	771.8	Sample + Tare Weight (g)	809.8
Tare Weight (g)	366.0	Tare Weight (g)	366.0
Moisture Content Data		**Moisture Content Data**	
Wet Weight + Tare	50.0	Wet Weight + Tare	809.8
Dry Weight + Tare	45.4	Dry Weight + Tare	734.5
Tare Weight (g)	0	Tare Weight (g)	366.0
Moisture Content (%)	10.1%	Moisture Content (%)	20.4%
Initial Volume (ft^3)	0.007345	Final Volume (ft^3)	0.007593
Remolded Wet Density (pcf)	121.8	Final Wet Density (pcf)	128.9
Remolded Dry Density (pcf)	110.6	Final Dry Density (pcf)	107.0
Degree of Saturation	**52**	**Degree of Saturation**	**96%**

EXPANSION READINGS

Initial Gauge Reading (in)	0.000
Final Gauge Reading (in)	0.0441
Expansion (in)	0.0441

Uncorrected Expansion Index	44
Corrected Expansion Index, EI	46

Classification of Expansive Soil

EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Project Number:	14-G63-0	**Project Name:**	New Madera K-8 School Site
Lab ID:	15-0040-M	**Test Date:**	3/26/2015
Sampled By:	GPH	**Tested By:**	SM
Sample Date:	3/20/2015	**Sample location:**	B-6 @ 0.5' - 2.5'

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Figure B3
Laboratory Test Form | ASTM D4829
Expansion Index of Soils

TEST DATA

INITIAL SET-UP DATA		FINAL TAKE-DOWN DATA	
Sample + Tare Weight (g)	774.6	Sample + Tare Weight (g)	812.9
Tare Weight (g)	366.0	Tare Weight (g)	366.0
Moisture Content Data		**Moisture Content Data**	
Wet Weight + Tare	100.0	Wet Weight + Tare	812.9
Dry Weight + Tare	91.2	Dry Weight + Tare	738.6
Tare Weight (g)	0	Tare Weight (g)	366.0
Moisture Content (%)	9.6%	Moisture Content (%)	19.9%
Initial Volume (ft^3)	0.007345	Final Volume (ft^3)	0.007578
Remolded Wet Density (pcf)	122.6	Final Wet Density (pcf)	130.0
Remolded Dry Density (pcf)	111.9	Final Dry Density (pcf)	108.4
Degree of Saturation	**51**	**Degree of Saturation**	**97%**

EXPANSION READINGS

Initial Gauge Reading (in)	0.0000
Final Gauge Reading (in)	0.0421
Expansion (in)	0.0421

Uncorrected Expansion Index	42
Corrected Expansion Index, EI	43

Classification of Expansive Soil

EI	Potential Expansion
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

Project Number:	14-G63-0	**Project Name:**	New Madera K-6 School Site
Lab ID:	15-0134-M	**Test Date:**	8/20/2015
Sampled By:	GPH	**Tested By:**	SM
Sample Date:	7/29/2015	**Sample location:**	B-15 @ 1-3'

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Figure B4
Laboratory Test Form | ASTM D4318
Plasticity Index (PI) of Soils

Liquid Limit Data

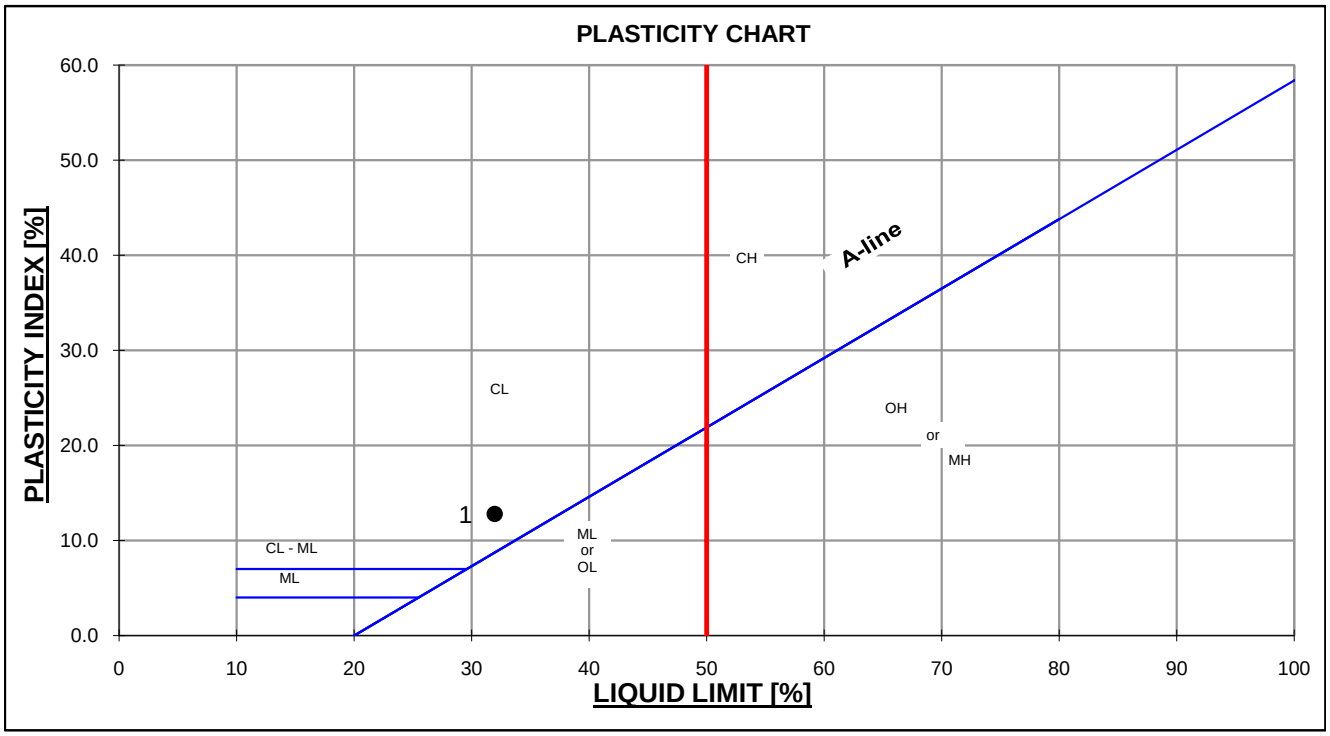
Wet+Tare (g)	37.72	36.74	39.40
Dry+Tare (g)	35.45	34.70	36.66
Tare (g)	28.31	28.43	28.43
No. of Blows	28	21	17
LL	31.8	32.5	33.3
Corrected LL	32.2	31.9	31.8

Plastic Limit Data

Wet+Tare (g)	39.28	39.70
Dry+Tare (g)	38.35	38.77
Tare (g)	33.47	33.94
M.C. (%)	19.1	19.3

Results

AVG L.L.	32
AVG P.L.	19
P.I.	13



Project Number:	14-G63-0	**Project Name:**	New Madera K-8 School Site
Lab ID:	15-0040-M	**Test Date:**	6/27/2015
Sampled By:	GPH	**Tested By:**	SM
Sample Date:	3/20/2015	**Sample location:**	B-5 @ 36' - 37.5'

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Figure B5
Laboratory Test Form | ASTM D4318
Plasticity Index (PI) of Soils

Liquid Limit Data

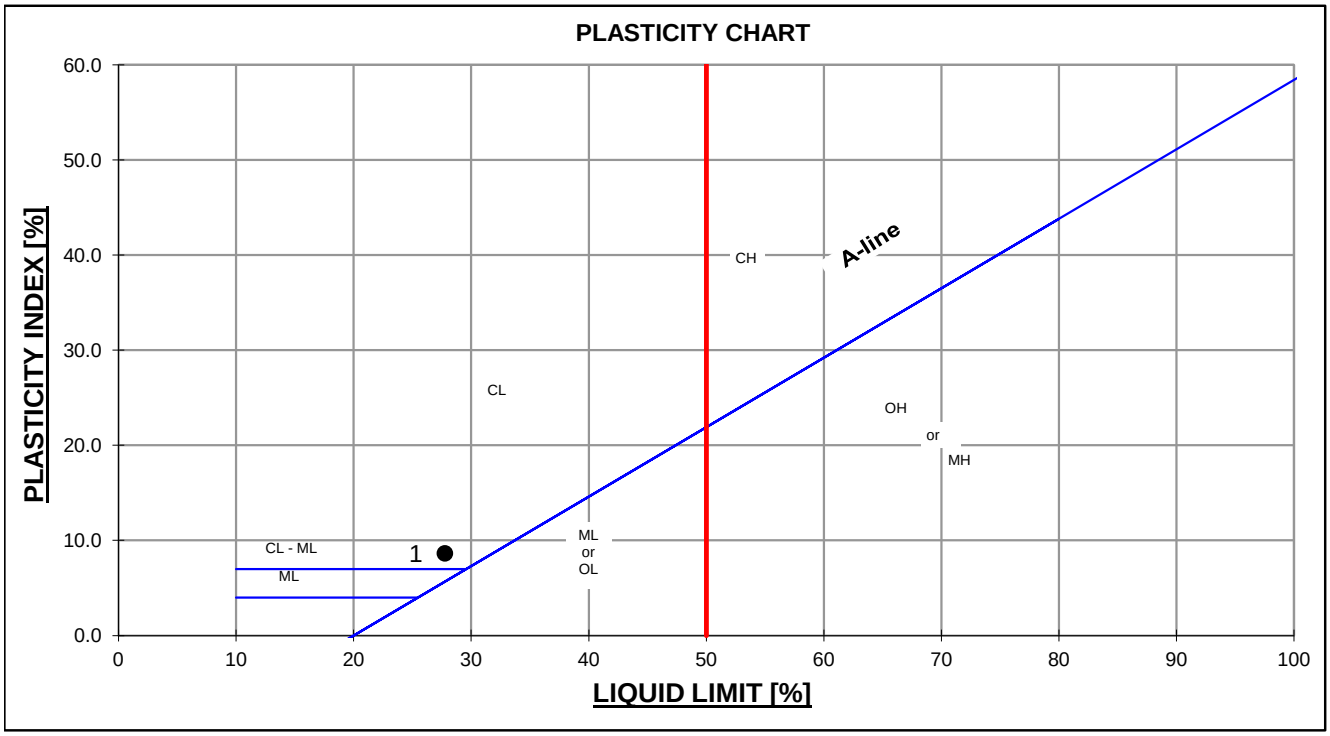
Wet+Tare (g)	39.48	38.87	38.08
Dry+Tare (g)	37.02	36.56	35.94
Tare (g)	28.16	28.34	28.47
No. of Blows	26	22	19
LL	27.8	28.1	28.6
Corrected LL	27.9	27.7	27.7

Plastic Limit Data

Wet+Tare (g)	40.17	40.59
Dry+Tare (g)	39.10	39.49
Tare (g)	33.54	33.70
M.C. (%)	19.2	19.0

Results

AVG L.L.	28
AVG P.L.	19
P.I.	9



Project Number:	14-G63-0	**Project Name:**	New Madera K-6 School Site
Lab ID:	15-0134-M	**Test Date:**	8/21/2015
Sampled By:	GPH	**Tested By:**	SM
Sample Date:	7/29/2015	**Sample location:**	Composite of B-10, 13, 14 & 17

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Figure B6
Laboratory Test Form | ASTM D4318
Plasticity Index (PI) of Soils

Liquid Limit Data

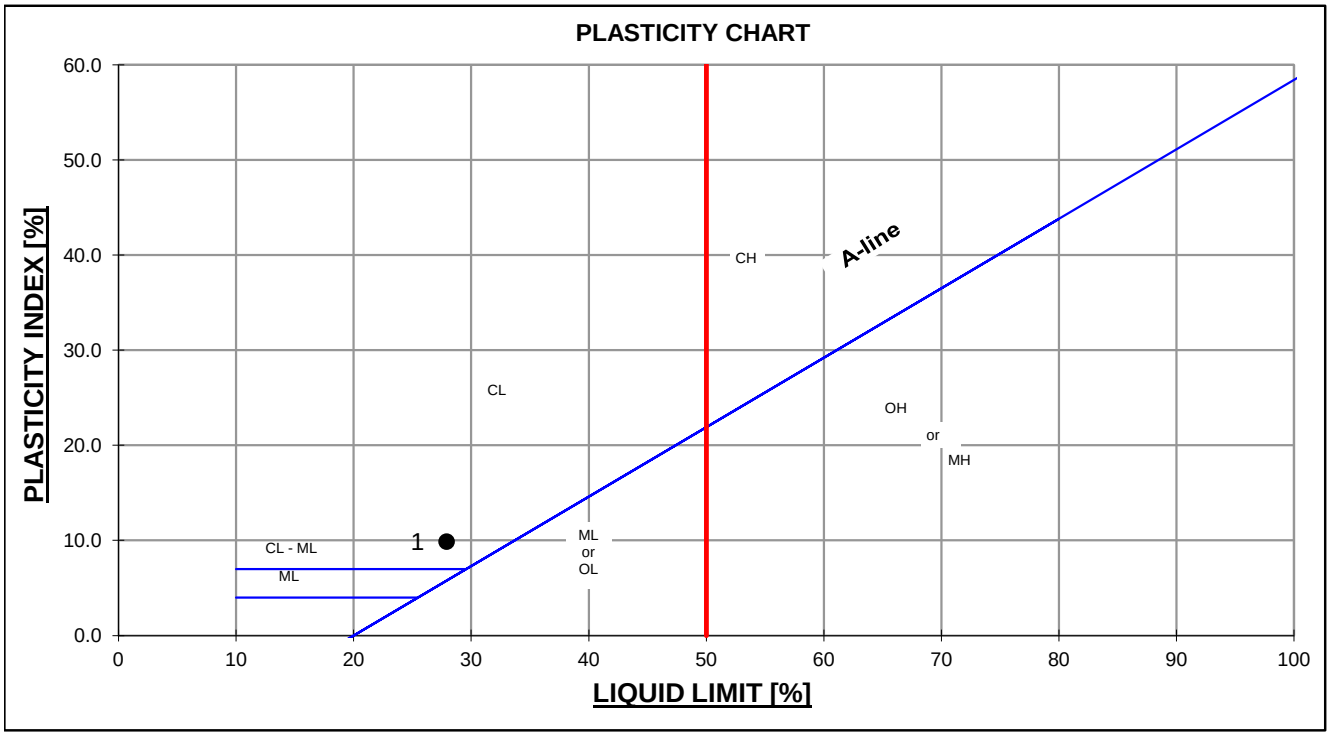
Wet+Tare (g)	37.59	37.95	36.50
Dry+Tare (g)	35.58	35.85	34.69
Tare (g)	28.31	28.44	28.42
No. of Blows	30	22	17
LL	27.6	28.3	28.9
Corrected LL	28.3	27.9	27.6

Plastic Limit Data

Wet+Tare (g)	39.41	39.62
Dry+Tare (g)	38.49	38.74
Tare (g)	33.48	33.77
M.C. (%)	18.4	17.7

Results

AVG L.L.	28
AVG P.L.	18
P.I.	10



Project Number:	14-G63-0	**Project Name:**	New Madera K-6 School Site
Lab ID:	15-0134-M	**Test Date:**	8/21/2015
Sampled By:	GPH	**Tested By:**	SM
Sample Date:	7/29/2015	**Sample location:**	B-15 @ 1-3'

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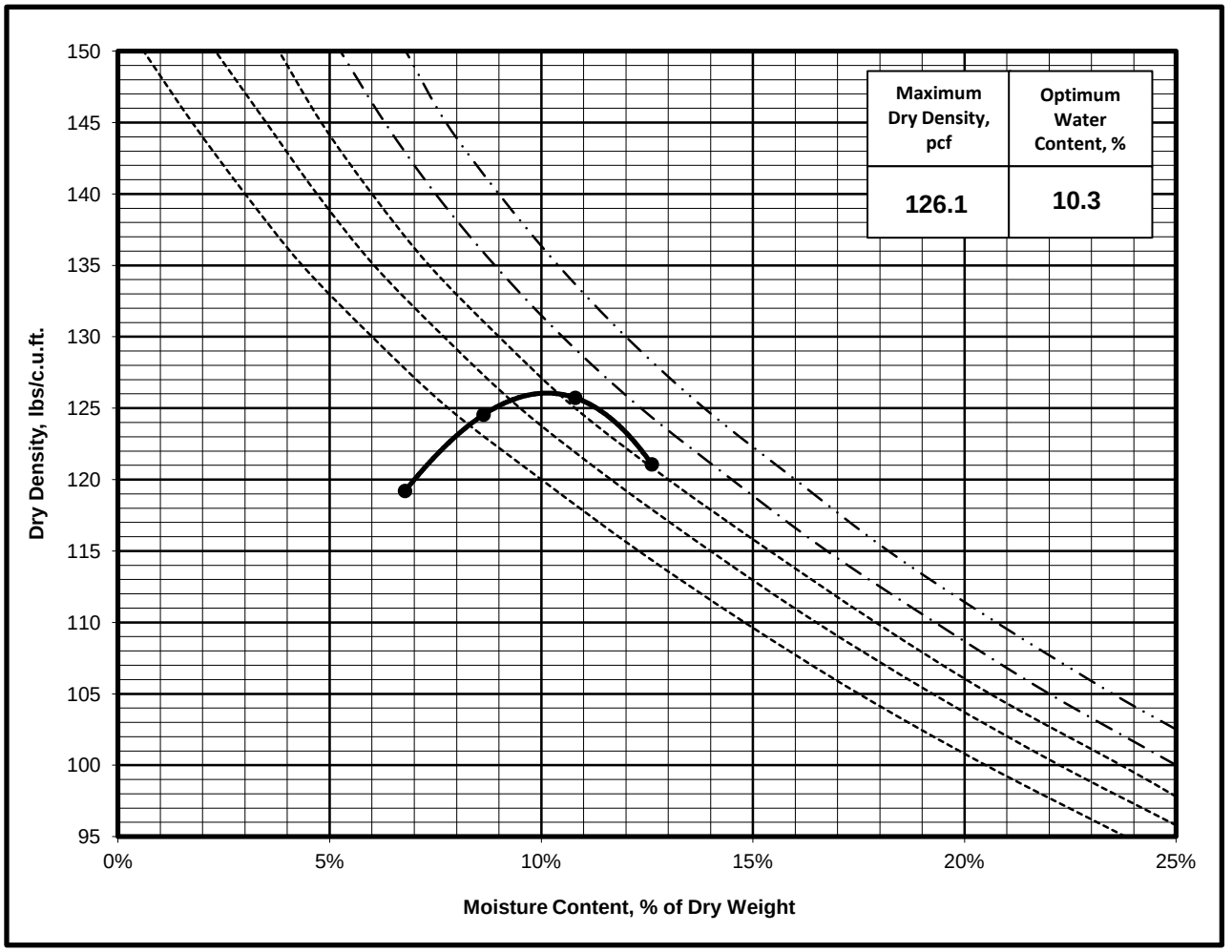
Figure B7
Laboratory Test Form | ASTM D 1557
Test Method A

	1	2	3	4
Weight of Moist Specimen & Mold, gm	3945.8	4067.2	4127.9	4082.9
Weight of Compaction Mold, gm	2017.4	2017.4	2017.4	2017.4
Weight of Moist Specimen, gm	1928.4	2049.8	2110.5	2065.5
Volume of mold, cu. ft.	0.0334	0.0334	0.0334	0.0334
Wet Density, lbs/cu.ft.	127.3	135.3	139.3	136.3
Weight of Wet (Moisture) Sample, gm	200.0	200.0	200.0	200.0
Weight of Dry (Moisture) Sample, gm	187.3	184.1	180.5	177.6
Moisture Content, %	6.8%	8.6%	10.8%	12.6%
Dry Density, lbs/cu.ft.	119.2	124.5	125.7	121.1

Sieve Size	No.4	3/8"	3/4"
Oversize Fraction, %	0.0%	0.0%	0.0%

Method
A: No.4 sieve < 25% oversize. 4" Mold
B: 3/8" sieve < 25% oversize. 4" Mold
C: 3/4" sieve < 30% oversize. 6" Mold

Rammer: ~~Mechanical~~ / Manual Preparation: ~~Dry~~ / Moist
Specimen Prep. Mass: 2500 gm



Project Number: 14-G63-0	**Project Name:** New Madera K-6 School Site
Lab ID: 15-0134-M	**Sample location:** Composite of B-10, B-13, B-14 & B-17 @ 1' - 3'
Date Tested: 08/11/15	**Description:** Sandy Silt, fine to medium grained,
Tested By: SM **Curve No.: 1**	dark brown, trace of organics.

FIGURE B8

Direct Shear of Consolidated, Drained Soils

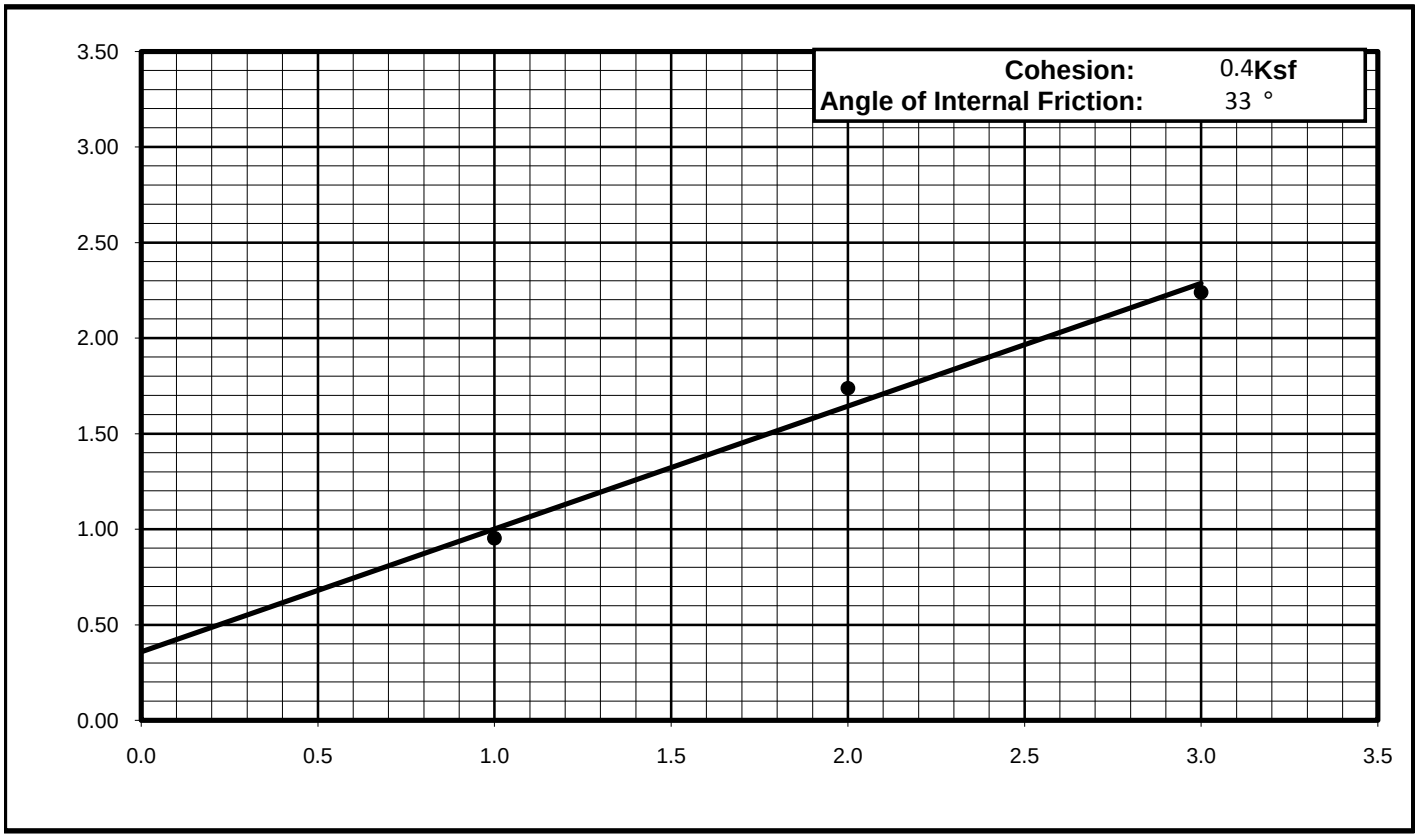
ASTM D - 3080 / AASHTO T - 236

Project Number	: 01214047 (14-G63-0)
Project Name	: New Madera K-6 School Site
Date	: 3/25/2015
Sample Location	: B5 @ 2'
Soil Classification	: Sandy SILT with clay
Sample Surface Area	: 0.03168

STRESS DISPLACEMENT DATA

Lat. Disp. (in.)	Normal Load		
	1000	2000	3000
0	0	0	0
0.030	21	42	54
0.060	29	62	66
0.090	35	66	81
0.120	38	76	91
0.150	39	77	95
0.180	39	77	98
0.210			101
0.240			101
0.270			102
0.300			102
0.330			
0.360			

Normal Load psf	Shear force lbs	Shear Stress psf
1000	30.2	953
2000	55.1	1739
3000	70.9	2239



Performed by Krazan Testing Laboratory

For RMA GeoScience, Inc.

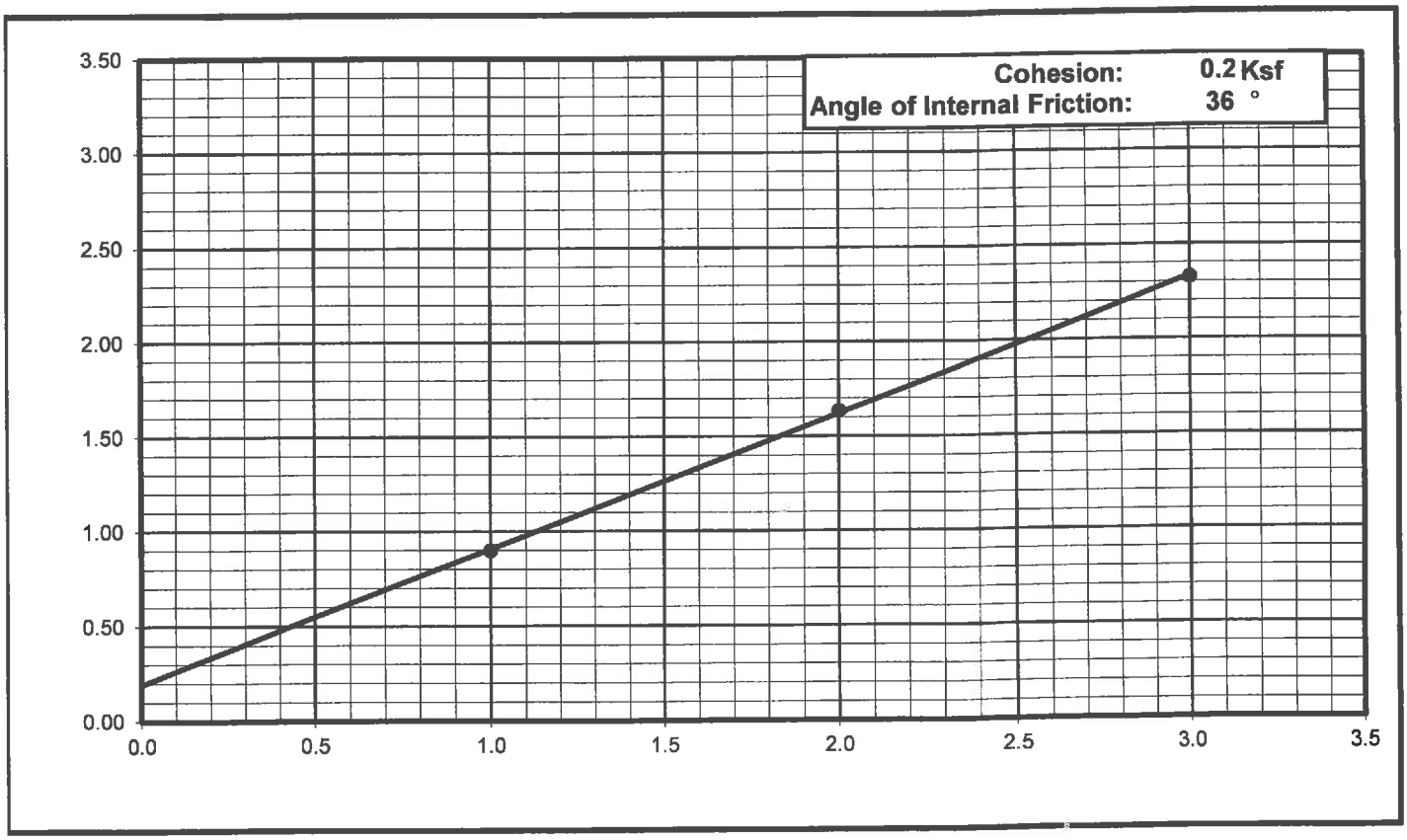
FIGURE B9
Direct Shear of Consolidated, Drained Soils
ASTM D - 3080 / AASHTO T - 236

Project Number	: 012-14047(14-G63-0)
Project Name	: RMA (New Madera K-8)
Date	: 8/15/2015
Sample Location	: Composite Sample from B-10, B-13, B-14, and B-17 from 1' to 3'
Soil Classification	: SM (Remolded Sample)
Sample Surface Area	: 0.03168

STRESS DISPLACEMENT DATA

Lat. Disp. (in.)	Normal Load		
	1000	2000	3000
0	0	0	0
0.030	16	36	70
0.060	23	45	77
0.090	35	55	87
0.120	37	64	94
0.150	37	68	97
0.180	37	70	99
0.210	37	71	103
0.240	37	71	104
0.270	37	71	105
0.300	37	71	106
0.330	37	71	106
0.360	37	71	106

Normal Load psf	Shear force lbs	Shear Stress psf
1000	28.5	900
2000	51.8	1635
3000	73.7	2327



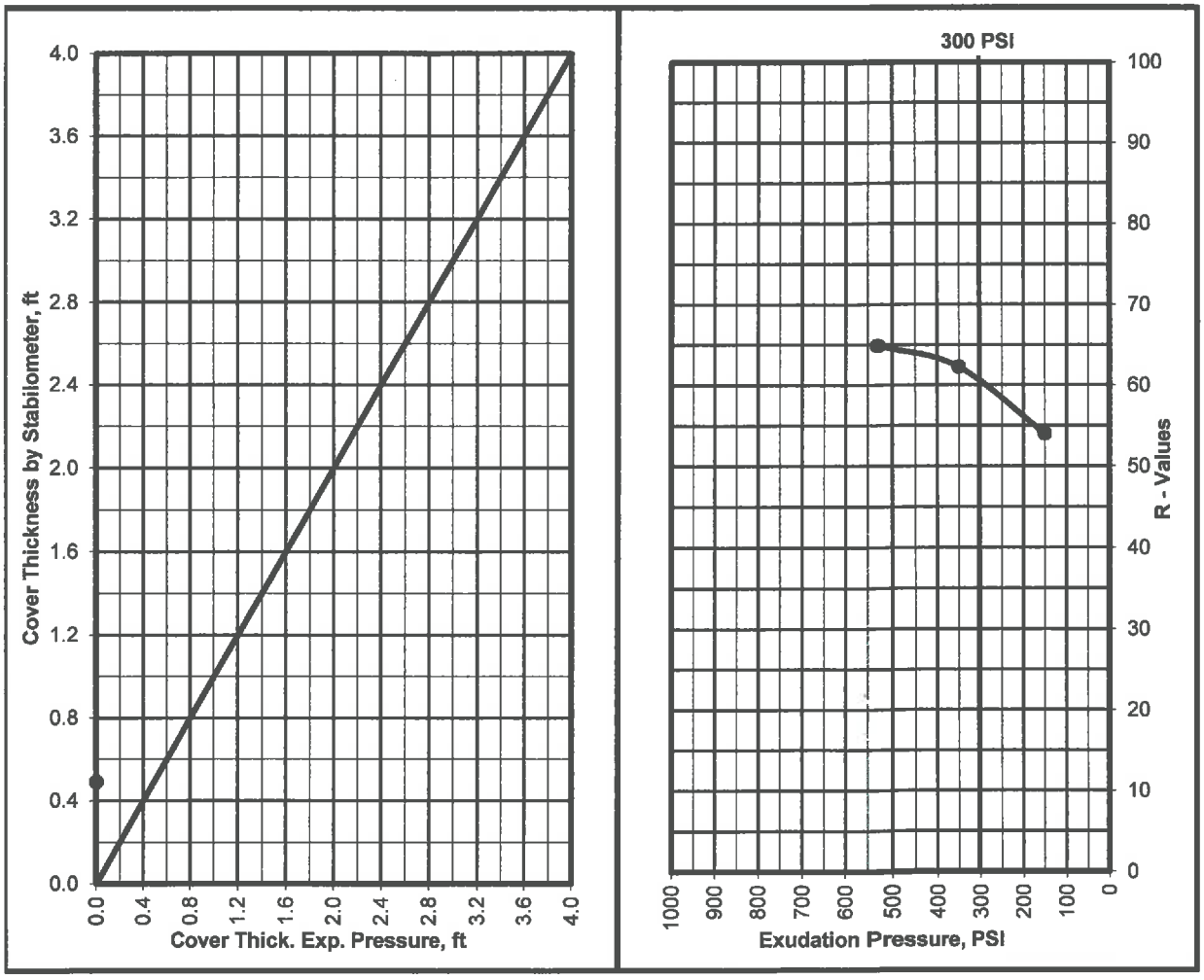
Prepared by Krazan Testing Laboratory
For RMA GeoScience, Inc.

FIGURE B10
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	012-14047(15-H87-0)
Project Name	:	RMA (Road Impovements Sanger)
Date	:	8/19/2015
Sample Location/Curve Number	:	RV#1
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	10.6	9.6	9.1
Dry Density, lbm/cu.ft.	121.4	124.0	125.3
Exudation Pressure, psi	150	350	530
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	54	62	65

R Value at 300 PSI Exudation Pressure	**61**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



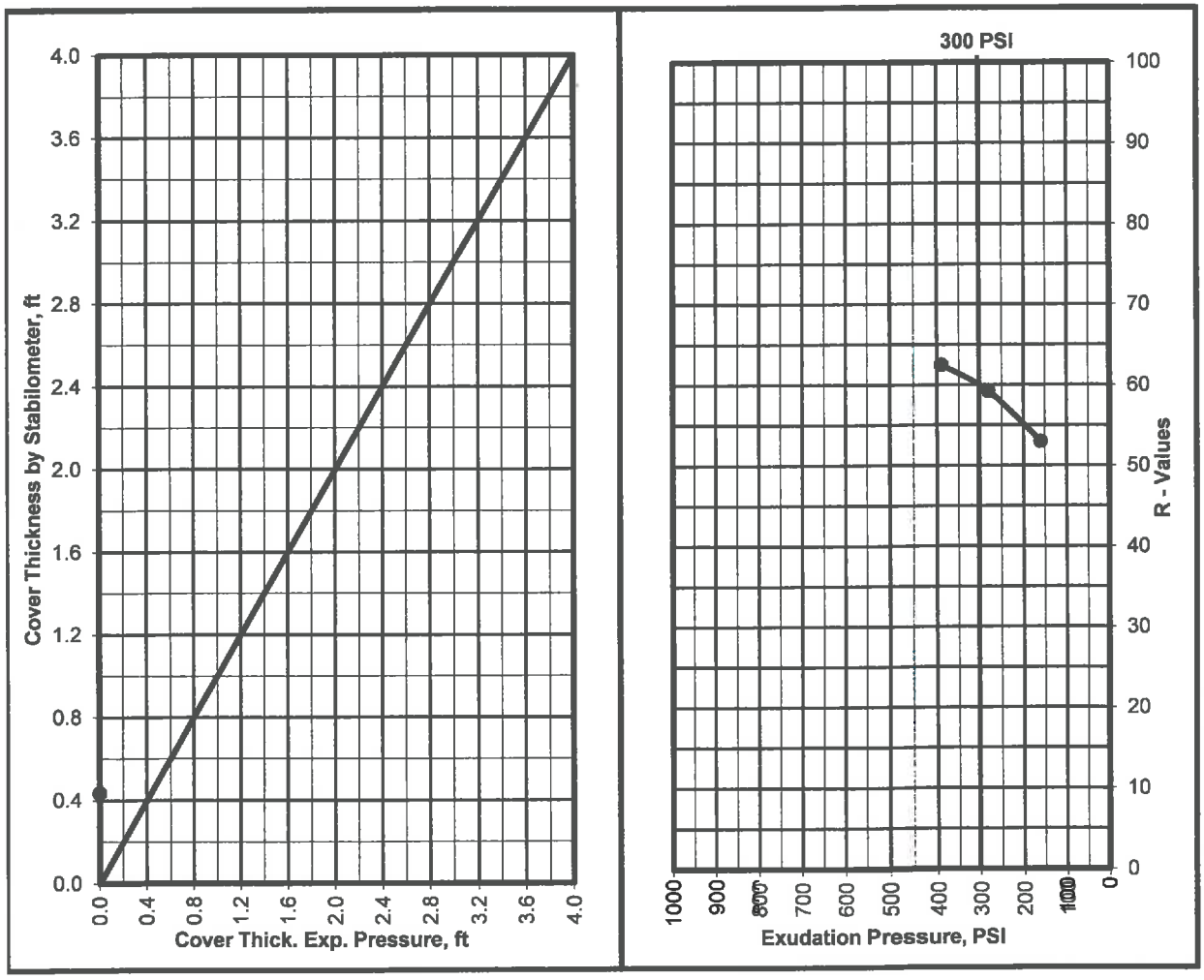
Prepared by Krazan Testing Laboratory
For RMA GeoScience, Inc.

FIGURE B11
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	012-14047(15-H87-0)
Project Name	:	RMA (Road Impovements Sanger)
Date	:	8/19/2015
Sample Location/Curve Number	:	RV#2
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	10.2	9.7	10.8
Dry Density, lbm/cu.ft.	124.1	124.2	124.0
Exudation Pressure, psi	280	390	160
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	59	62	53

R Value at 300 PSI Exudation Pressure	**60**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



Prepared by Krazan Testing Laboratory
For RMA GeoScience, Inc.

APPENDIX C

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APPENDIX C

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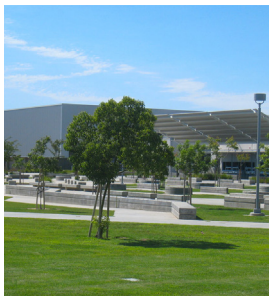
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Appendix G

Infrastructure Report





Infrastructure Report
New Elementary School
Madera Unified School District

Madera, California

August 2015

Blair, Church & Flynn
CONSULTING ENGINEERS

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Infrastructure Report
New Elementary School
Madera Unified School District

Madera, California

Prepared for:

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Prepared by:

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August 2015



8/12/2015

Table of Contents

Executive Summary 1

Project Setting 1

Project Description 1

Impacts and Mitigations 1

Domestic Water 3

Source 3

Water System 4

Project Construction Activities 4

Project Impacts and Levels of Significance 4

Mitigations 5

Wastewater 5

Project Construction Activities 6

Collection System 6

Treatment Capacity 7

Project Impacts and Levels of Significance 7

Mitigations 8

Stormwater 8

Collection System 8

Disposal 8

Project Impacts and Levels of Significance 9

Mitigations 10

Dry Utilities 11

Natural Gas 11
Project Construction Activities 11
Electrical Power 12
Project Construction Activities 12
Communications and Data 12
Project Construction Activities 13
Cable Television 13
Project Construction Activities 14
Project Impacts and Levels of Significance 14
Bibliography 15
Figures 1F
Appendixes 1A

Executive Summary

This project will construct a 14.25 acre elementary school campus at the northwest corner of South A Street and Tozier (Road 28). The project will be constructed by the Madera Unified School District to provide adequate school housing for students in the developing eastern area of the City of Madera. The project site is not within the City of Madera boundary, but it is within the City's Sphere of Influence. It is anticipated that the project will annex to the City as it will receive all of its wet utility infrastructure support from the City of Madera.

This report provides a description of the underground infrastructure to support the project, the potential project and cumulative impacts due to the project, evaluation of the significance of the impacts, and mitigation measures to reduce the impacts to less than significant.

Project Setting

The project is located at the northwest corner of South A Street and Tozier (Road 28). It is bounded on the north by 4.31 acres of land planted in grapes, on the west by existing single family housing, on the south by South A Street and developed single family housing, and on the east by Tozier Avenue (Road 28) and agricultural uses.

The planned land use for the project by the City of Madera General Plan is single family residential.

Existing water, wastewater, natural gas, telephone, and electrical facilities are located in South A Street or Tozier Avenue (Road 28).

The Knox stormwater basin is located 400 feet to the west of the project site, but no existing storm drainage collection facilities are located in South A Street to provide drainage service to the site.

Project Description

The project will construct a new elementary school campus with classroom facilities, playgrounds, and play courts for 850 students, construction of administrative facilities for site administrative and office staff, construction of street improvements, parking facilities for staff, bus loading and unloading areas, and student drop off and pick area for parents, and the construction of underground utility infrastructure to support the project. Underground utility infrastructure will consist of wet utilities e.g. domestic water, sanitary sewer, and storm drainage facilities; as well as dry utilities e.g. natural gas, electrical, telephone, cable TV, and data.

The project will take approximately 18 to 24 months to complete and activate.

Impacts and Mitigations

Changes in the site imperviousness will significantly impact the peak runoff rates and volumes, and site recharge rates when compared to the existing and the City of Madera Storm Drainage Master Plan

requirements. These impacts can be mitigated through the implementation of a detailed storm drainage report on the project which evaluates the project runoff patterns, runoff rates, and runoff volumes and describes the necessary changes to the City of Madera Storm Drainage Master Plan to reduce the impacts to within the design requirements of the Storm Drainage Master Plan.

Domestic Water

The City of Madera provides domestic water to the project site through a network of groundwater wells and pumps and water distribution system. This section discusses the availability of water, the quality of that water, the system of pumps and water mains that provide domestic water to the site, the expected demand from the project, and the evaluation of the impacts and comparison of those impacts to thresholds of significance.

This project will consist of an elementary school campus housing 850 students, faculty, and administrative and janitorial staff. The campus site area is estimated to be 14.25 acres and will be located on the north side of South A Street and west of Tozier Avenue (Road 28). The campus consumptive water uses will include sinks, urinals, toilets, and landscape irrigation. Cooling water may be used depending on the Heating, Ventilation, and Air Conditioning (HVAC) system installed on the campus. Food will not be prepared and dishes will not be washed at the campus. Showers will not be provided on the campus either. Landscape irrigation will be the largest use of water, comprising an estimated 86-percent of the water use.

Service to the site will be provided by constructing a domestic water service, an irrigation water service, and a fire service from the existing 12-inch diameter water main in South A Street to the campus. Materials for the services will be Polyvinyl Chloride pipe or High Density Polyethylene pipe with cast iron valves. The service lines will be installed in trenches that will be excavated, backfilled and compacted. Temporary pavement will be installed where pavement has been removed in South A Street to install the water services. Permanent pavement will be installed with the street improvements for the campus, which will improve the north side of South A Street from Mariposa Avenue to North Tozier Avenue. Water meters and backflow prevention devices will be installed for the domestic and irrigation water services. The fire service will be installed with backflow prevention and a fire detection check valve.

Figure 1 shows the existing and planned domestic water facilities for the project site.

Source

The sole source of water supply for the City of Madera is the Madera sub-basin of the San Joaquin Valley Groundwater Basin (Akel Engineering Group, Inc 2014W). This source is considered adequate at this time, but is in an overdraft condition, which if not managed, will result in a dropping water table elevation in the aquifer and poorer water quality (Akel Engineering Group, Inc 2014W). The Madera County Integrated Water Management Plan (Madera IRWM) encourages all of the groundwater users in Madera County to cooperate in reducing the overdraft. The City has developed specific plans to reduce their use of groundwater through implementation of water meters to encourage conservation by users and the percolation of treated wastewater for extraction by the Madera Irrigation District for farm irrigation uses. They have the potential to further reduce groundwater depletion through the

implementation of a groundwater recharge program that uses surface water supplies from the San Joaquin River and the Fresno River (Akel Engineering Group, Inc 2014W).

The quality of the water from the aquifer is considered to be of good quality and does not require additional treatment at this time ((Akel Engineering Group, Inc 2014W). Well No. 31, which is located directly south of A Street from the project site does not have water quality issues (Akel Engineering Group, Inc 2014W).

Water System

The water system that serves the project site is fully developed. Wells 17, 31, and 34 are in service and are connected to the water main distribution grid system. The water main distribution grid system consisting of 12-inch diameter pipelines is in place and is available to provide service to the site. The system will provide a minimum pressure of 35 pounds per square inch (psi) during peak hour demand and a normal minimum pressure of 40 psi (Akel Engineering Group, Inc 2014W).

The system is capable of meeting fire flow demands for the project area in its current planned land use configuration of Medium Density Residential, which is 1500 gpm for two hours (Akel Engineering Group, Inc 2014W). Institutional fire flow rates are listed in the City of Madera Water Master Plan as 2500 gpm for three hours (Akel Engineering Group, Inc 2014W). The water supply to meet fire flow demands is provided within the City's infrastructure by a one million gallon tank and Well No. 26 (Akel Engineering Group, Inc 2014W). Modeling of the transmission system should be performed to verify that the system can provide the higher file flows at the minimum required pressure of 20 psi.

Project Construction Activities

The project will need to construct water service connections from the existing 12-inch diameter water main located in South A Street to the campus. The water service connections will consist of a domestic service connection, a fire service connection, and an irrigation water connection. The domestic and irrigation services will be metered and require the installation of backflow prevention devices between the 12-inch diameter City water main in South A Street and the project site. The fire service will be installed with a detector check valve and backflow prevention from the existing 12-inch diameter water main to the campus.

Project Impacts and Levels of Significance

The project will have an estimated domestic water demand of 2279 gallons per day/acre based on 850 students, a project area of 14.25 acres, and the typical water demand per student of 38.2 gallons/day. Typical staff uses are included in the per student demand (Gleick, et al. 2003). The Water Master Plan assigned the project site a land use designation of medium density residential, which has an average daily water demand rate of 2850 gallons/acre (Akel Engineering Group, Inc 2014W). The water system modeling for the Water Master Plan determiend that the existing water distribution system that services the project is able to meet the demands during the peak hour and peak daily plus fire flow.

The development of this project will replace 14.25 acres of Thompson seedless grapes with an elementary school campus. Thompson seedless grapes have an estimated water use of use of 8.3 acre feet per year (Williams, et al. 2003). The project has an estimated water use of 3.3 acre feet per year (Briley 2015). The project water use, while still a consumptive use which will contribute to the depletion of the groundwater supplies, will result in less depletion than the existing use and not exceed that of the planned use for the project area. Therefore the project impacts will not be significant. Cumulative impacts will occur that are unavoidable, but will be less than the impacts from the current use or the planned use of the project site.

The project should not require the construction of any additional water distribution, storage, or supply systems. The project will construct service lines from the existing 12-inch diameter water main in South A Street to serve the project. The project will result in temporary impacts during the construction of the water services. These impacts could include disruptions to traffic, increased dust, increased sediments in rainfall runoff, and increased air emissions from construction equipment. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the project site during the construction period will be covered by the General Construction Permit issued by the State of California Water Resources Control Board. A San Joaquin Valley Air Pollution District permit and dust requirements will be adhered to during the construction period. Construction activities should not result in significant project impacts or cumulative impacts to the environment.

Mitigations

None required.

Wastewater

The City of Madera provides wastewater collection, treatment and disposal for the wastewater generated by the project site. Wastewater collection is provided through a series of existing sanitary sewer mains and trunk sewers that convey wastewater from the project and areas surrounding the project to the existing wastewater treatment plant. Treatment and disposal are provided at the City's Wastewater Treatment Plant (WWTP) located at 13048 Road 21½, west of the City of Madera. This section discusses the capacity of the existing sanitary sewer collection system, the capacity of the WWTP, the expected demand from the project, and the evaluation of the impacts and comparison of those impacts to thresholds of significance.

This project will consist of an elementary school campus housing 850 students, faculty, and administrative and janitorial staff. The campus site area is estimated to be 14.25 acres and will be located on the north side of South A Street and west of Tozier Avenue (Road 28). The campus consumptive water uses will include sinks, urinals, toilets, and landscape irrigation water, of which only sinks, urinals, and toilets will contribute to the wastewater system. Cooling water may be used depending on the Heating, Ventilation, and Air Conditioning (HVAC) system installed on the campus, but

it will not contribute to the wastewater system. Food will not be prepared nor will dishes be washed at the campus. Showers will not be provided on the campus either. Therefore, these uses will not be sources of wastewater.

Figure 1 shows the existing and planned wastewater facilities for the project site.

Project Construction Activities

Service to the site will be provided by constructing a sanitary sewer service line from the existing 8-inch diameter sanitary sewer main in South A Street to the campus. The existing 8-inch diameter sanitary sewer main discharges to the Road 28 Trunk sewer, an existing 18-inch diameter sanitary sewer located in Tozier Street (Road 28) between the site and Pecan Avenue. Materials for the services will be Polyvinyl Chloride pipe. The service line will be installed in a trench that will be excavated, backfilled, and compacted. Temporary pavement will be installed where pavement has been removed in South A Street to install the water services. Permanent pavement will be installed with the street improvements constructed by the project to improve the north side of South A Street from Mariposa Avenue to Tozier Avenue.

Collection System

The existing sanitary sewer collection system that services the campus consists of an 8-inch diameter sanitary sewer main located in South A Street that is laid at a bed slope of 0.0072 feet per foot. The capacity of this line is estimated to be 0.67 Million Gallons per Day (MGD) with a flow depth to pipe diameter (d/D) ratio of 0.92, which is the allowable d/D ratio during peak dry weather flow (Akel Engineering Group, Inc. 2014SS). The pipeline will be allowed to surcharge during peak wet weather flows (Akel Engineering Group, Inc. 2014SS). The existing 8-inch diameter sanitary sewer main is connected to the Road 28 Trunk sewer, an 18-inch diameter pipeline that runs from the project site south in Road 28 (Tozier Avenue) to Pecan Avenue at State Route 99. The Road 28 Trunk sewer is connected to the Pecan Trunk sewer in Pecan Avenue on the east side of State Route 99. The Pecan Trunk sewer runs west in Pecan Avenue to discharge to the WWTP. The sanitary sewer master plan recommends construction of 8,950 lineal feet of parallel sanitary sewer pipelines with varying diameters for the Pecan Trunk sewer west of Golden State to Stadium Road to provide the design level of service in the Pecan Trunk today and to meet the added demand of the planned development in the Parkwood Village. The Parkwood Village is a residential area located in the southeast portion of the City, south of Avenue 13, between State Route 145 and State Route 99 (Akel Engineering Group, Inc. 2014SS).

The Road 28 Trunk and the Pecan Trunk sewers are gravity systems for their entire length, meaning that the wastewater is not lifted via a pump station between the project site and the WWTP.

Treatment Capacity

The WWTP provide primary and secondary treatment for a rated capacity of 10.1 Million Gallons per Day (MGD). The WWTP can accommodate a peak flow of 15.1 MGD and currently operates at an average daily flow of 5.7 MGD (Akel Engineering Group, Inc. 2014SS).

Project Impacts and Levels of Significance

The project will generate an estimated 608 gallons per day/acre of wastewater based on 850 students, a project area of 14.25 acres, and the typical water demand per student of 10.2 gallons per day (Gleick, et al. 2003) for sinks, urinals, and toilets only. The typical water demand per student includes the demand for staff, faculty, and maintenance personnel at the school site. Water demand for the campus is used to determine wastewater flows assuming 100-percent of the water used becomes wastewater. The project site is planned for medium density residential, which has a 1200 gallons per day/acre wastewater discharge rate (Akel Engineering Group, Inc. 2014SS). The project wastewater discharge is less than the rate used to determine capacity within the sanitary sewer system and for the Wastewater Treatment Plant.

The Pecan line is impacted at this time. The impacted section occurs between State Route 99 and Stadium Road. The master plan capital improvement schedule indicates that parallel pipelines are necessary in this reach to provide adequate capacity within the Pecan Trunk sewer for the design peak flow discharge rate. The uses at the campus will occur during normal school hours, 8:00 AM to 3:30 PM. The diurnal curve for the Pecan Trunk line, as determined by flow metering that was performed during February, 2011 at temporary metering station located in a manhole between Monterey Street and Concord Street. The metering station was located approximately 14,120 feet downstream of the project site. The diurnal curve shows that the peak for the Pecan Trunk occurs between 11:00 AM and 12:00 noon. The average velocity in the Pecan Trunk at the metering station was 1.4 feet per second. Assuming that the average velocity at the metering station represents the average velocity in the Pecan Trunk and Road 28 Trunk, the peak flow rate in the Pecan system would be influenced by flows originating at the site between 8:30 AM and 9:00 AM. Peak school uses will occur at the morning recess and the noon recess and during afternoon physical education time when students and teaching staff use the bathroom facilities. Morning recess is normally between 9:45 AM and 10:30 AM and noon recess normally occurs between 11:30 AM and 1:00 PM. Afternoon physical education time occurs between 2:00 PM and the end of school at 3:30 PM. Therefore, sanitary sewer discharges from the project should lag and not add to the peak discharge rate in the Pecan Trunk within the critical sections.

The project should not require the construction of any additional sanitary sewer collection system or treatment facilities. The project will require the construction of a sanitary sewer service line from the existing sewer main in South A Street to the project. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the project site during the construction period will be covered by the General Construction Permit issued by the State of California

Water Resources Control Board. A San Joaquin Valley Air Pollution District permit and dust requirements will be adhered to during the construction period. Construction activities should not result in significant project impacts or cumulative impacts to the environment.

Mitigations

None required.

Stormwater

The City of Madera provides stormwater collection and disposal for the project site. Stormwater collection for the site will be provided a proposed 18-inch diameter storm drain pipeline that will run from the southwest corner of the project site to the existing Knox Basin located at the northeast corner of South A Street and Knox Street (Akel Engineering Group, Inc. 2014SD). This section discusses the capacity of the existing stormwater collection system, the capacity of the Knox Basin, the expected runoff rate and volume from the project, and the evaluation of the impacts and comparison of those impacts to thresholds of significance.

This project will consist of an elementary school campus housing 850 students, faculty, and administrative and janitorial staff. The campus site area is estimated to be 14.25 acres and will be located on the north side of South A Street and west of Tozier Avenue (Road 28). The campus will be a traditional elementary school campus consistent of classroom buildings, Administration building, multipurpose building, faculty and visitor parking lot, pickup and drop off area, bus loading and unloading area, hard play courts, landscaping, and turf covered playfields.

Collection System

The stormwater collection system that will serve the campus does not exist. The storm drainage master plan has designated the construction of an 18-inch diameter storm drain pipeline from the Knox basin west in South A Street to the southwest corner of the project site to provide drainage service for the 20 acres located north of South A Street, south of Sunrise Avenue and west of Tozier Street (Road 28) (Akel Engineering Group, Inc. 2014SD). The pipeline was sized to convey runoff from a medium density residential development (average effective imperviousness of 50-percent) to the Knox Basin while providing minimum freeboard at inlets and manholes located along the system (Akel Engineering Group, Inc. 2014SD). The project will have a typical effective imperviousness of 0.60 (Akel Engineering Group, Inc. 2014SD).

Disposal

Stormwater disposal is provided by the Knox Basin, which is located at the northeast corner of South A Street and Knox Street, approximately 600 feet west of the project site. The basin has an existing capacity of 16 acre-feet and can be expanded to 20 acre-feet.

Figure 1 shows the existing and planned stormwater facilities for the project site.

Project Impacts and Levels of Significance

The project will have three significant impacts to the site hydrology:

1. It will increase rainfall runoff discharge rates as compared to existing and planned land uses
2. It will increase rainfall runoff volume rates as compared to existing and planned land uses
3. It will reduce groundwater recharge at the site due to increased imperviousness
4. It will block drainage from the remaining 4.31 acres of undeveloped property to the north of the project site from reaching the master planned collection point on South A Street

Rainfall runoff discharge rates and volumes will increase as a result in the following improvements to the site:

- Street frontages will be improved and pavement widths will convert pervious area to impervious area
- Additional hardscape, roofs, and parking areas will convert pervious surface area to impervious surface area
- Grading will occur and concrete surface drainage improvements will be added which will channel runoff and increase the speed at which it travels
- Storm drain inlets and underground storm drainage collection systems will be added which will further channel runoff increase the speed at which it travels

These improvements will result in an increase in peak runoff rate and runoff volume from the existing condition. The storm drainage master plan anticipated that the project area (runoff area of 15.6 acres) and the 4.31 acres to the north of the project would develop as a single family residential land use. This development pattern will also increase imperviousness and provide more efficient channelization of runoff, which will increase both peak runoff discharge rate and runoff volume from the site. The master plan included the installation of an 18-inch diameter storm drain pipeline from the Knox Basin to the southwest corner of the project to mitigate the increase in peak runoff rate from the project area due to the residential development and planned on increasing the storage volume within the Knox basin from 16 acre-feet to 20 acre-feet to provide additional storage volume within the basin (Akel Engineering Group, Inc. 2014SD).

The project will result in a slight increase in runoff volume from the project site area over the runoff volume from the planned single family residential of 0.73 acre-feet (1,180 cubic yards).

The project will also alter the anticipated grading patterns of the Storm Drainage Master Plan. The Master Plan envisioned that the entire undeveloped area, including the 14.25 acre school site and the

remaining 4.31 acres to the north of the school, would drain southerly to the southwest corner of the project site. The development of the school will make this drainage pattern impossible to implement. The result is that the remaining 4.31 acres, which, when fully developed at the single family residential land use, will discharge a peak runoff rate of 1.33 cubic feet per second (cfs) that cannot drain to the master planned collection point on South A Street.

Grading of the site will have the potential to increase dust in the air and sediment in the runoff from the site.

Mitigations

This increase in runoff volume will be mitigated through the excavation of additional volume within the Knox basin to increase the storage volume to 20.73 acre-feet. Storage of the increased runoff in the Knox basin will allow the runoff that did not percolate into the groundwater at the site to do so in the basin.

The project will mitigate the increase in runoff discharge rate from the site at South A Street. At the time of development, a project storm drainage report will be prepared which will determine the peak runoff rates from the project site and the remaining 4.31 acres to the north at planned land uses. It will also determine the size of storm drain pipeline required to convey the runoff discharge rates from the project site and the remaining 4.31 acres to the north to the Knox Basin while conforming to the City of Madera storm drainage design requirements. The report will be submitted to the City of Madera for review, comment, and approval. The project will construct a storm drainage pipeline from South A Street to the north property line of the project site through a dedicated storm drainage easement. This will provide drainage service to the remaining 4.31 acres to the north that meets the requirements of the storm drainage report.

Implementation of the recommendations of the storm drainage report and construction of the storm drain pipeline through the project site to the north property line will mitigate the increased runoff rates and volume from the site and blockage of runoff from the remaining 4.31 acres to the north. These impacts will not result in significant project or cumulative impacts to the environment.

Dust from the site and basin grading activities and the construction of storm drain facilities will be mitigated by conformance with the San Joaquin Valley Air Pollution Control District permit.

Sediments and pollutants in site runoff due to grading activities and construction of storm drainage facilities will be mitigated through conformance with the National Pollution Discharge Elimination System (NPDES) General Construction Permit issued by the State Water Resources Control Board.

Construction activities will not result in significant project or cumulative impacts to the environment.

Dry Utilities

Dry utilities consist of natural gas pipelines, televisions, telephones, data cables, and electrical conductors. These utilities are provided by regulated utilities companies as follows:

Pacific Gas and Electric Company ..... Natural Gas and Electricity

Data ..... AT&T

Telephone ..... AT&T

Cable TV ..... Comcast

This section includes a discussion of the existing dry utilities, an evaluation of the impacts to provide these utilities, and a comparison of those impacts to thresholds of significance.

This project will consist of an elementary school campus housing 850 students, faculty, and administrative and janitorial staff. The campus site area is estimated to be 14.25 acres and will be located on the north side of South A Street and west of Tozier Avenue (Road 28). The campus will use natural gas to heat buildings and water for sinks; electricity for lighting; HVAC equipment; pumps; computers; office equipment; copiers and printers; audio-visual equipment; telecommunication equipment for telephone service, access to the internet and data, and potentially cable television for audio-visual instruction.

Figure 1 shows the existing dry utility facilities for the project site.

Natural Gas

Underground natural gas is available in the project vicinity. PG&E did not report that there was insufficient capacity within their existing infrastructure to provide natural gas service to the site. An 8-inch diameter high pressure gas main is located along the east side of the right of way of Tozier Avenue (Road 28) and a 3-inch diameter distribution main is located in South A Street at Mariposa Street (Pacific Gas & Electric Company 2015-G). Pacific Gas & Electric Company (PG&E) will design the required gas main and service for the project. The Madera Unified School District may elect to have PG&E construct the facilities or have them constructed by their contractor and inspected by PG&E. PG&E will ultimately own and maintain the gas main and service from the main to the meter.

Project Construction Activities

Natural gas service to the site will be provided by constructing a service line from either the existing 8-inch diameter high pressure main line in Tozier Avenue or from the 3-inch diameter distribution main in South A Street to the campus. Materials for the service will be Polyvinyl Chloride pipe or High Density Polyethylene Pipe. The service line will be installed in a trench that will be excavated, backfilled and compacted. Temporary pavement will be installed where pavement has been removed in Tozier Avenue

or South A Street to install the gas mains, valves, and meters. Permanent pavement will be installed with the street improvements constructed by the project to improve the north side of South A Street from Mariposa Avenue to Tozier Avenue.

Electrical Power

Underground and overhead electrical service is available in the project vicinity. PG&E did not report that there was insufficient capacity within their existing infrastructure to provide electrical service to the site. An overhead 12 kilovolt (kV) electrical line is located along the east side of the right of way of Tozier Avenue (Road 28) and an underground 12 kV electrical line is located along the south side of South A Street in a joint trench. An existing overhead electrical line is also located along the south side of Sunrise Avenue (Pacific Gas & Electric Company 2015-E). PG&E will design the required primary electrical service, transformer, and secondary electrical line to the service meter for the project. The Madera Unified School District may elect to have PG&E construct the facilities or have them constructed by their contractor and inspected by PG&E. PG&E will ultimately own and maintain the primary and secondary electrical lines and the transformer.

Project Construction Activities

The primary and secondary electrical service lines to the site will be provided by constructing an underground primary service line from either the existing overhead 12 kV electrical line in Tozier Avenue or from the underground 12 kV electrical line in South A Street. Materials for the electrical line will be Polyvinyl Chloride pipe or High Density Polyethylene Pipe conduit and copper or aluminum conductor with plastic coating. Electrical vaults will be constructed of concrete and steel. The transformer will most likely be above ground. Fabrication will be in accordance with PG&E standards. Installation will include a concrete pad, steel bollard protection posts, and the transformer itself. The service line will be installed in a trench that will be excavated, backfilled, and compacted. Vaults will be installed by excavating a hole in the ground, compacting the subgrade at the bottom of the hole, installing the vault, and backfilling around and above the vault. The access hole to the vault will be adjusted to match flush with the surrounding surface. Temporary pavement will be installed where pavement has been removed in Tozier Avenue or South A Street to install the conduits and vaults. Permanent pavement will be installed with the street improvements constructed by the project to improve the north side of South A Street from Mariposa Avenue to Tozier Avenue. Disturbed landscaping will be repaired once the trench has been backfilled and compacted.

Communications and Data

The Madera Unified School District utilizes AT&T as their telephone and data/internet provider. Underground and overhead copper telephone service is available in the project vicinity. AT&T did not report that there was insufficient capacity within their existing infrastructure to provide telephone service to the site. Underground fiber optic service is available as well, but is not adjacent to the site and will require the extension of fiber optic lines to the project. An overhead telephone line is located

along the east side of the right of way of Tozier Avenue (Road 28) and an underground telephone line is located along the south side of South A Street as far east as Mariposa Street in a joint trench. An existing overhead telephone line is also located along the south side of Sunrise Avenue (AT&T Corporation 2015). AT&T will design the telephone and fiber optic service lines from their infrastructure to the project. These facilities will be constructed by AT&T. AT&T will ultimately own and maintain the telephone and data lines as well.

Project Construction Activities

The telephone and fiber optic service lines to the site will be provided by constructing underground facilities from the point of connection with the existing AT&T infrastructure to the project site. The telephone service, if it is via land line, will most likely be extended from the existing overhead line located on the east side of Tozier Avenue. The fiber optic line will be constructed as an underground service line from the nearest AT&T point of connection to the project. Materials for the underground conduit for the fiber or copper lines will be Polyvinyl Chloride pipe or High Density Polyethylene Pipe. The conductors will be either multi-pair copper wire with plastic coating or fiber optic bundles. Communication vaults will be constructed of concrete and steel and installed underground at major junction points and turns. Copper wire service line will be installed in conduits that are laid in a trench that will be excavated, backfilled, and compacted. The copper wire conductors are pulled through the conduits after the trench has been compacted and accepted. Fiber optic lines will be in conduits that will be installed in excavated trenches or via direct bore methods. Trenches will be backfilled and compacted. Direct bore methods do not require trenching except at the boring location and the receiving end of the bore. These points will be backfilled and compacted once the boring is completed and the connections have been made to the existing infrastructure. Vaults will be installed by excavating a hole in the ground, compacting the subgrade at the bottom of the hole, installing the vault and backfilling around an above the vault. The access hole to the vault will be adjusted to match flush with the surrounding surface. Temporary pavement will be installed where pavement has been removed in public streets to install the conduits and vaults. Permanent pavement will be installed with the street improvements constructed by the project to improve the north side of South A Street from Mariposa Avenue to Tozier Avenue. Disturbed landscaping will be repaired once the trench has been backfilled and compacted.

Cable Television

Cable television (TV) is available at the site and is provided by Comcast Company. Overhead copper service is available in the project vicinity. Comcast did not report that there was insufficient capacity within their existing infrastructure to provide telephone service to the site. An overhead cable TV line is located along the east side of the right of way of Tozier Avenue (Road 28) along the south side of Sunrise Avenue (Comcast Corporation 2015). Comcast will design the cable TV service lines from their infrastructure to the project. These facilities are constructed by Comcast and they will ultimately own and maintain the cable TV facilities.

Project Construction Activities

The cable TV service lines to the site will be provided by constructing an underground conduit and coaxial cable from either the existing overhead cable TV infrastructure in Tozier Avenue or Sunrise Avenue. Materials for the cable TV conduit will be Polyvinyl Chloride pipe or High Density Polyethylene Pipe. The conductor will be copper or aluminum coaxial cable. Cable TV vaults will be constructed of concrete and steel. The service line will be installed in a trench that will be excavated, backfilled, and compacted. Vaults will be installed by excavating a hole in the ground, compacting the subgrade at the bottom of the hole, installing the vault, and backfilling around an above the vault. The access hole to the vault will be adjusted to match flush with the surrounding surface. Temporary pavement will be installed where pavement has been removed in Tozier Avenue or Sunrise Avenue to install the conduits and vaults. Permanent pavement will be installed with the street improvements constructed by the project to improve the north side of South A Street from Mariposa Avenue to Tozier Avenue. Disturbed landscaping will be repaired once the trench has been backfilled and compacted.

Project Impacts and Levels of Significance

The project is not expected to require the installation of new facilities to meet the natural gas, electrical, telephone, data, or cable television needs of the project except in the case of the data needs where fiber optic infrastructure will have to be extended to the site. None of these utilities are expected to be adversely impacted by the project.

The project will require the construction of a underground natural gas, electrical, telephone, data (fiber optic), and cable TV lines in Tozier Avenue and in South A Street to the project. The fiber optic lines will be constructed from a point further from the project. Construction will be performed by a licensed contractor under a permit issued by the City of Madera. Runoff from the project site during the construction period will be covered by the General Construction Permit issued by the State of California Water Resources Control Board. A San Joaquin Valley Air Pollution District permit and dust requirements will be adhered to during the construction period. Construction activities should not result in significant project impacts or cumulative impacts to the environment.

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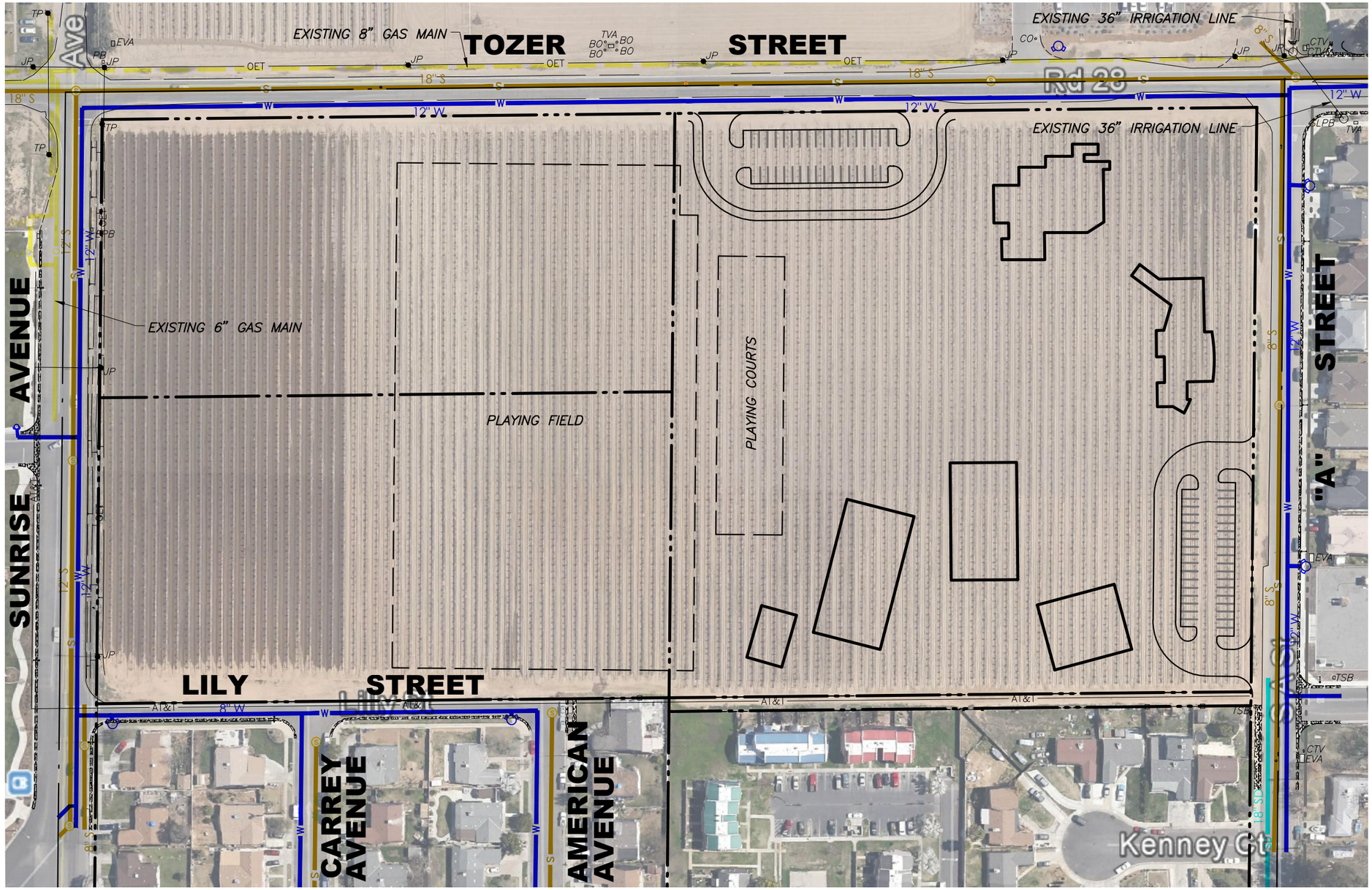
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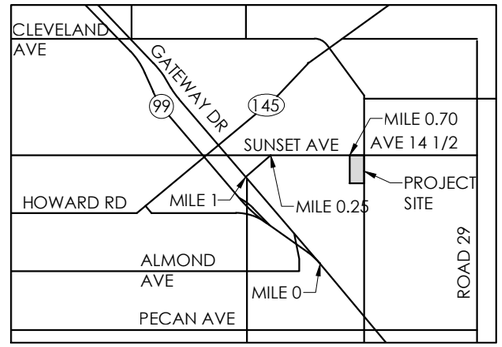
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Figures

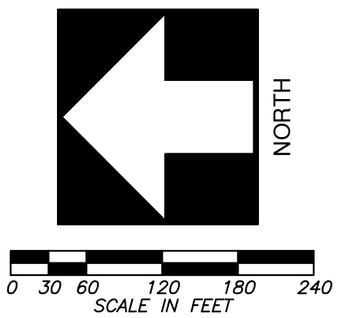




LOCATION MAP

LEGEND

- EXISTING PAVED ROAD
- PROPERTY LINE
- W — EXISTING WATER LINE; SIZE AS NOTED
- S — EXISTING SEWER LINE; SIZE AS NOTED
- G — EXISTING GAS LINE; SIZE AS NOTED
- EXISTING TRANSMISSION GAS LINE; SIZE AS NOTED
- OET — EXISTING ELECTRIC, TELEPHONE, CABLE TV
- AT&T — EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING FIRE HYDRANT
- (S) EXISTING SANITARY SEWER MANHOLE
- JP — JUNCTION POLE
- TP — TELEPHONE POLE



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MADERA UNIFIED SCHOOL DISTRICT

NEW ELEMENTARY SCHOOL SITE UTILITY EXHIBIT

DR. BY CM
CH. BY CRQ
DATE 3-4-15
SCALE: AS NOTED

SHEET NO. 1
OF 1 SHEETS

Loaded Xrefs

Drawing: P:\214-0357\Site\Exhibits\214357_Exhibit 1.dwg; Layout1 Plot by: Cordie Jun 24, 2015 - 1:54pm

Appendixes

Appendix H

Traffic Impact Study

Traffic Impact Study

Proposed Elementary School

Northwest of the Intersection of Tozer and A Streets
Madera, California

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Prepared For:

Crawford & Bowen Planning, Inc.
113 North Church Street, Suite 302
Visalia, California 93291

Date:

December 9, 2015

Job No.:

14-054.01

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

PETERS ENGINEERING GROUP
A CALIFORNIA CORPORATION

Mr. Travis Crawford
Crawford & Bowen Planning, Inc.
113 North Church Street, Suite 302
Visalia, California 93291

December 9, 2015

Subject: Traffic Impact Study
Proposed Elementary School
Northwest of the Intersection of Tozer and A Streets
Madera County, California

Dear Mr. Crawford:

1.0 INTRODUCTION

This report presents the results of a traffic impact study for a proposed elementary school in Madera, California. This analysis focuses on the anticipated effect of vehicle traffic resulting from the Project, circulation adjacent to the Project site, and pedestrian routes.

2.0 PROJECT DESCRIPTION

The proposed 825-student elementary school (Project) is located on approximately 19 acres northwest of the intersection of Road 28 (Tozer Street) and South A Street in Madera County, California (APN 035-221-001). The Project will include annexation to the City of Madera. The proposed site plan includes a parent pickup/drop off driveway and 60-stall parking lot on the western portion of the site with a one-way entry driveway (northbound) connecting to South A Street near Mariposa Street and a one-way exit driveway connecting to Lilly Street at American Avenue. An on-site roadway, which is to remain gated to prevent student pickup/drop off via private vehicles, will run along the north side of the site between Lilly Street and Road 28 (Tozer Street) and will provide access to a teacher parking lot containing approximately 28 stalls. A bus pickup/drop-off area will be located on Tozer Street.

A vicinity map is presented in the attached Figure 1, Site Vicinity Map, following the text of this report. The proposed school site is presented in Figure 2, Site Plan. The proposed attendance boundary is presented in Figure 3, Attendance Boundary.

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3.0 STUDY AREA AND TIME PERIOD

This report includes analysis of the following intersections:

1. Lake Street / Sunrise Avenue
2. Road 28 (Tozer Street) / Avenue 14½ (Sunrise Avenue)
3. Lilly Street / Sunrise Avenue
4. Mariposa Street / South A Street
5. Road 28 (Tozer Street) / South A Street

This report also includes a discussion of the site driveways connecting to South A Street (entrance only) and connecting to Lilly Street at American Avenue (exit only).

The study time periods include the Project weekday a.m. and p.m. peak hours determined between 7:00 and 9:00 a.m. and between 2:00 and 4:00 p.m. The peak hours are analyzed for the following conditions:

- Existing Conditions;
- Existing Plus Project Conditions;
- Existing Plus Approved and Pending Projects Plus Project; and
- Cumulative (Year 2035) Conditions With Project.

4.0 LEVEL OF SERVICE

The Transportation Research Board *Highway Capacity Manual*, 2010, (HCM2010) defines level of service (LOS) as, "A quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst." Automobile mode LOS characteristics for both unsignalized and signalized intersections are presented in Tables 1 and 2.

Table 1
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Average Vehicle Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

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Table 2
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Volume-to-capacity ratio is low. Progression is exceptionally favorable or the cycle length is very short.	<10
B	Volume-to-capacity ratio is low. Progression is highly favorable or the cycle length is very short.	>10-20
C	Volume-to-capacity ratio is no greater than 1.0. Progression is favorable or cycle length is moderate.	>20-35
D	Volume-to-capacity ratio is high but no greater than 1.0. Progression is ineffective or cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35-55
E	Volume-to-capacity ratio is high but no greater than 1.0. Progression is unfavorable and cycle length is long. Individual cycle failures are frequent.	>55-80
F	Volume-to-capacity ratio is greater than 1.0. Progression is very poor and cycle length is long. Most cycles fail to clear the queue.	>80

Reference: *Highway Capacity Manual,* Transportation Research Board, 2010

5.0 SIGNIFICANCE CRITERIA

Policy CI-22 of the City of Madera General Plan requires that LOS C or better be maintained in the vicinity of the Project site. Policy 2.A.8 of the Madera County General Plan Policy Document requires that LOS D or better be maintained on County roadways. Since the Project will include annexation, for purposes of this study all of the study locations will be considered subject to the City requirement of LOS C.

For purposes of this study, a traffic impact will be recognized if:

- the Project will decrease the LOS below C at an intersection;
- the Project will decrease the LOS from D to E, from D to F, or from E to F;
- the Project will exacerbate the delay at an intersection already operating at a substandard LOS (D, E, or F) by increasing the average delay by 5.0 seconds or more.

A queuing deficiency is identified in the existing condition if the calculated 95th-percentile queue length exceeds the storage length. A queuing issue is determined if the Project causes the calculated 95th-percentile queue length to exceed the existing or planned storage capacity of a lane at a signalized intersection. In storage lanes that are already deficient without the Project, a queuing issue is determined if the Project increases the calculated 95th-percentile queue length by at least 25 feet (the average storage length required for one vehicle).

6.0 LANE CONFIGURATIONS AND INTERSECTION CONTROL

The existing lane configurations and intersection control at the study locations are presented in Figure 4, Existing Lane Configurations and Intersection Control.

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7.0 EXISTING TRAFFIC VOLUMES

Existing peak-hour traffic volumes at the study intersection was determined by performing manual turning-movement counts between 7:00 and 9:00 a.m. and between 2:00 and 4:00 p.m. on a weekday. The data sheets are attached and indicate the dates the counts were performed. The existing peak-hour turning movement volumes are presented in Figure 5, Existing Peak-Hour Traffic Volumes.

8.0 PROJECT TRIP GENERATION

8.1 Vehicle Trip Generation

Data provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*, are typically used to estimate the number of trips anticipated to be generated by proposed projects. Table 3 presents the trip generation estimates for the Project. It is noted that the trip generation estimates are for average weekday conditions and do not include special events, sporting events, or weekends.

Table 3
Project Trip Generation

Land Use	Units	Daily		A.M. Peak Hour (Occurs Between 7:00 and 9:00 a.m.)					P.M. Peak Hour (Occurs Between 2:00 and 4:00 p.m.)				
		Rate	Total	Rate	In:Out	In	Out	Total	Rate	In:Out	In	Out	Total
Elementary School (520)	825	1.29	1,065	0.45	55:45	205	167	372	0.28	45:55	104	127	231

Reference: *Trip Generation Manual, 9th Edition,* Institute of Transportation Engineers 2012
Rates are reported in trips per student In:Out are percentages of the total.

8.2 Project Vehicle Trip Distribution and Assignment

The Project trips were distributed to the adjacent road network using engineering judgment considering the attendance boundary, the distribution of existing traffic volumes, the locations and types of streets in the study area, and complementary land uses in the project vicinity. The anticipated percentage distribution of Project trips is presented in Figure 6, Project Trip Distribution Percentages.

The peak-hour Project traffic volumes presented in Table 3 were assigned to the adjacent road network in accordance with the trip distribution percentages described above. The peak-hour Project traffic volumes are presented in Figure 7, Peak Hour Project Traffic Volumes.

8.3 Project Pedestrian/Bicycle Generation

Based on the proximity of the proposed school to residential neighborhoods within the attendance boundary, a high percentage of students are expected to walk to school.

According to the National Center for Safe Routes to School report entitled "*How Children Get to School, School Travel Patterns From 1969 to 2009*" dated November 2011, approximately 13 percent of students either walk or bike to school. Approximately 35 percent of students living within one mile of the school either walk or bike to school in the morning and approximately 5½ percent of students living between one and two miles from the school either walk or bike to school. The document also indicates that approximately 16

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percent of students either walk or bike from school in the afternoon, and information presented in the report suggests that the approximately 43 percent of students living within one mile of the school either walk or bike from school, and approximately 9½ percent of students living between one and two miles from the school either walk or bike from school. The document also indicates that approximately 39 percent of students ride a bus to school and 42 percent ride a bus from school. Madera Unified School District has additional information suggesting that 100 students (12 percent) are expected to ride the bus to and from the proposed school.

Based on the information presented above, the estimated number of students that will walk or bike to school is at least 825 x 0.13 = 108 in the morning and 825 x 0.16 = 132 in the afternoon. However, it is possible that the number of pedestrians and bicyclists will be greater than these values if a majority of the students live near the school. If it is assumed that half of the students (413) live within one mile of the school and another quarter (206) live between one and two miles from the school, the number of bicyclists and pedestrians would be calculated as follows:

AM: 413 x 0.35 + 206 x 0.055 = 156

PM: 413 x 0.43 + 206 x 0.095 = 197

An alternate calculation of pedestrian/bicycle generation is presented as follows. As identified in Table 3 of this report, the Project is expected to generate approximately 205 vehicle trips entering the site during the a.m. peak hour and 167 trips exiting the site. Those trips exiting the site are presumed to be vehicles that have dropped off students. If it is assumed for discussion purposes that an average of 2.0 students per vehicle are dropped off, then the number of students arriving by vehicle is estimated as 2.0 x 167 = 334. If 100 students ride the bus, then the remaining pedestrians/bicyclists would be 825 – 334 – 100 = 391.

Similarly in p.m. peak hour, approximately 104 vehicle trips enter the site during the p.m. peak hour and 127 trips exit the site. Those trips entering the site are presumed to be vehicles that are arriving to pick up students. If it is assumed for discussion purposes that an average of 2.0 students per vehicle are picked up, then the number of students leaving by vehicle is estimated as 2.0 x 127 = 254. If 100 students ride the bus, then the remaining pedestrians/bicyclists would be 825 – 254 – 100 = 471. These values do not account for after-school programs and athletics, but are presented to provide a general idea of the number of pedestrians that may be generated.

In summary, it is anticipated that the Project may generate as many as 391 pedestrians/bicyclists during the a.m. peak hour and 471 pedestrians/bicyclists during the p.m. peak hour. A majority of the pedestrians/bicyclists are expected to travel west of the site, and a large number of them would be required to cross Sunrise Avenue. It is not anticipated that a significant volume of pedestrian traffic will be generated from the east and south of the Project site.

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9.0 EXISTING-PLUS-PROJECT TRAFFIC VOLUMES

The existing-plus-Project peak-hour turning movement volumes are presented in Figure 8, Existing-Plus-Project Peak-Hour Traffic Volumes.

10.0 PENDING PROJECTS

City staff has indicated that there are no entitled projects within the City that would impact the study locations. County staff has indicated that the Madera County Road 28 Campus project is planned conceptually on the east side of Road 28 south of Avenue 14½; however, applications have not been submitted, environmental studies have not been performed, and design has not begun. Therefore, since the timing for development and the amount of traffic expected to be generated by the Road 28 Campus project is not established, the project is not considered in these analyses. Since there are no pending projects, the Existing Plus Approved and Pending Projects Plus Project scenario is equal to the Existing Plus Project conditions a separate analysis is not required.

11.0 CUMULATIVE YEAR 2035 TRAFFIC VOLUMES

Cumulative year 2035 traffic volume forecasts without the Project were estimated based on the cumulative 2035 Madera County travel model maintained by the Madera County Transportation Commission (MCTC) using an increment method. The increment method forecasts future traffic volumes by adding the growth projected by the model to the existing traffic volumes. The travel model output is attached. Year 2035 turning movement volumes were estimated based on the methods presented in Chapter 8 of the Transportation Research Board National Cooperative Highway Research Program Report 255 entitled "Highway Traffic Data for Urbanized Area Project Planning and Design." Projected year 2035 cumulative-with-Project traffic volumes are presented in Figure 9, Year 2035 Cumulative With-Project Peak-Hour Traffic Volumes.

12.0 INTERSECTION ANALYSES

12.1 Peak Hour Level of Service and Traffic Signal Warrants

The levels of service at the study intersections were determined using the computer program Synchro 8, which is based on the HCM2010 procedures for calculating levels of service. The intersection analysis sheets are attached.

Peak-hour factors (PHF) for the existing conditions were determined from the traffic counts. The HCM2010 suggests that a PHF of 0.88 in urban areas may be used in the absence of field data. For purposes of the cumulative year 2035 analyses performed for this study, in which a substantial volume of traffic growth is added and field data is not available, a PHF of 0.88 is used unless the existing PHF is greater than 0.88. If the existing PHF is greater than 0.88 then the existing PHF is used in the future analyses.

The State of California, California State Transportation Agency, Department of Transportation *California Manual on Uniform Traffic Control Devices for Streets and Highways, 2014 Edition* (CMUTCD) presents various warrant analyses to assist in evaluating the need for traffic signals at an intersection. Traffic signal warrants are a series of criteria

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that provide guidelines for determining whether a traffic signal is appropriate at a given intersection. If one or more of the signal warrants are met, signalization of the intersection may be appropriate. However, a signal likely should not be installed if none or few of the warrants are met since the installation of signals may increase delays on a previously uncontrolled major street and may contribute to an increase in accidents.

The installation of a traffic signal can serve as mitigation when a significant impact is identified at an unsignalized intersection. Since the analyses presented herein are based on peak hour traffic volumes, Figure 4C-3, Warrant 3, Peak Hour as presented in the CMUTCD is utilized. For purposes of this study, traffic signals are considered to be a feasible mitigation if the peak-hour traffic signal warrant is met.

Tables 4 through 6 present the results of the intersection analyses. LOS impacts that the Project is responsible to mitigate are presented in bold type. Peak-hour traffic signal warrants are performed only for intersections with a LOS below the target LOS C.

Table 4
Intersection Level of Service Summary – Existing Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
Lake / Sunrise	Two-way stop	13.4	B	n/a	12.2	B	n/a
Tozer / Sunrise	All-way stop	18.4	C	n/a	15.9	C	n/a
Lilly / Sunrise	Two-way stop	18.3	C	n/a	10.6	C	n/a
Mariposa / South A	One-way stop	9.0	A	n/a	7.3	A	n/a
Tozer / South A	One-way stop	13.7	B	n/a	13.6	B	n/a

Table 5
Intersection Level of Service Summary – Existing-Plus-Project Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
Lake / Sunrise	Two-way stop	13.9	B	n/a	12.2	B	n/a
Tozer / Sunrise	All-way stop	21.6	C	n/a	16.8	C	n/a
Lilly / Sunrise	Two-way stop	24.9	C	n/a	13.3	B	n/a
Mariposa / South A	One-way stop	10.3	B	n/a	9.5	A	n/a
Tozer / South A	One-way stop	13.7	B	n/a	13.1	B	n/a

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Table 6
Intersection Level of Service Summary – Cumulative (2035) With-Project Conditions

Intersection	Control Type	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
Lake / Sunrise	Two-way stop	**37.0**	**E**	NOT MET	22.8	C	n/a
Tozer / Sunrise	All-way stop	**68.4**	**F**	MET	**67.3**	**F**	MET
Lilly / Sunrise	Two-way stop	**316.8**	**F**	*	**28.2**	**D**	*
Mariposa / South A	One-way stop	10.4	B	n/a	9.7	A	n/a
Tozer / South A	One-way stop	22.4	C	n/a	20.5	C	n/a

* City staff has indicated that the intersection of Lilly Street and Sunrise Avenue is not a candidate for signalization based on its distance from Tozer Street.

12.2 Queuing

The results of the intersection operational analyses include an estimate of the 95th-percentile queue lengths at the study intersections. The storage capacity and the calculated 95th-percentile queue lengths are presented in Tables 7 and 8.

Notes and abbreviations for Tables 7 and 8:

L: Left-turn lane T: Through lane R: Right-turn lane
DNS: Does not stop

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Table 7
Intersection Queuing Summary – A.M. Peak Hour

Intersection	Storage Capacity (feet)	95th-Percentile Queue Length (feet)		
Approach		Existing	Existing Plus Project	Cumulative With Project
Lake / Sunrise				
Eastbound L (1 lane)	50*	0	0	3
Eastbound TR (1 lane)	510	DNS	DNS	DNS
Westbound L (1 lane)	0*	0	0	3
Westbound TR (1 lane)	350	DNS	DNS	DNS
Northbound L (1 lane)	55	0	3	5
Northbound T (1 lane)	125	3	3	10
Northbound R (1 lane)	50	0	0	3
Southbound L (1 lane)	65	8	10	40
Southbound TR (1 lane)	330	5	8	18
Tozer / Sunrise				
Eastbound LTR (1 lane)	330	40	53	315
Westbound LTR (1 lane)	>1,000	23	28	113
Northbound LTR (1 lane)	>1,000	140	170	310
Southbound LTR (1 lane)	>1,000	125	153	313
Lilly / Sunrise				
Eastbound L (1 lane)	430*	10	10	15
Eastbound TR (1 lane)	430	DNS	DNS	DNS
Westbound LTR (1 lane)	625	0	0	0
Northbound LTR (1 lane)	450	3	43	175
Southbound LTR (1 lane)	>1,000	55	85	420
Mariposa / South A				
Eastbound LTR (1 lane)	>1,000	DNS	5	5
Westbound LTR (1 lane)	600	0	0	0
Northbound LTR (1 lane)	210	3	3	3
Tozer / South A				
Eastbound LR (1 lane)	600	8	13	30
Northbound LT (1 lane)	630	0	3	5
Southbound TR (1 lane)	>1,000	DNS	DNS	DNS

* Left-turn lane connects to a two-way left-turn lane that allows for additional storage.

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Table 8
Intersection Queuing Summary – P.M. Peak Hour

Intersection Approach	Storage Capacity (feet)	95th-Percentile Queue Length (feet)		
		Existing	Existing Plus Project	Cumulative With Project
Lake / Sunrise				
Eastbound L (1 lane)	50*	0	0	0
Eastbound TR (1 lane)	510	DNS	DNS	DNS
Westbound L (1 lane)	0*	0	0	3
Westbound TR (1 lane)	350	DNS	DNS	DNS
Northbound L (1 lane)	55	8	8	23
Northbound T (1 lane)	125	5	5	10
Northbound R (1 lane)	50	3	3	3
Southbound L (1 lane)	65	0	3	3
Southbound TR (1 lane)	330	5	5	10
Tozer / Sunrise				
Eastbound LTR (1 lane)	330	25	30	315
Westbound LTR (1 lane)	>1,000	10	13	83
Northbound LTR (1 lane)	>1,000	130	140	315
Southbound LTR (1 lane)	>1,000	98	105	315
Lilly / Sunrise				
Eastbound L (1 lane)	430*	5	5	8
Eastbound TR (1 lane)	430	DNS	DNS	DNS
Westbound LTR (1 lane)	625	0	0	0
Northbound LTR (1 lane)	450	3	13	33
Southbound LTR (1 lane)	>1,000	15	20	53
Mariposa / South A				
Eastbound LTR (1 lane)	>1,000	DNS	3	3
Westbound LTR (1 lane)	600	0	0	0
Northbound LTR (1 lane)	210	3	3	3
Tozer / South A				
Eastbound LR (1 lane)	600	8	10	23
Northbound LT (1 lane)	630	3	3	3
Southbound TR (1 lane)	>1,000	DNS	DNS	DNS

* Left-turn lane connects to a two-way left-turn lane that allows for additional storage.

13.0 PEDESTRIAN ROUTES

Part 7 of the CMUTCD presents a discussion related to establishing school route plans. The scope of this traffic impact study does not include development of a school route plan, but rather provides a discussion of pedestrian facilities relative to potential school routes. The proposed attendance area was reviewed to determine the locations of existing sidewalks, existing marked crosswalks, and existing traffic control (i.e., stops signs, traffic signals).

In general, sidewalks exist within much of the residential area west of the Project site. Sidewalks are not present on large portions of Vineyard Avenue, Moore Street, and 9th Street. Sidewalks are also generally non-existent along Road 28 (Tozer Street) and in areas east of the Project site. Crosswalks are marked in the east-west direction at a majority of the intersections along Sunrise Avenue, primarily on the north side of Sunrise Avenue. Uncontrolled marked crosswalks (that is, where cross traffic does not stop) across Sunrise Avenue exist at Lake Street and Knox Avenue. The nearest crosswalk at a stop sign across Sunrise Avenue is at A Street, more than one half mile from the Project site. City staff has

indicated that the intersection of Sunrise Avenue and Knox Avenue (including Adelaide Avenue) is a candidate for future signalization based on spacing between major intersections.

Students attending Martin Luther King Jr. Middle School have been observed crossing Sunrise Avenue at Lilly Street, including walking diagonally across Sunrise Avenue, generally parallel with Lilly Street to the north. It is anticipated that a substantial volume of pedestrian traffic resulting from the proposed Project will occur near the intersection of Lilly Street and Sunrise Avenue.

Since the on-site vehicle pickup and drop off area directs vehicles northbound to the site exit at the intersection of Lilly Street and American Avenue, and since the offset/diagonal configuration of the intersection of Lilly Street and Sunrise Avenue presents several different paths of travel and points of conflict for vehicles and pedestrians, it is recommended that pedestrian barricades and appropriate signage be installed to inhibit pedestrians from crossing Sunrise Avenue at Lilly Street. Adult crossing guards are recommended at the existing crosswalk at Knox Avenue and across Lilly Street on the south side of Sunrise Avenue.

The City of Madera may consider the use of yellow marked crosswalks across Sunrise Avenue at Knox Avenue, and at intersections along the school route (to be established by the District at a later date) as described in Section 7C.02 of the CMUTCD as follows:

A marked pedestrian crosswalk may be yellow if the nearest point of the crosswalk is not more than 600 feet from a school building or school grounds. Refer to CVC 21368.

A marked pedestrian crosswalk may be yellow if the nearest point of the crosswalk is not more than 2,800 feet from a school building or school grounds and there are no intervening crosswalks other than those contiguous to the school grounds, and it appears that the facts and circumstances require special marking for the protection and safety of persons attending the school. Refer to CVC 21368.

It is recommended that a sidewalk be constructed along the Project frontage on Lilly Street and that the sidewalk be extended along the east side of Lilly Street to Sunrise Avenue.

It is likely that an adult crossing guard will be necessary on the north side of South A Street at the Project entrance.

Since traffic conditions adjacent to schools can be unpredictable, the operation of intersections near the school, as well as pedestrian habits along Sunrise Avenue, Knox Avenue, Lilly Street, Carrey Avenue, American Avenue, and South A Street, should be monitored after the school is in operation to determine if modifications to the school route plan are required. In the event that pedestrians are observed crossing regularly at unmarked locations, the installation of crosswalks may be considered based on observed conditions. It should be noted, however, that the CMUTCD indicates that crosswalk markings should not be used indiscriminately. In fact, information presented in the *Guidelines for the Installation of Marked Crosswalks* (undated) by the Virginia Department of Transportation describes conditions in which the installation of crosswalk lines alone may actually increase pedestrian crash risk.

In the event that substantial pedestrian volumes are eventually observed at uncontrolled crosswalks, it is recommended that push-button-activated rapid rectangular flashing beacons

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or other similar devices be considered to enhance driver awareness of the crossing. All signs and markings shall conform to the CMUTCD.

The CMUTCD, Section 4L.101(CA), presents several criteria for determining the need for flashing yellow beacons at school crosswalks based on observed conditions after the school is in operation. The following is excerpted from the CMUTCD:

Flashing beacons at school crosswalks may be installed on State highways in accordance with CVC Sections 21372 and21373.

Flashing yellow beacons may be installed to supplement standard school signing and markings for the purpose of providing advanced warning during specified times of operation when justified.

A flashing yellow beacon may be justified when ALL of the following conditions are fulfilled:

A. *The uncontrolled school crossing is on the "Suggested Route to School"; and*
B. *At least 40 school pedestrians use the crossing during each of any two hours (not necessarily consecutive) of a normal school day; and*
C. *The crossing is at least 600 feet from the nearest alternate crossing controlled by traffic signals, stop signs or crossing guards; and*
D. *The vehicular volume through the crossing exceeds 200 vehicles per hour in urban areas or 140 vehicles per hour in rural areas during the same hour the students are going to and from school during normal school hours; and*
E. *The critical approach speed exceeds 35 mph or the approach visibility is less than the stopping sight distance.*

14.0 DISCUSSION OF IMPACT ANALYSIS

14.1 Existing Conditions

The results of the intersection analyses indicate that the study intersections are currently operating at acceptable levels of service during the study peak hours. The calculated 95th-percentile queue lengths are less than the available storage capacity.

14.2 Existing-Plus-Project Conditions

The existing-plus-Project conditions analyses represent conditions that would occur after construction of the Project in the absence of other pending projects and regional growth. This scenario isolates the specific impacts of the Project.

The intersection analyses indicate the study locations are expected to continue to operate at acceptable levels of service after construction of the Project. The calculated 95th-percentile queue lengths are less than the available storage capacity.

14.3 Cumulative (Year 2035) Conditions With Project

The year 2035 with-Project conditions analyses are based on the assumption that the Project is in operation and generating the trips discussed above, and that other development and

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growth in the region occurs resulting in increased traffic as discussed in preceding sections of this report. This scenario estimates the long-term cumulative impacts.

The results of the intersection analyses indicate the Project is expected to contribute to cumulative result in significant impacts under future conditions at the following intersections:

- Lake Street / Sunrise Avenue
- Tozer Street / Sunrise Avenue
- Lilly Street / Sunrise Avenue

The intersection of Mariposa Street and South A Street and the intersection of Tozer Street and South A Street are expected to operate at acceptable levels of service under future with-Project conditions.

The significant impacts and a discussion of the recommended improvements to maintain acceptable conditions (delays and LOS) are summarized and discussed below.

Impact 1

At the intersection of Lake Street and Sunrise Avenue the Project would contribute to a decrease in the LOS from B in the existing condition to E in 2035 during the a.m. peak hour.

Recommended Improvement 1

Peak-hour traffic signal warrants are not expected to be satisfied based on the projected traffic volumes. In addition, all-way stop control is not expected to mitigate the future LOS D. Widening of Sunrise Avenue to provide four lanes is also not expected to be feasible based on the proximity of existing buildings to the existing roadway along Sunrise Avenue and the continuation to 9th Street. Therefore, to address the Project impact it is recommended that traffic signals be planned at the intersection of Lake Street and Tozer Street and installed if warranted based on observed traffic volumes in the future.

With implementation of these improvements the intersection would operate at LOS B during the a.m. and p.m. Project peak hours. The Project is responsible only for its fair share of the ultimate mitigation.

It should be noted that the ultimate design of the intersection should consider the p.m. peak hour between approximately 4:00 p.m. and 6:00 p.m., which was beyond the scope of this study.

Impact 2

At the intersection of Tozer Street and Sunrise Avenue the Project would contribute to a decrease in the LOS from C in the existing condition to F in 2035 during the a.m. and p.m. peak hours.

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Recommended Improvement 2

Peak-hour traffic signal warrants are expected to be satisfied based on the projected 2035 traffic volumes. It is recommended that traffic signals be installed at the intersection of Tozer Street and Sunrise Avenue in the future. Protected left-turn phasing is recommended, which requires dedicated left-turn lanes on all approaches. The length of the left-turn lanes should be per City of Madera standards and should be long enough to accommodate the queue lengths presented in Table 10 of this report. In addition, a dedicated right-turn lane is recommended on all four approaches to the intersection. Future signalization should include construction of crosswalks, curb ramps, and sidewalks connecting to existing sidewalks on Sunrise Avenue and to the proposed school.

With implementation of these improvements the intersection would operate at LOS C during the a.m. and p.m. Project peak hours. The Project is responsible only for its fair share of the ultimate mitigation.

It should be noted that the ultimate design of the intersection should consider the p.m. peak hour between approximately 4:00 p.m. and 6:00 p.m., which was beyond the scope of this study.

Impact 3

At the intersection of Lilly Street and the Sunrise Avenue the Project would contribute to a decrease in the LOS from C in the existing condition to F in 2035 during the a.m. peak hour and from C in the existing condition to D in 2035 during the p.m. peak hour.

Recommended Improvement 3

City staff has indicated that the intersection of Lilly Street and the Sunrise Avenue is not a candidate for signalization or all-way stop control based on the spacing between major intersections. The recommended mitigation for substandard levels of service for intersections along Sunrise Avenue between Tozer Street and Lake Street is signalization of the intersection of Knox Avenue and Sunrise Avenue. There is a high degree of connectivity between streets on both sides of Sunrise Avenue that will allow traffic to redistribute to the future traffic signals.

Summary of Mitigated Intersection LOS - Future-With-Project Conditions

Table 9 presents calculated delays and levels of service for the mitigated future with-Project conditions. Table 10 presents the calculated 95th-percentile queues for the mitigated conditions. Mitigated intersection analysis sheets are attached.

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Table 9
Mitigated Intersection LOS – Cumulative 2035 With-Project Conditions

Intersection	Control Type	A.M. Peak Hour		P.M. Peak Hour	
		Delay (sec)	LOS	Delay (sec)	LOS
Lake / Sunrise	Traffic Signals	15.4	B	14.6	B
Tozer / Sunrise	Traffic Signals	30.3	C	26.6	C

Table 10
Mitigated Intersection Queuing Summary – Cumulative 2035 With-Project Conditions

Intersection	Hour	Storage and Queue Length (feet)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lake / Sunrise	A.M.	21	164	0	21	194	2	15	28	0	54	40	S
	P.M.	14	188	4	27	160	0	52	37	0	18	40	S
Tozer / Sunrise	A.M.	117	131	61	51	147	0	261	191	0	25	375	0
	P.M.	79	117	52	34	101	0	238	302	0	25	285	0

All lengths are reported in feet.

15.0 DISCUSSION OF SITE ACCESS

The proposed site plan provides on-site vehicular access to City/County streets as follows:

- A one-way northbound entrance from South A Street near the Mariposa Street alignment;
- A one-way exit connecting to Lilly Street at American Avenue;
- A gated driveway connecting to Lilly Street near the Carrey Avenue alignment with access to teacher parking;
- A gated driveway connecting to Tozer Street on approximately the Carrey Avenue alignment.

15.1 South A Street Entrance

The analyses suggest that the intersection of Mariposa Street and South A Street is expected to operate at acceptable levels of service. The entrance is proposed as a one-way driveway, which minimizes the number of conflicting turning movements. As is typical of elementary schools, there is a potential for on-site queues to extend into South A Street. However, the proposed site plan provides a throat of more than 250 feet entering the site and provides a substantial length of pickup/drop off area (greater than 300 feet), plus additional driveway area parallel to the pickup/drop off area. Considering that Lilly Street provides a secondary pickup/drop off area, it is anticipated that vehicles will choose alternate paths if congestion at the South A Street entrance is encountered.

South A Street is approximately 40 feet wide with parallel parking; therefore, additional space for turn lanes does not exist. Left-turn lanes are not recommended because the offset between the site entrance and Mariposa Street could result in head-on conflicts.

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15.2 Lilly Street / American Avenue Exit

The intersection of Lilly Street and American Avenue is expected to experience a substantial amount of Project traffic, consisting of trips exiting from the one-way driveway as well as parents dropping off and picking up students along Lilly Street and along American Avenue. This area is also likely to experience a substantial amount of pedestrian traffic.

City staff has requested that this report discuss the configuration of the intersection, particularly whether it should be constructed as a knuckle configuration or as a three-legged intersection. We recommend that a standard knuckle configuration not be used and that the pavement area be minimized to inhibit U-turns and disorderly parking. The intersection should be constructed in a "T" configuration to accommodate parallel parking and vehicle turning movements (turning templates should be utilized in the design). The on-site one-way exit should align with the westbound lane of American Avenue. It is anticipated that the installation of all-way stop control would contribute to orderly operation of the intersection and would provide protection for pedestrians. The CMUTCD allows for the installation of all-way stop control at the intersection of two local roads with similar volumes without the need for the satisfaction of volume warrants.

15.3 Lilly Street / Carrey Avenue Driveway

The proposed driveway on Lilly Street near the Carrey Avenue alignment will be gated and not available for student drop off and pickup. The gate should be set back from Lilly Street to provide storage for at least one vehicle while the gate is opening without blocking Lilly Street or the sidewalk. It is recommended that the driveway align with Carrey Avenue. In the near-term it is anticipated that this driveway will accommodate a low volume of traffic (primarily school employees) that will not coincide with a majority of the parent drop off/pickup trips.

15.4 Tozer Street Driveway

The proposed driveway on Tozer Street near the Carrey Avenue alignment will be gated and not available for student drop off and pickup. If two-way traffic is allowed, the gate should be set back from Tozer Street to provide storage for at least one vehicle while the gate is opening without blocking Tozer Street or the sidewalk. Left turns exiting the driveway to northbound Tozer Street should not be allowed. In the near-term it is anticipated that this driveway will accommodate a low volume of traffic (primarily school employees) that will not coincide with a majority of the parent drop off/pickup trips.

16.0 CONCLUSIONS AND RECOMMENDATIONS

Generally-accepted traffic engineering principles and methods were employed to estimate the amount of traffic expected to be generated by the Project, to analyze the existing traffic conditions, and to analyze the traffic conditions projected to occur in the future.

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The traffic impact study found that the Project will contribute to future cumulative significant impacts that will require mitigation as described in this report. In general, the Project will be responsible for its share of the ultimate mitigations for year 2035 cumulative impacts at the following locations:

- Lake Street / Sunrise Avenue
- Tozer Street / Sunrise Avenue
- Lilly Street / Sunrise Avenue

The mitigation for each location is discussed in this report, and recommendations related to the site access driveways are presented in this report.

It is anticipated that the Project may generate as many as 391 pedestrians/bicyclists during the a.m. peak hour and 471 pedestrians/bicyclists during the Project p.m. peak hour. A majority of the pedestrians/bicyclists are expected to travel west of the site, and a large number of them would be required to cross Sunrise Avenue. It is not anticipated that a significant volume of pedestrian traffic will be generated from the east and south of the Project site based on the proposed attendance boundary.

The scope of this study did not include the development of a school route plan. However, it is recommended that pedestrian barricades and appropriate signage be installed to prevent pedestrians from crossing Sunrise Avenue at Lilly Street. Adult crossing guards are recommended at the existing crosswalk at Knox Avenue (which should be painted yellow) and across Lilly Street on the south side of Sunrise Avenue. It is likely that an adult crossing guard will be necessary on the north side of South A Street at the Project entrance.

It is recommended that a sidewalk be constructed along the Project frontage on Lilly Street and that the sidewalk be extended along the east side of Lilly Street to Sunrise Avenue.

Since traffic conditions adjacent to schools can be unpredictable, the operation of intersections near the school, as well as pedestrian habits along Sunrise Avenue, Knox Avenue, Lilly Street, Carrey Avenue, American Avenue, and South A Street, should be monitored after the school is in operation to determine if modifications to the school route plan are required. In the event that pedestrians are observed crossing regularly at unmarked locations, the installation of crosswalks may be considered based on observed conditions.

In the event that substantial pedestrian volumes are eventually observed at uncontrolled crosswalks and safety upgrades are considered, it is recommended that push-button-activated rapid rectangular flashing beacons or other similar devices be installed to enhance driver awareness of the crossing. All signs and markings shall conform to the CMUTCD.

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Thank you for the opportunity to perform this traffic impact study. Please feel free to contact our office if you have any questions.

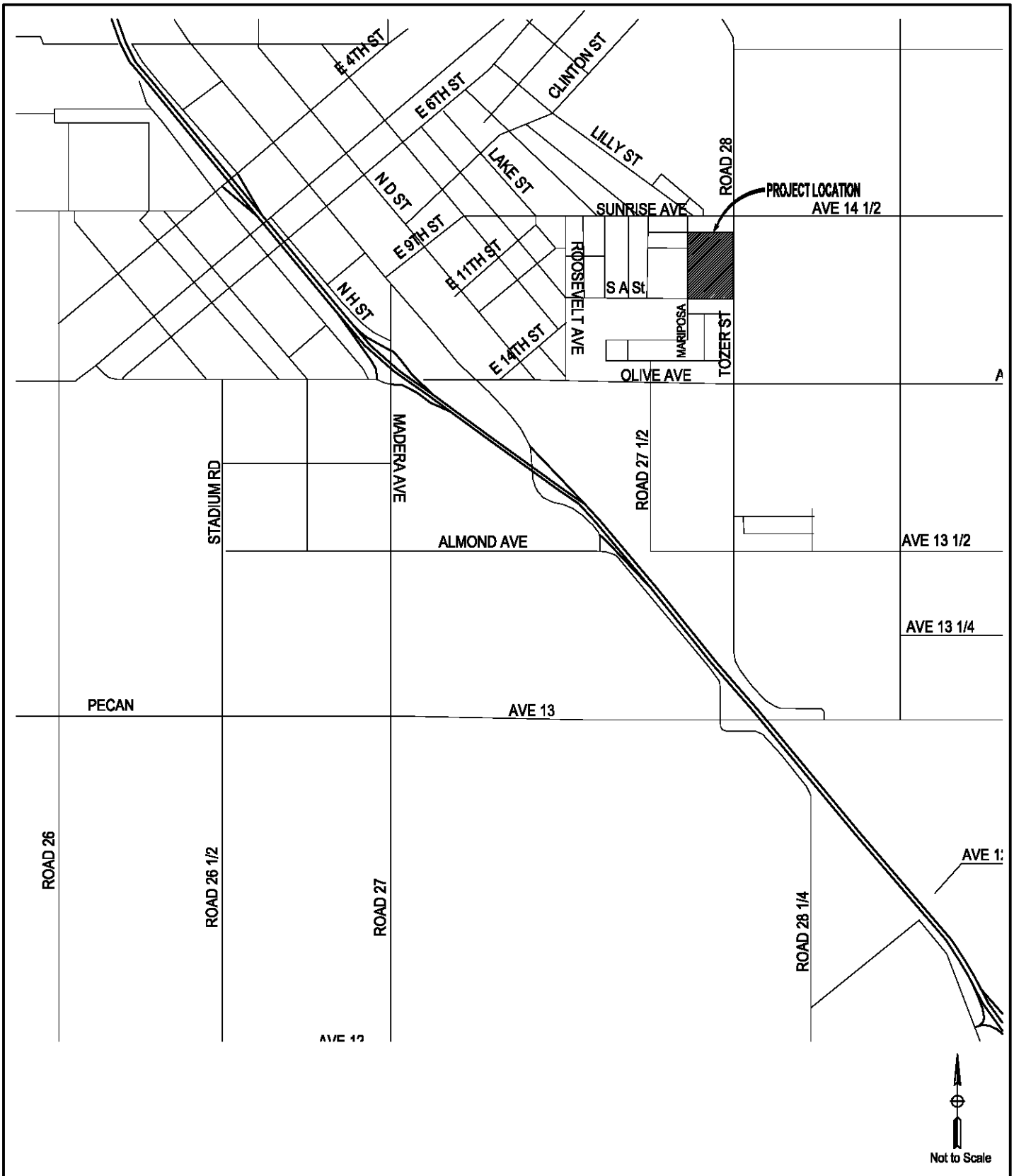
PETERS ENGINEERING GROUP

John Rowland, PE, TE

Attachments: Figures 1 through 9
Traffic Count Data Sheets
Madera County Travel Model
Intersection Analysis Sheets
Mitigated Intersection Analysis Sheets

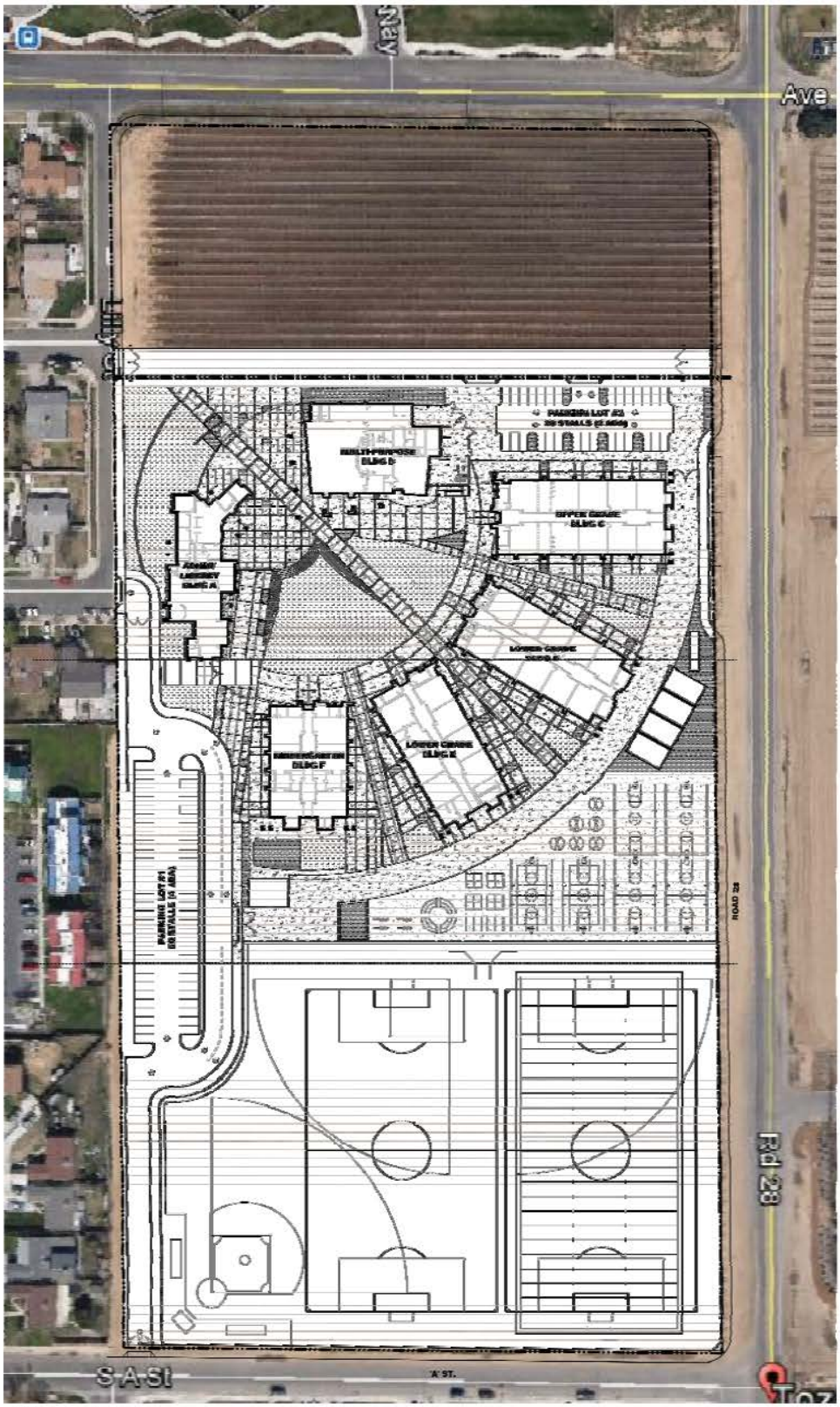
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FIGURES



Proposed Elementary School
Madera County, California

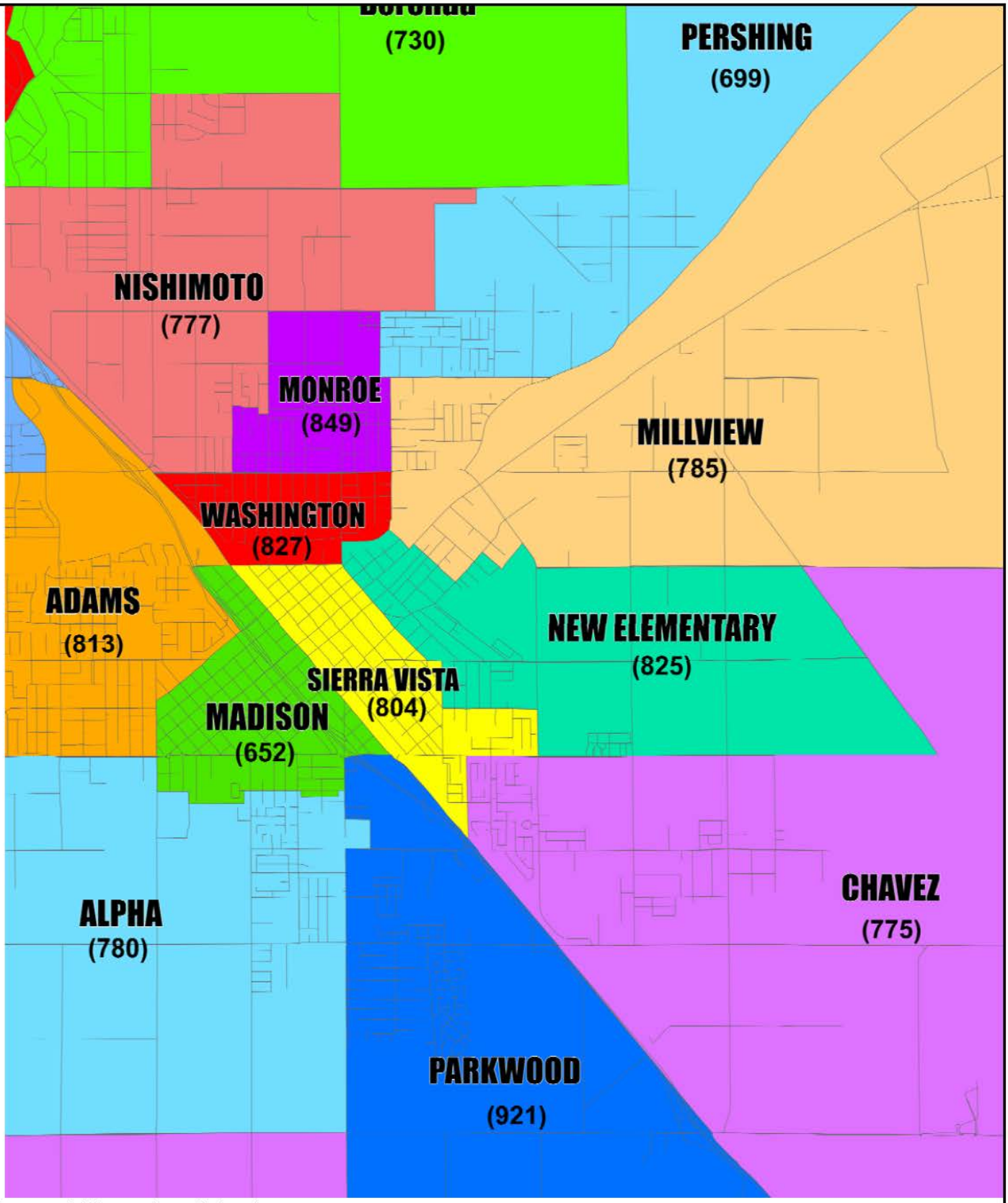
SITE VICININTY MAP



Proposed Elementary School
Madera County, California

SITE PLAN

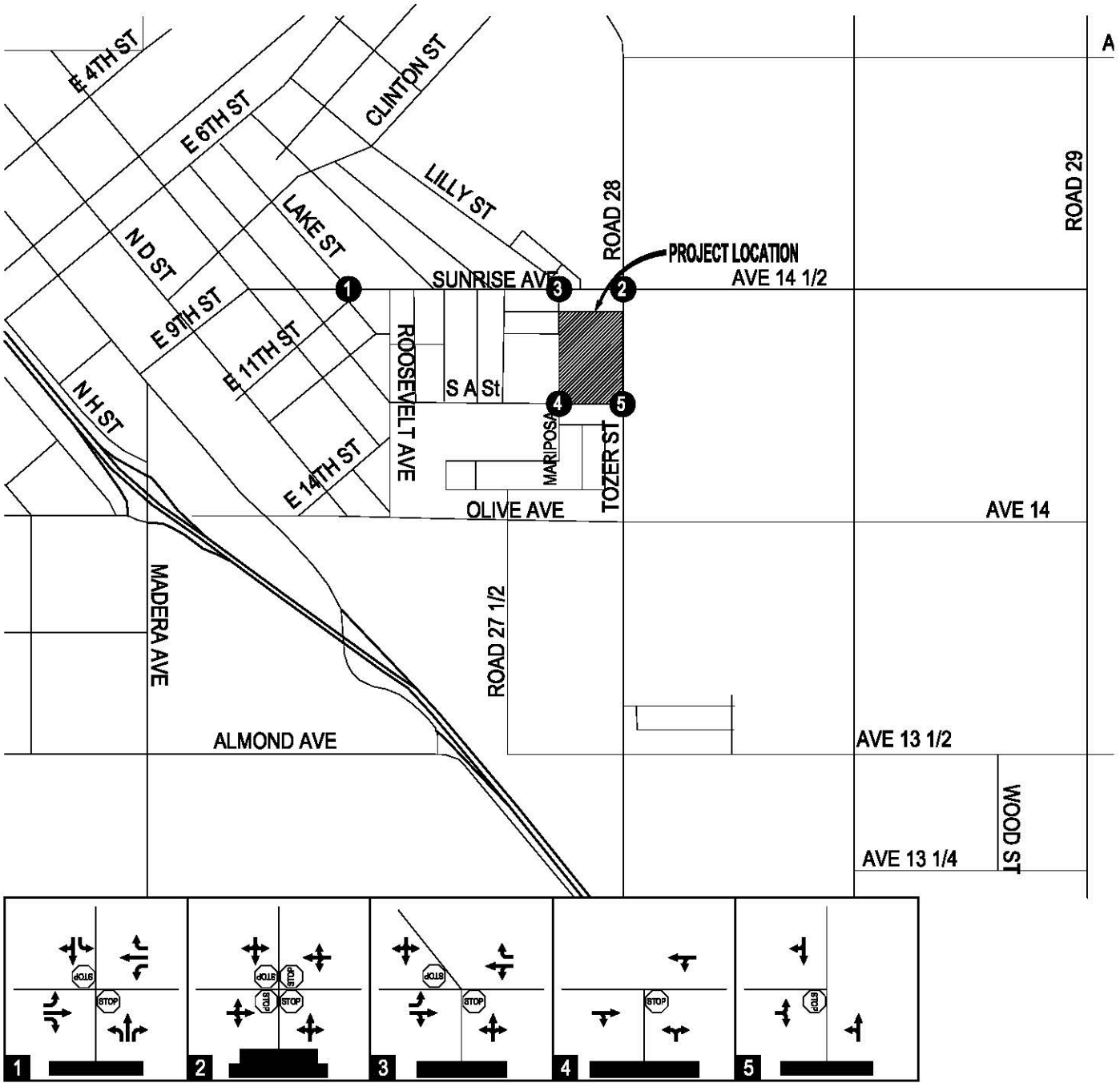
Not to Scale



Proposed Elementary School
Madera County, California

SCHOOL ATTENDANCE BOUNDARY

Not to Scale



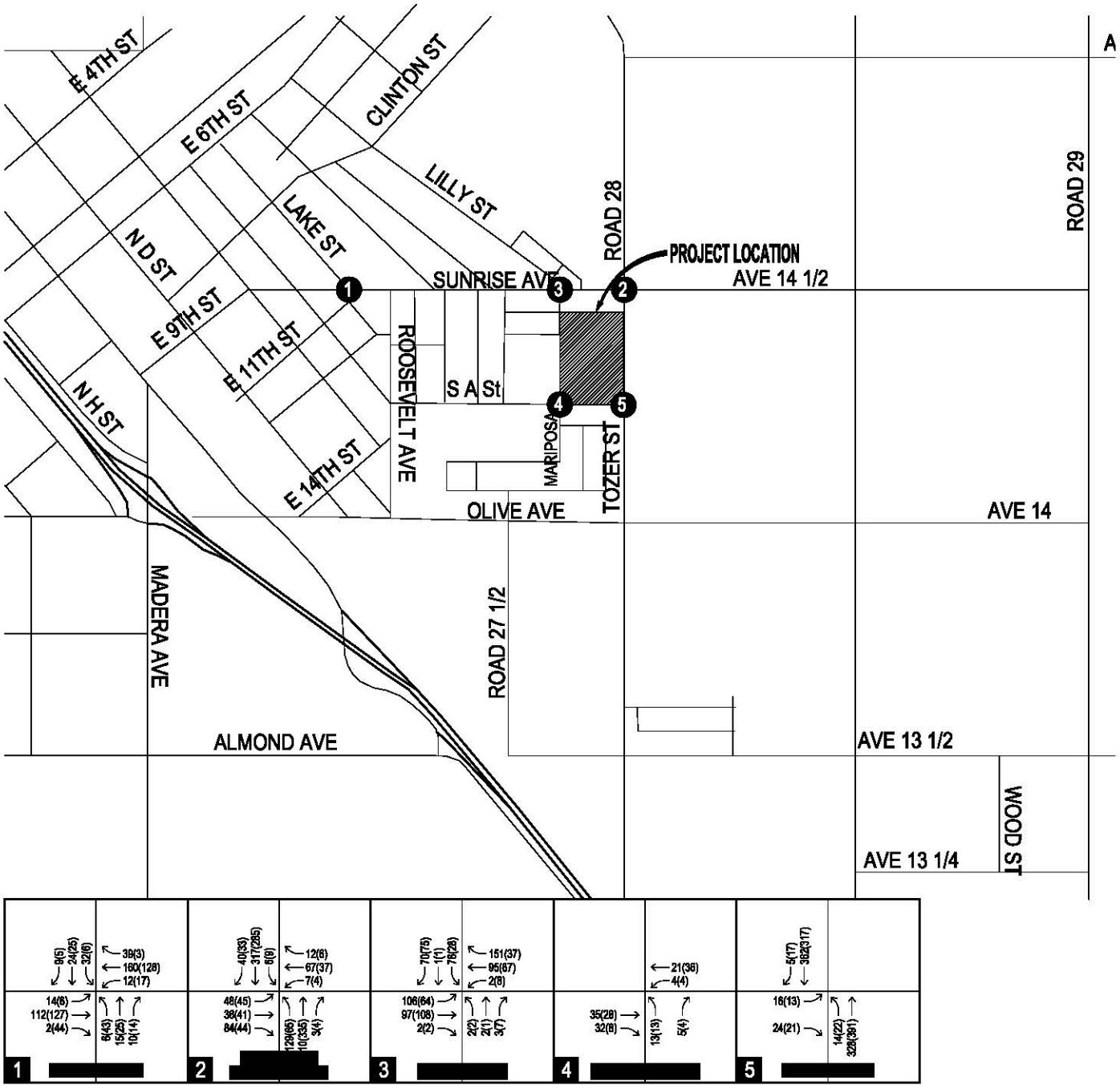
LEGEND

- (XX) STUDY AREA INTERSECTIONS
- PROJECT SITE
- SIGNALIZED INTERSECTION
- STOP SIGN
- DIRECTION OF TRAVEL

Proposed Elementary School
Madera County, California

EXISTING LANE CONFIGURATIONS AND INTERSECTION CONTROL

Not to Scale



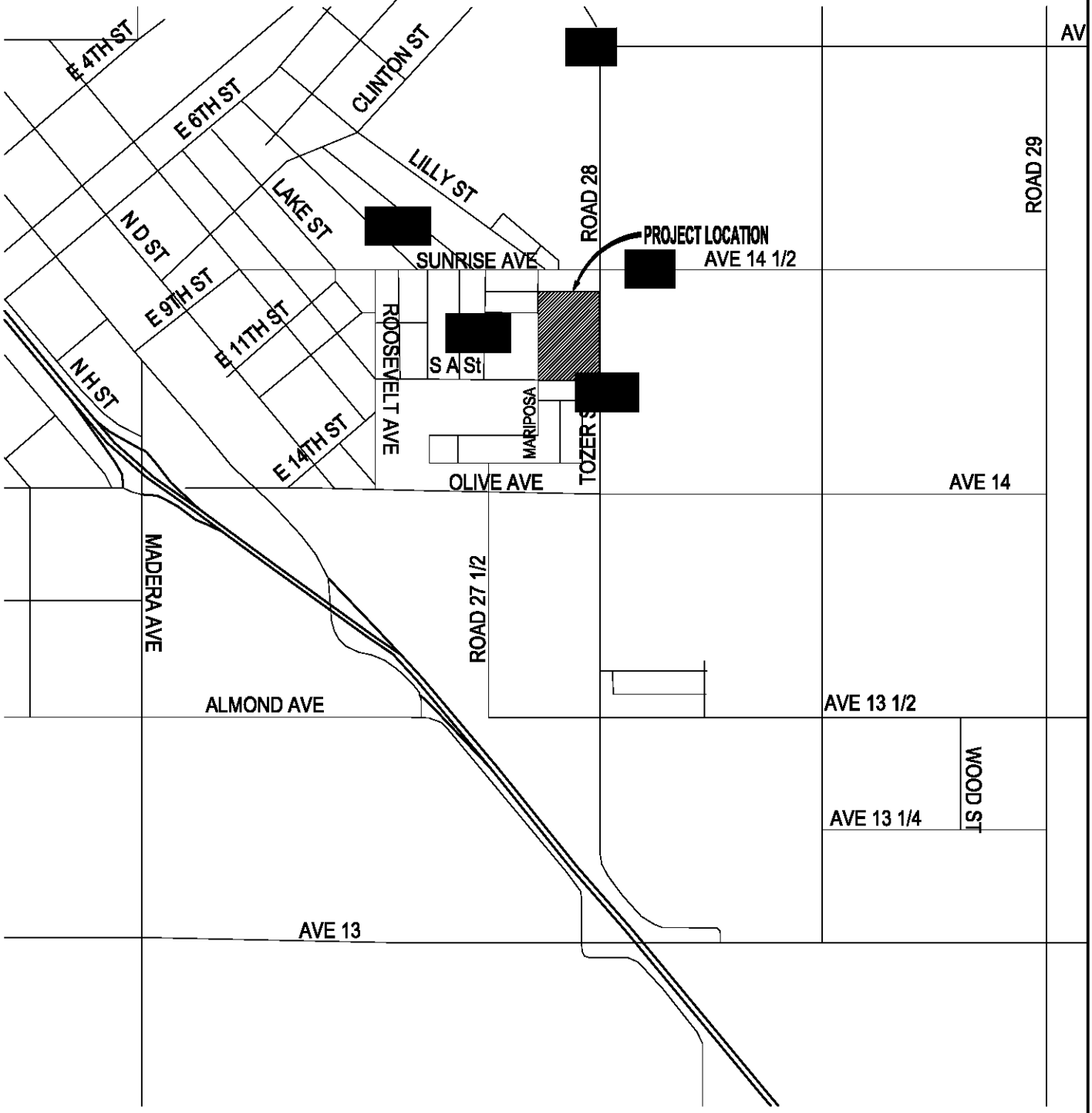
LEGEND

X	STUDY AREA INTERSECTIONS
XX (YY)	AM (PM) VOLUMES
	PROJECT SITE

Proposed Elementary School
Madera County, California

EXISTING PEAK HOUR TRAFFIC VOLUMES

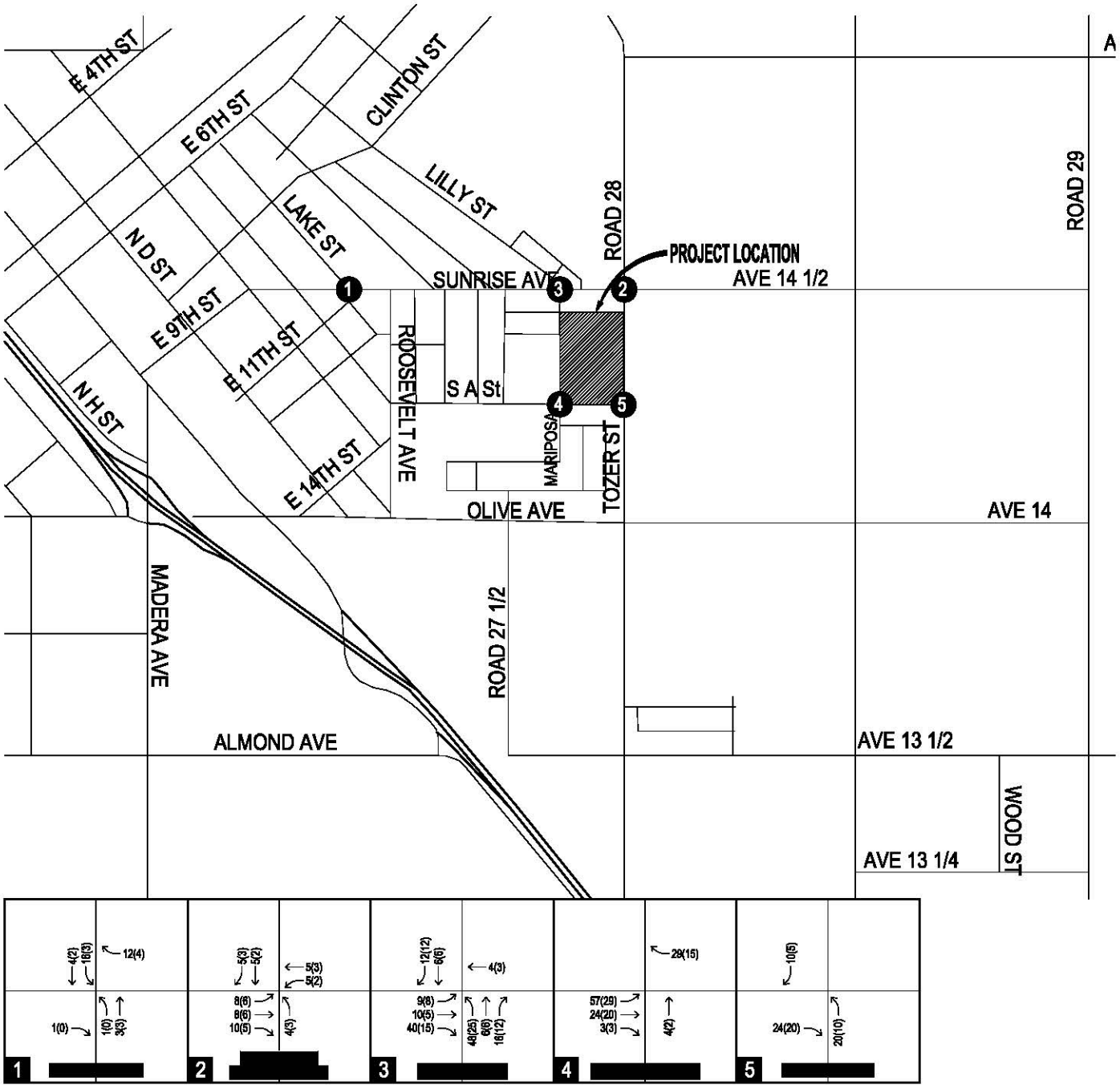
Not to Scale



Proposed Elementary School
Madera County, California

PROJECT TRIP DISTRIBUTION PERCENTAGES

Not to Scale



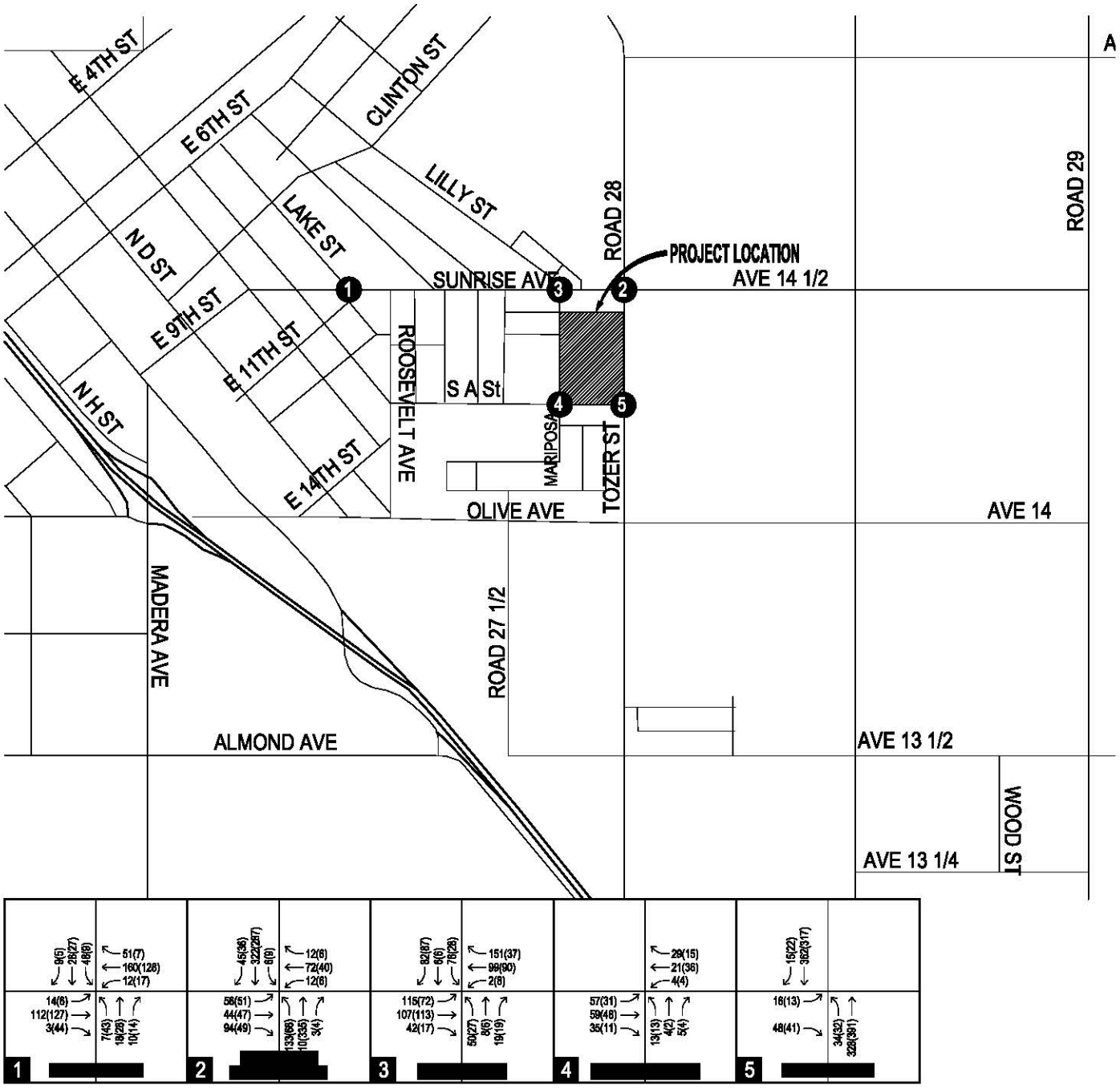
LEGEND

X	STUDY AREA INTERSECTIONS
XX (YY)	AM (PM) VOLUMES
	PROJECT SITE

Proposed Elementary School
Madera County, California

PEAK HOUR PROJECT TRAFFIC VOLUMES

Not to Scale



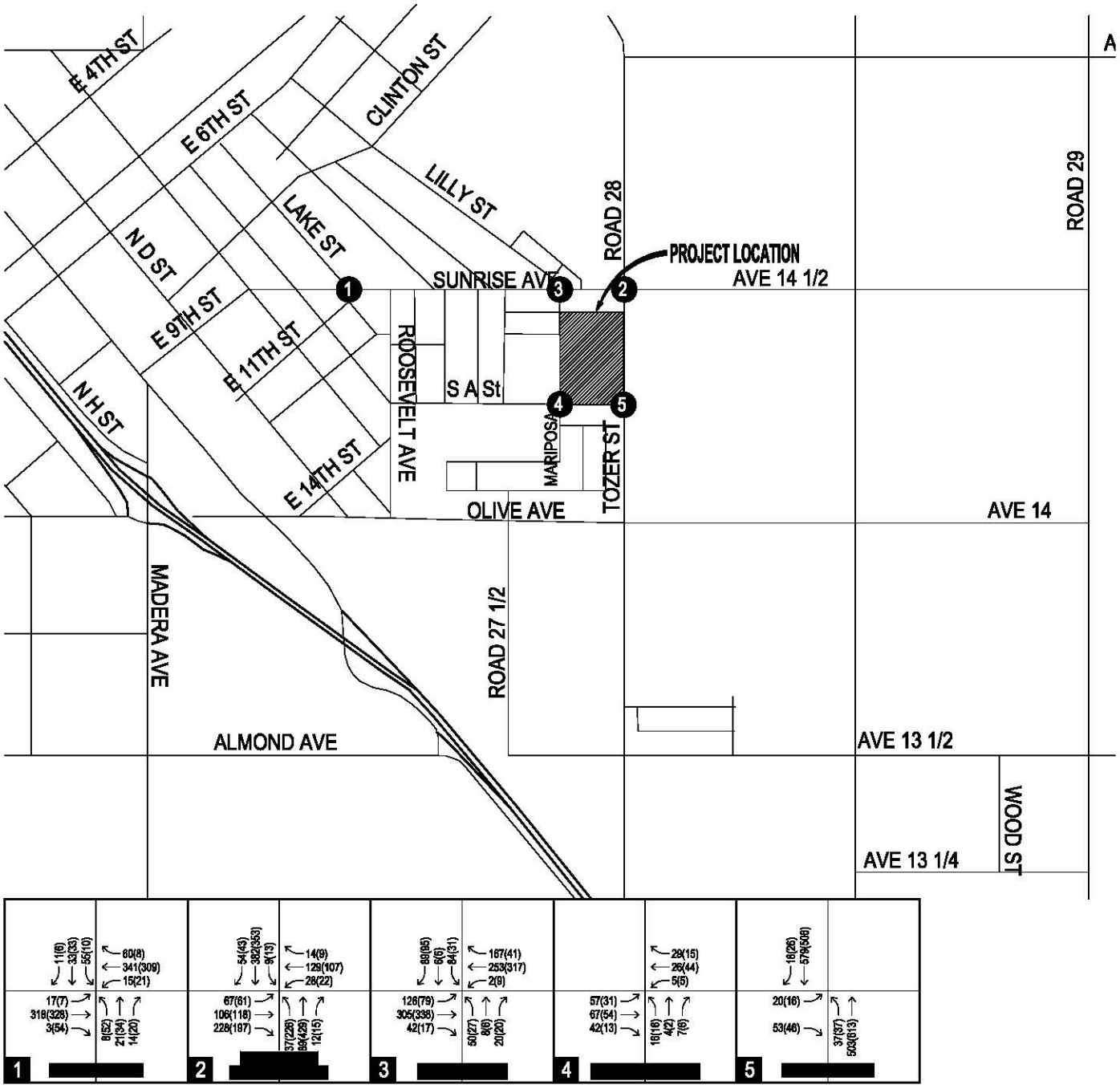
LEGEND

X	STUDY AREA INTERSECTIONS
XX (YY)	AM (PM) VOLUMES
	PROJECT SITE

Proposed Elementary School
Madera County, California

EXISTING PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

Not to Scale



LEGEND

X	STUDY AREA INTERSECTIONS
XX (YY)	AM (PM) VOLUMES
	PROJECT SITE

Proposed Elementary School
Madera County, California

CUMULATIVE 2035 WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

Not to Scale

TRAFFIC COUNT DATA SHEETS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8143-001 **Day:** Thursday

TOTALS

City: Madera **Date:** 12/11/2014

AM

NS/EW Streets:	Road 28			Road 28			Avenue 14 1/2			Avenue 14 1/2			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	9	28	0	1	52	1	8	3	7	1	8	0	118
7:15 AM	16	42	0	2	75	5	9	7	12	1	10	4	183
7:30 AM	30	57	1	1	65	8	12	8	23	2	11	4	222
7:45 AM	26	60	0	1	86	15	14	11	23	3	25	3	267
8:00 AM	57	51	2	2	91	12	13	10	26	1	21	1	287
8:15 AM	13	51	1	2	69	2	8	8	15	2	8	1	180
8:30 AM	8	43	0	4	40	2	5	3	9	0	3	0	117
8:45 AM	5	40	2	0	42	5	6	5	8	2	2	0	117
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	164	372	6	13	520	50	75	55	123	12	88	13	1491
APPROACH %'s :	30.26%	68.63%	1.11%	2.23%	89.19%	8.58%	29.64%	21.74%	48.62%	10.62%	77.88%	11.50%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	129	210	3	6	317	40	48	36	84	7	67	12	959
PEAK HR FACTOR :		0.777			0.864			0.857			0.694		0.835

CONTROL : 2 Way Stop (EB & WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-001 **Day:** Wednesday

TOTALS

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Rd 28_Tozer St			Rd 28_Tozer St			Avenue 14 1_2_Sunrise Ave			Avenue 14 1_2_Sunrise Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	15	62	2	1	52	4	13	7	22	1	4	5	188
2:15 PM	7	43	2	3	60	8	6	7	11	1	7	0	155
2:30 PM	12	57	0	0	61	5	11	4	14	0	7	2	173
2:45 PM	14	63	3	3	89	9	14	8	11	0	8	2	224
3:00 PM	13	80	1	2	63	7	10	16	12	2	15	1	222
3:15 PM	25	90	0	0	65	11	14	8	9	2	6	1	231
3:30 PM	13	102	0	4	68	6	7	9	12	0	8	2	231
3:45 PM	15	80	1	3	54	12	17	9	18	1	5	4	219
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	114	577	9	16	512	62	92	68	109	7	60	17	1643
APPROACH %'s :	16.29%	82.43%	1.29%	2.71%	86.78%	10.51%	34.20%	25.28%	40.52%	8.33%	71.43%	20.24%	
PEAK HR START TIME :	245 PM												TOTAL
PEAK HR VOL :	65	335	4	9	285	33	45	41	44	4	37	6	908
PEAK HR FACTOR :		0.878			0.809			0.855			0.653		0.983

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8143-001 **Day:** Thursday

3 Axle+ Trucks

City: Madera **Date:** 12/11/2014

AM

NS/EW Streets:	Road 28			Road 28			Avenue 14 1/2			Avenue 14 1/2			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	3	0	0	4	0	0	0	0	0	1	0	8
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	100.00%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	2	0	0	4	0	0	0	0	0	0	0	6
PEAK HR FACTOR :		0.250			0.333			0.000			0.000		0.833

CONTROL : 2 Way Stop (EB & WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-001

Day: Wednesday

3 Axle+ Trucks

City: Madera

Date: 5/20/2015

PM

NS/EW Streets:	Rd 28_Tozer St			Rd 28_Tozer St			Avenue 14 1_2_Sunrise Ave			Avenue 14 1_2_Sunrise Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1	0	0	3	0	0	0	0	0	0	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	245 PM												TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	0	0	0	0	0	2
PEAK HR FACTOR :		0.000			0.250			0.000			0.000		0.981

CONTROL : 0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-8143-001
N/S Street: Road 28
E/W Street: Avenue 14 1/2
DATE: 12/11/2014 DAY: Thursday
CITY: Madera

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	1	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	0	0	0	2	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**1**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	0	1	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**

PEAK HOURS
PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
7:00 AM	1	1	0	0	0	0	2	1	**AM**
12:00 AM	0	0	0	0	0	0	0	0	**NOON**
11:45 PM	0	1	0	0	0	0	0	0	**PM**

PEAK HOURS
BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-8066-001
N/S Street: Rd 28/Tozer St
E/W Street: Avenue 14 1/2/Sunrise Ave
DATE: 5/20/2015 DAY: Wednesday
CITY: Madera

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	0	0	0	0	0	2	0
2:15 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PEAK HOURS
PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
12:00 AM	0	0	0	0	0	0	0	0	**AM**
12:00 AM	0	0	0	0	0	0	0	0	**NOON**
2:00 PM	0	1	0	0	0	0	2	0	**PM**

PEAK HOURS
BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	1	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8143-002 **Day:** Thursday

TOTALS

City: Madera **Date:** 12/11/2014

AM

NS/EW Streets:	Lake St			Lake St			Sunrise Ave			Sunrise Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	1	1	0	1	0	
7:00 AM	1	2	0	6	3	1	1	8	0	0	29	5	56
7:15 AM	2	1	1	3	5	1	1	12	0	1	52	1	80
7:30 AM	0	2	2	7	6	6	4	26	0	4	23	13	93
7:45 AM	1	6	6	12	5	1	5	44	0	7	33	8	128
8:00 AM	3	6	1	10	8	1	4	30	2	0	52	17	134
8:15 AM	0	1	4	10	2	1	0	24	1	4	23	8	78
8:30 AM	0	2	0	3	3	0	1	9	1	1	17	5	42
8:45 AM	0	2	0	7	2	0	1	14	0	0	12	3	41
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	7	22	14	58	34	11	17	167	4	17	241	60	652
APPROACH %'s :	16.28%	51.16%	32.56%	56.31%	33.01%	10.68%	9.04%	88.83%	2.13%	5.35%	75.79%	18.87%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	6	15	10	32	24	9	14	112	2	12	160	39	435
PEAK HR FACTOR :		0.596			0.855			0.653			0.764		0.812

CONTROL : 2 Way Stop (NB & SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-002 **Day:** Wednesday

TOTALS

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Lake St			Lake St			Sunrise Ave			Sunrise Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	5	3	3	2	3	0	1	23	8	1	29	3	81
2:15 PM	9	4	0	1	3	1	1	27	5	1	16	1	69
2:30 PM	8	2	5	2	6	1	1	31	7	2	19	1	85
2:45 PM	7	1	3	3	5	3	0	35	9	5	21	2	94
3:00 PM	9	5	3	1	3	1	0	40	12	6	30	1	111
3:15 PM	7	7	2	1	5	1	2	33	12	5	31	0	106
3:30 PM	13	6	5	2	10	1	2	24	6	5	32	1	107
3:45 PM	14	7	4	2	7	2	2	30	14	1	35	1	119
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	72	35	25	14	42	10	9	243	73	26	213	10	772
APPROACH %'s :	54.55%	26.52%	18.94%	21.21%	63.64%	15.15%	2.77%	74.77%	22.46%	10.44%	85.54%	4.02%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	43	25	14	6	25	5	6	127	44	17	128	3	443
PEAK HR FACTOR :		0.820			0.692			0.851			0.974		0.931

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8143-002 **Day:** Thursday

3 Axle+ Trucks

City: Madera **Date:** 12/11/2014

AM

NS/EW Streets:	Lake St			Lake St			Sunrise Ave			Sunrise Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	1	1	1	0	1	1	1	0	1	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	0	0	0	1	0	1	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	1	0	0	0	1	1	4
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	0	0	0	1	0	1	0	0	0	0	1	3
PEAK HR FACTOR :		0.000			0.250			0.250			0.250		0.806

CONTROL : 2 Way Stop (NB & SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-002 **Day:** Wednesday

3 Axle+ Trucks

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Lake St			Lake St			Sunrise Ave			Sunrise Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
2:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	1	0	0	0	1	2
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :		0.000			0.000			0.000			0.000		0.931

CONTROL : 0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 14-8143-002
N/S Street: Sunrise Ave
E/W Street: Lake St
DATE: 12/11/2014 DAY: Thursday
CITY: Madera

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	1	1	1	0	0	0
7:15 AM	0	1	0	0	1	0	0	1
7:30 AM	2	0	0	2	0	0	2	0
7:45 AM	4	0	2	0	0	3	1	2
8:00 AM	1	2	0	0	2	0	0	0
8:15 AM	2	1	0	1	0	0	0	0
8:30 AM	1	0	0	0	0	1	0	0
8:45 AM	0	2	0	0	0	0	0	0
TOTALS	**10**	**6**	**3**	**4**	**4**	**4**	**3**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**2**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
4:00 PM	2	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0
4:30 PM	0	2	2	0	0	0	2	0
4:45 PM	3	0	0	0	0	0	0	0
5:00 PM	1	3	0	0	0	0	0	0
5:15 PM	1	4	0	0	1	0	0	2
5:30 PM	2	1	0	0	0	0	0	0
5:45 PM	5	4	0	0	0	0	0	0
TOTALS	**14**	**16**	**2**	**0**	**1**	**0**	**2**	**2**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PEAK HOURS
PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
7:30 AM	9	3	2	3	2	3	3	2	**AM**
12:00 AM	0	0	0	0	0	0	0	0	**NOON**
5:00 PM	9	12	0	0	1	0	0	2	**PM**

PEAK HOURS
BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
8:00 AM	1	1	0	0	1	0	0	0	0	0	1	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-8066-002
N/S Street: Lake St
E/W Street: Sunrise Ave
DATE: 5/20/2015 DAY: Wednesday
CITY: Madera

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	2	6	0	1	0	2	0	3
2:15 PM	1	3	0	0	0	0	0	1
2:30 PM	2	3	0	1	0	0	0	0
2:45 PM	0	0	0	0	0	0	2	2
3:00 PM	2	2	0	0	0	0	0	0
3:15 PM	0	2	0	0	1	0	0	0
3:30 PM	2	0	2	0	0	0	0	0
3:45 PM	1	0	1	0	1	0	0	0
TOTALS	**10**	**16**	**3**	**2**	**2**	**2**	**2**	**6**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	1	0	0	1	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	2	1
2:45 PM	0	0	0	0	0	0	0	0	0	0	2	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	1	0
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**5**	**1**

PEAK HOURS
PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
12:00 AM	0	0	0	0	0	0	0	0	**AM**
12:00 AM	0	0	0	0	0	0	0	0	**NOON**
2:00 PM	5	12	0	2	0	2	2	6	**PM**

PEAK HOURS
BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	1	0	0	5	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-003 **Day:** Wednesday

TOTALS

City: Madera **Date:** 5/20/2015

AM

NS/EW Streets:	Rd 28_Tozer St			Rd 28_Tozer St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	2	32	0	0	55	1	3	0	2	0	0	0	95
7:15 AM	1	64	0	0	79	0	3	0	5	0	0	0	152
7:30 AM	1	87	0	0	77	3	6	0	7	0	0	0	181
7:45 AM	7	97	0	0	106	0	4	0	8	0	0	0	222
8:00 AM	5	80	0	0	100	2	3	0	4	0	0	0	194
8:15 AM	2	59	0	0	67	2	3	0	3	0	0	0	136
8:30 AM	2	34	0	0	36	1	1	0	1	0	0	0	75
8:45 AM	0	43	0	0	43	1	0	0	3	0	0	0	90
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	20	496	0	0	563	10	23	0	33	0	0	0	1145
APPROACH %'s :	3.88%	96.12%	0.00%	0.00%	98.25%	1.75%	41.07%	0.00%	58.93%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	14	328	0	0	362	5	16	0	24	0	0	0	749
PEAK HR FACTOR :		0.822			0.866			0.769			0.000		0.843

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-003 **Day:** Wednesday

TOTALS

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Rd 28_Tozer St			Rd 28_Tozer St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	3	67	0	0	73	2	5	0	1	0	0	0	151
2:15 PM	5	55	0	0	71	3	0	0	4	0	0	0	138
2:30 PM	3	64	0	0	71	2	2	0	6	0	0	0	148
2:45 PM	4	75	0	0	96	4	6	0	5	0	0	0	190
3:00 PM	11	90	0	0	74	4	3	0	4	0	0	0	186
3:15 PM	3	115	0	0	69	4	1	0	6	0	0	0	198
3:30 PM	4	111	0	0	78	5	3	0	6	0	0	0	207
3:45 PM	5	100	0	0	72	3	4	0	3	0	0	0	187
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	38	677	0	0	604	27	24	0	35	0	0	0	1405
APPROACH %'s :	5.31%	94.69%	0.00%	0.00%	95.72%	4.28%	40.68%	0.00%	59.32%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	245 PM												TOTAL
PEAK HR VOL :	22	391	0	0	317	17	13	0	21	0	0	0	781
PEAK HR FACTOR :		0.875			0.835			0.773			0.000		0.943

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-003 **Day:** Wednesday

3 Axle+ Trucks

City: Madera **Date:** 5/20/2015

AM

NS/EW Streets:	Rd 28_Tozer St			Rd 28_Tozer St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	3	0	0	3	0	0	0	0	0	0	0	6
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	2	0	0	1	0	0	0	0	0	0	0	3
PEAK HR FACTOR :		0.250			0.250			0.000			0.000		0.852

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-003 **Day:** Wednesday

3 Axle+ Trucks

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Rd 28_Tozer St			Rd 28_Tozer St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1	0	0	3	0	0	0	0	0	0	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	245 PM												TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	0	0	0	1
PEAK HR FACTOR :		0.000			0.250			0.000			0.000		0.947

CONTROL : 0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-8066-003
N/S Street: Rd 28/Tozer St
E/W Street: S A St
DATE: 5/20/2015 DAY: Wednesday
CITY: Madera

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	1	0	1	0
TOTALS	**0**	**0**	**1**	**0**	**1**	**0**	**2**	**0**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	0	0	0	1	0	2	2
2:15 PM	0	0	0	0	0	0	2	0
2:30 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
3:00 PM	0	0	1	0	0	0	0	0
3:15 PM	0	0	0	0	1	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
TOTALS	**0**	**0**	**1**	**0**	**2**	**0**	**4**	**2**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	1	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	2	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**

PEAK HOURS
PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
8:45 AM	0	0	1	0	1	0	1	0	**AM**
12:00 AM	0	0	0	0	0	0	0	0	**NOON**
2:00 PM	0	0	0	0	1	0	4	2	**PM**

PEAK HOURS
BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	2	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-004 **Day:** Wednesday

TOTALS

City: Madera **Date:** 5/20/2015

AM

NS/EW Streets:	Mariposa St			Mariposa St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	2	0	0	0	0	3	2	2	3	0	12
7:15 AM	2	0	1	0	0	0	0	7	4	0	0	0	14
7:30 AM	1	0	3	0	0	0	0	11	8	0	4	0	27
7:45 AM	5	0	0	0	0	0	0	13	12	2	8	0	40
8:00 AM	4	0	2	0	0	0	0	5	9	2	5	0	27
8:15 AM	3	0	0	0	0	0	0	6	3	0	4	0	16
8:30 AM	2	0	1	0	0	0	0	1	2	0	2	0	8
8:45 AM	0	0	0	0	0	0	0	3	1	1	1	0	6
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	17	0	9	0	0	0	0	49	41	7	27	0	150
APPROACH %'s :	65.38%	0.00%	34.62%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	54.44%	45.56%	20.59%	79.41%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	13	0	5	0	0	0	0	35	32	4	21	0	110
PEAK HR FACTOR :		0.750			0.000			0.670			0.625		0.688

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-004 **Day:** Wednesday

TOTALS

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Mariposa St			Mariposa St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	3	0	1	0	0	0	0	6	3	1	4	0	18
2:15 PM	4	0	0	0	0	0	0	3	5	0	6	0	18
2:30 PM	0	0	1	0	0	0	0	7	4	2	5	0	19
2:45 PM	3	0	1	0	0	0	0	9	3	0	7	0	23
3:00 PM	2	0	1	0	0	0	0	5	4	1	15	0	28
3:15 PM	5	0	1	0	0	0	0	8	2	0	6	0	22
3:30 PM	1	0	1	0	0	0	0	7	1	1	7	0	18
3:45 PM	5	0	1	0	0	0	2	8	1	2	8	0	27
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	23	0	7	0	0	0	2	53	23	7	58	0	173
APPROACH %'s :	76.67%	0.00%	23.33%	#DIV/0!	#DIV/0!	#DIV/0!	2.56%	67.95%	29.49%	10.77%	89.23%	0.00%	

PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	13	0	4	0	0	0	2	28	8	4	36	0	95
PEAK HR FACTOR :		0.708			0.000			0.864			0.625		0.848

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-004

Day: Wednesday

3 Axle+ Trucks

City: Madera

Date: 5/20/2015

AM

NS/EW Streets:	Mariposa St			Mariposa St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :		0.000			0.000			0.000			0.000		0.688

CONTROL : 0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-8066-004 **Day:** Wednesday

3 Axle+ Trucks

City: Madera **Date:** 5/20/2015

PM

NS/EW Streets:	Mariposa St			Mariposa St			S A St			S A St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :		0.000			0.000			0.000			0.000		0.848

CONTROL : 0

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-8066-004
N/S Street: Mariposa St
E/W Street: S A St
DATE: 5/20/2015 DAY: Wednesday
CITY: Madera

A M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	1	0	0	0
7:15 AM	0	0	0	0	2	0	0	0
7:30 AM	0	0	0	0	1	0	1	0
7:45 AM	0	0	0	0	6	1	0	0
8:00 AM	0	1	0	0	2	0	0	0
8:15 AM	0	0	0	0	0	1	0	0
8:30 AM	0	1	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	**0**	**2**	**0**	**0**	**12**	**2**	**1**	**1**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

P M

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
2:00 PM	0	3	2	1	1	9	0	3
2:15 PM	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0
3:00 PM	0	0	2	0	0	0	0	0
3:15 PM	0	0	0	4	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	2	0	1	0	0
TOTALS	**0**	**3**	**4**	**7**	**1**	**10**	**0**	**3**

BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
2:00 PM	0	1	0	0	0	0	0	1	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

PEAK HOURS
PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	
7:15 AM	0	1	0	0	11	1	1	0	**AM**
12:00 AM	0	0	0	0	0	0	0	0	**NOON**
11:45 PM	0	3	4	7	1	10	0	3	**PM**

PEAK HOURS
BIKES

TIME	NB			SB			EB			WB		
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	1	0	0	0	0	0	1	0	0	0	0

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

Peters Engineering Group
952 Pollasky Avenue
Clovis, CA 93612

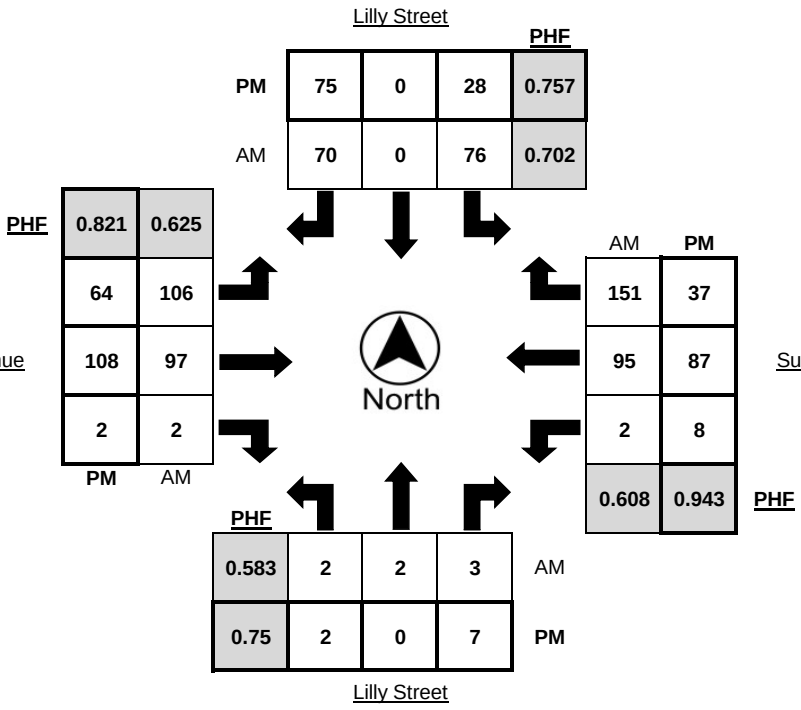
LOCATION Sunrise Avenue @ Lilly Street
LATITUDE 36.959849°
COUNTY Madera
LONGITUDE -120.040393°
COLLECTION DATE Thursday, October 29, 2015
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	0	0	2	0	2	1	4	2	2	9	0	3	0	16	2	5
7:15 AM - 7:30 AM	2	1	2	1	6	1	7	1	8	14	1	2	0	12	11	1
7:30 AM - 7:45 AM	1	0	0	0	19	0	9	2	18	22	1	4	0	21	24	2
7:45 AM - 8:00 AM	0	1	2	0	20	0	21	0	32	15	0	0	1	27	47	1
8:00 AM - 8:15 AM	1	1	1	0	22	0	30	4	49	32	1	4	1	36	65	9
8:15 AM - 8:30 AM	0	0	0	0	15	0	10	2	7	28	0	3	0	11	15	1
8:30 AM - 8:45 AM	0	0	0	0	6	0	4	1	9	20	0	2	1	18	7	1
8:45 AM - 9:00 AM	0	0	2	0	2	0	12	4	3	10	0	1	0	7	2	1
TOTAL	**4**	**3**	**9**	**1**	**92**	**2**	**97**	**16**	**128**	**150**	**3**	**19**	**3**	**148**	**173**	**21**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	1	0	0	0	5	1	5	0	13	19	2	1	2	32	9	2
4:15 PM - 4:30 PM	1	1	1	0	8	0	8	0	19	19	1	0	0	21	18	0
4:30 PM - 4:45 PM	1	1	0	0	12	0	11	0	18	20	1	2	1	18	19	1
4:45 PM - 5:00 PM	0	0	2	0	11	0	23	0	14	22	1	2	1	23	11	1
5:00 PM - 5:15 PM	1	0	1	0	2	0	19	0	9	30	0	1	0	25	9	1
5:15 PM - 5:30 PM	1	0	2	0	8	0	19	2	16	29	0	1	4	19	11	0
5:30 PM - 5:45 PM	0	0	2	0	7	0	14	1	25	27	1	0	3	20	6	2
5:45 PM - 6:00 PM	0	0	2	0	8	0	11	1	16	33	1	1	3	21	2	1
TOTAL	**5**	**2**	**10**	**0**	**61**	**1**	**110**	**4**	**130**	**199**	**7**	**8**	**14**	**179**	**85**	**8**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	2	2	3	0	76	0	70	8	106	97	2	11	2	95	151	13
4:45 PM - 5:45 PM	2	0	7	0	28	0	75	3	64	108	2	4	8	87	37	4

	PHF	Trucks
AM	0.634	5.3%
PM	0.959	2.6%



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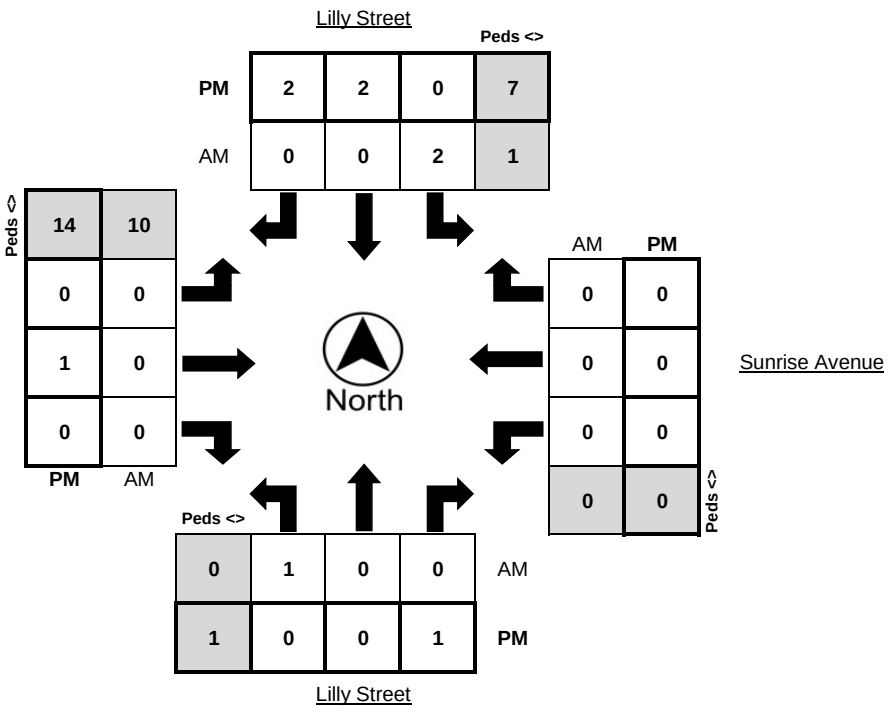
LOCATION Sunrise Avenue @ Lilly Street
LATITUDE 36.959849°
COUNTY Madera
LONGITUDE -120.040393°
COLLECTION DATE Thursday, October 29, 2015
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:00 AM - 7:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM - 8:00 AM	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM - 8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM - 9:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**2**	**0**	**0**	**3**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**

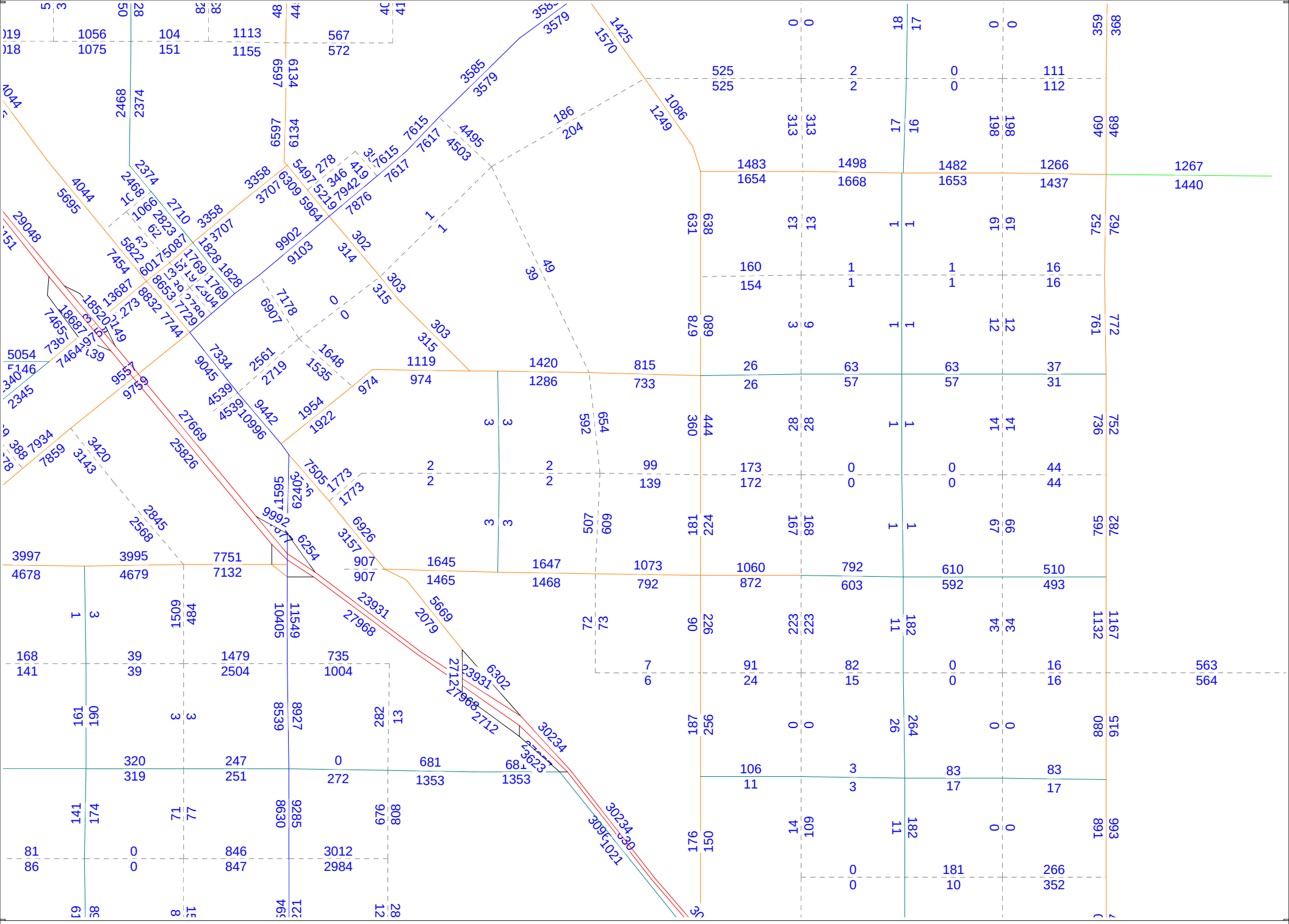
	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM - 4:45 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	7
5:00 PM - 5:15 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	1	2	0	1	1	1	0	0	0	0	0	0	0	7
5:45 PM - 6:00 PM	1	0	0	3	0	1	0	0	0	0	0	0	1	0	0	1
TOTAL	**1**	**0**	**2**	**11**	**0**	**3**	**2**	**1**	**0**	**1**	**1**	**0**	**2**	**0**	**0**	**16**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:30 AM - 8:30 AM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	10
4:45 PM - 5:45 PM	0	0	1	7	0	2	2	1	0	1	0	0	0	0	0	14

	Bikes	Peds
AM Peak Total	3	11
PM Peak Total	**6**	**22**

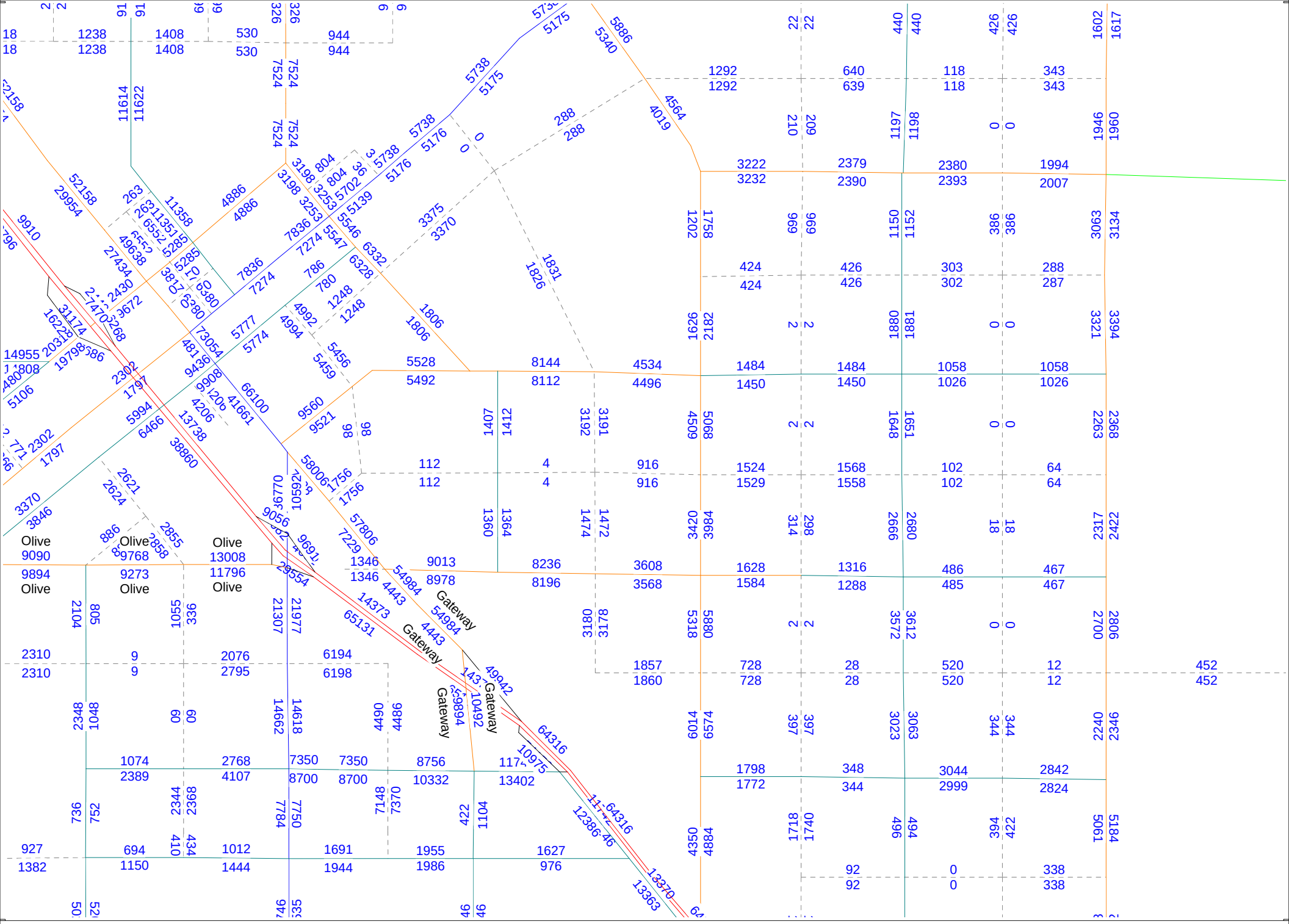


MADERA COUNTY TRAVEL MODEL



2000 Madera County Travel Demand Model
Daily Traffic Volumes

cube
Licensed to Peters Engineering



2035 Madera County Travel Demand Model
Daily Traffic Volumes

cube
Licensed to Peters Engineering

INTERSECTION ANALYSIS SHEETS

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	112	2	12	160	39	6	15	10	32	24	9
Conflicting Peds, #/hr	2	0	3	3	0	2	9	0	3	2	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	1	-	400	65	-	0	1	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	76	76	76	88	88	88	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	172	3	16	211	51	7	17	11	37	28	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	214	0	-	181	0	0	488	469	184	478	469	216
Stage 1	-	-	-	-	-	-	224	224	-	245	245	-
Stage 2	-	-	-	-	-	-	264	245	-	233	224	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1356	-	0	1394	-	-	490	492	858	498	492	824
Stage 1	-	-	0	-	-	-	779	718	-	759	703	-
Stage 2	-	-	0	-	-	-	741	703	-	770	718	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1354	-	-	1391	-	-	448	474	849	466	474	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	448	474	-	466	474	-
Stage 1	-	-	-	-	-	-	761	701	-	745	693	-
Stage 2	-	-	-	-	-	-	693	693	-	727	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.4	11.8	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	448	474	849	1354	-	1391	-	-	466	536
HCM Lane V/C Ratio	0.015	0.036	0.013	0.016	-	0.011	-	-	0.08	0.072
HCM Control Delay (s)	13.2	12.9	9.3	7.7	-	7.6	-	-	13.4	12.2
HCM Lane LOS	B	B	A	A	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0	0.1	0	0	-	0	-	-	0.3	0.2

Intersection	
Intersection Delay, s/veh	18.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	48	36	84	0	7	67	12	0	129	210	3
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.69	0.69	0.69	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	56	42	98	0	10	97	17	0	165	269	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13	12	21.5
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	29%	8%	2%
Vol Thru, %	61%	21%	78%	87%
Vol Right, %	1%	50%	14%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	342	168	86	363
LT Vol	129	48	7	6
Through Vol	210	36	67	317
RT Vol	3	84	12	40
Lane Flow Rate	438	195	125	422
Geometry Grp	1	1	1	1
Degree of Util (X)	0.701	0.351	0.238	0.664
Departure Headway (Hd)	5.88	6.476	6.866	5.787
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	559	525	629
Service Time	3.88	4.486	4.878	3.787
HCM Lane V/C Ratio	0.709	0.349	0.238	0.671
HCM Control Delay	21.5	13	12	19.5
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	5.6	1.6	0.9	5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	317	40
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	7	369	47
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	19.5
HCM LOS	C

Lane

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	106	97	2	2	95	151	2	2	3	76	1	70
Conflicting Peds, #/hr	0	0	0	0	0	10	1	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	61	61	61	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	168	154	3	3	156	248	3	3	4	109	1	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	158	0	0	706	655	167	659	657	156
Stage 1	-	-	-	-	-	-	493	493	-	162	162	-
Stage 2	-	-	-	-	-	-	213	162	-	497	495	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1424	-	-	1422	-	-	351	386	877	377	385	890
Stage 1	-	-	-	-	-	-	558	547	-	840	764	-
Stage 2	-	-	-	-	-	-	789	764	-	555	546	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1424	-	-	1410	-	-	282	339	869	336	338	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	339	-	336	338	-
Stage 1	-	-	-	-	-	-	492	482	-	741	762	-
Stage 2	-	-	-	-	-	-	697	762	-	480	481	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.1	0.1	13.7	18.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	426	1424	-	-	1410	-	-	478
HCM Lane V/C Ratio	0.023	0.118	-	-	0.002	-	-	0.439
HCM Control Delay (s)	13.7	7.9	-	-	7.6	0	-	18.3
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0	-	-	2.2

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	35	32	4	21	13	5
Conflicting Peds, #/hr	0	11	1	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	36	5	24	15	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	92	60
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1522	-	908	1005
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1521	-	896	1003
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	977	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	923	-	-	1521	-
HCM Lane V/C Ratio	0.022	-	-	0.003	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	16	24	14	328	362	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	82	82	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	27	17	400	416	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	853	419	422	0	-	0
Stage 1	419	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	330	634	1137	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	324	634	1137	-	-	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	641	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1137	-	459	-	-
HCM Lane V/C Ratio	0.015	-	0.099	-	-
HCM Control Delay (s)	8.2	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	127	44	17	128	3	43	25	14	6	25	5
Conflicting Peds, #/hr	2	0	2	2	0	6	5	0	12	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	1	-	400	65	-	0	1	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	97	97	97	82	82	82	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	149	52	18	132	3	52	30	17	7	28	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	-	161	0	0	362	345	167	360	345	136
Stage 1	-	-	-	-	-	-	176	176	-	169	169	-
Stage 2	-	-	-	-	-	-	186	169	-	191	176	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1451	-	0	1418	-	-	594	578	877	596	578	913
Stage 1	-	-	0	-	-	-	826	753	-	833	759	-
Stage 2	-	-	0	-	-	-	816	759	-	811	753	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1449	-	-	1411	-	-	553	561	864	549	561	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	553	561	-	549	561	-
Stage 1	-	-	-	-	-	-	814	742	-	828	748	-
Stage 2	-	-	-	-	-	-	769	748	-	755	742	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.9	11.6	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	553	561	864	1449	-	1411	-	-	549	599
HCM Lane V/C Ratio	0.095	0.054	0.02	0.005	-	0.012	-	-	0.012	0.057
HCM Control Delay (s)	12.2	11.8	9.3	7.5	-	7.6	-	-	11.6	11.4
HCM Lane LOS	B	B	A	A	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.2	0.1	0	-	0	-	-	0	0.2

Intersection	
Intersection Delay, s/veh	15.9
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	45	41	44	0	4	37	6	0	65	335	4
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.65	0.65	0.65	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	52	48	51	0	6	57	9	0	74	381	5
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.4	10.5	18.4
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	35%	9%	3%
Vol Thru, %	83%	32%	79%	87%
Vol Right, %	1%	34%	13%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	404	130	47	327
LT Vol	65	45	4	9
Through Vol	335	41	37	285
RT Vol	4	44	6	33
Lane Flow Rate	459	151	72	404
Geometry Grp	1	1	1	1
Degree of Util (X)	0.671	0.259	0.13	0.59
Departure Headway (Hd)	5.262	6.157	6.448	5.261
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	580	552	682
Service Time	3.311	4.225	4.528	3.312
HCM Lane V/C Ratio	0.671	0.26	0.13	0.592
HCM Control Delay	18.4	11.4	10.5	15.7
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	5.2	1	0.4	3.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	285	33
Peak Hour Factor	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	352	41
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	15.7
HCM LOS	C

Lane

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	64	108	2	8	87	37	2	1	7	28	1	75
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	7	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	94	94	94	75	75	75	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	132	2	9	93	39	3	1	9	37	1	99

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	0	141	0	0	457	407	140	412	408	94
Stage 1	-	-	-	-	-	-	296	296	-	111	111	-
Stage 2	-	-	-	-	-	-	161	111	-	301	297	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1500	-	-	1442	-	-	514	533	908	550	533	963
Stage 1	-	-	-	-	-	-	712	668	-	894	804	-
Stage 2	-	-	-	-	-	-	841	804	-	708	668	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1500	-	-	1442	-	-	437	498	903	518	498	962
Mov Cap-2 Maneuver	-	-	-	-	-	-	437	498	-	518	498	-
Stage 1	-	-	-	-	-	-	671	630	-	847	798	-
Stage 2	-	-	-	-	-	-	748	798	-	663	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.5	10.3	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	698	1500	-	-	1442	-	-	776
HCM Lane V/C Ratio	0.019	0.052	-	-	0.006	-	-	0.176
HCM Control Delay (s)	10.3	7.5	-	-	7.5	0	-	10.6
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.6

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	28	8	4	36	13	4
Conflicting Peds, #/hr	0	11	3	0	3	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	9	5	41	15	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	89	42
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1564	-	912	1029
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1560	-	899	1024
Mov Cap-2 Maneuver	-	-	-	-	899	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	960	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	926	-	-	1560	-
HCM Lane V/C Ratio	0.021	-	-	0.003	-
HCM Control Delay (s)	9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	13	21	22	391	317	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	24	25	444	377	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	882	388	398	0	-	0
Stage 1	388	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	317	660	1161	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	660	1161	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1161	-	459	-	-
HCM Lane V/C Ratio	0.022	-	0.084	-	-
HCM Control Delay (s)	8.2	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	112	3	12	160	51	7	18	10	48	28	9
Conflicting Peds, #/hr	2	0	3	3	0	2	9	0	3	2	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	1	-	400	65	-	0	1	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	76	76	76	88	88	88	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	172	5	16	211	67	8	20	11	56	33	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	214	0	-	181	0	0	491	469	184	480	469	216
Stage 1	-	-	-	-	-	-	224	224	-	245	245	-
Stage 2	-	-	-	-	-	-	267	245	-	235	224	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1356	-	0	1394	-	-	488	492	858	496	492	824
Stage 1	-	-	0	-	-	-	779	718	-	759	703	-
Stage 2	-	-	0	-	-	-	738	703	-	768	718	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1354	-	-	1391	-	-	443	474	849	461	474	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	443	474	-	461	474	-
Stage 1	-	-	-	-	-	-	761	701	-	745	693	-
Stage 2	-	-	-	-	-	-	685	693	-	722	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.4	12	13.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	443	474	849	1354	-	1391	-	-	461	528
HCM Lane V/C Ratio	0.018	0.043	0.013	0.016	-	0.011	-	-	0.121	0.081
HCM Control Delay (s)	13.3	12.9	9.3	7.7	-	7.6	-	-	13.9	12.4
HCM Lane LOS	B	B	A	A	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	0.1	0	0	-	0	-	-	0.4	0.3

Intersection	
Intersection Delay, s/veh	21.6
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	56	44	94	0	12	72	12	0	133	210	3
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.69	0.69	0.69	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	65	51	109	0	17	104	17	0	171	269	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	14.6	13	26
HCM LOS	B	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	29%	12%	2%
Vol Thru, %	61%	23%	75%	86%
Vol Right, %	1%	48%	12%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	346	194	96	373
LT Vol	133	56	12	6
Through Vol	210	44	72	322
RT Vol	3	94	12	45
Lane Flow Rate	444	226	139	434
Geometry Grp	1	1	1	1
Degree of Util (X)	0.757	0.42	0.277	0.727
Departure Headway (Hd)	6.143	6.708	7.172	6.035
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	586	535	498	599
Service Time	4.201	4.78	5.255	4.095
HCM Lane V/C Ratio	0.758	0.422	0.279	0.725
HCM Control Delay	26	14.6	13	23.6
HCM Lane LOS	D	B	B	C
HCM 95th-tile Q	6.8	2.1	1.1	6.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	322	45
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	7	374	52
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	23.6
HCM LOS	C

Lane

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	115	107	42	2	99	151	50	8	19	76	6	82
Conflicting Peds, #/hr	0	0	0	0	0	10	1	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	61	61	61	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	183	170	67	3	162	248	71	11	27	109	9	117

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	162	0	0	238	0	0	801	738	214	758	772	162
Stage 1	-	-	-	-	-	-	569	569	-	169	169	-
Stage 2	-	-	-	-	-	-	232	169	-	589	603	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1417	-	-	1329	-	-	303	346	826	324	330	883
Stage 1	-	-	-	-	-	-	507	506	-	833	759	-
Stage 2	-	-	-	-	-	-	771	759	-	494	488	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1417	-	-	1318	-	-	231	300	818	271	286	883
Mov Cap-2 Maneuver	-	-	-	-	-	-	231	300	-	271	286	-
Stage 1	-	-	-	-	-	-	441	440	-	725	757	-
Stage 2	-	-	-	-	-	-	659	757	-	402	425	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0.1	24.9	24.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	289	1417	-	-	1318	-	-	416
HCM Lane V/C Ratio	0.381	0.129	-	-	0.002	-	-	0.563
HCM Control Delay (s)	24.9	7.9	-	-	7.7	0	-	24.2
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	1.7	0.4	-	-	0	-	-	3.4

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	57	59	35	4	21	29	13	4	5	0	0	0
Conflicting Peds, #/hr	0	0	11	1	0	0	1	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	88	88	88	88	70	88	70	88	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	67	40	5	24	41	15	6	6	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	65	0	0	108	0	0	305	325	89
Stage 1	-	-	-	-	-	-	251	251	-
Stage 2	-	-	-	-	-	-	54	74	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1537	-	-	1483	-	-	687	593	969
Stage 1	-	-	-	-	-	-	791	699	-
Stage 2	-	-	-	-	-	-	969	833	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1523	-	-	1482	-	-	639	0	967
Mov Cap-2 Maneuver	-	-	-	-	-	-	639	0	-
Stage 1	-	-	-	-	-	-	745	0	-
Stage 2	-	-	-	-	-	-	956	0	-

Approach	EB	WB	NB
HCM Control Delay, s	3.2	0.5	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	705	1523	-	-	1482	-	-
HCM Lane V/C Ratio	0.037	0.053	-	-	0.003	-	-
HCM Control Delay (s)	10.3	7.5	0	-	7.4	0	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	16	48	34	328	362	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	82	82	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	55	41	400	416	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	908	425	433	0	-	0
Stage 1	425	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	306	629	1127	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	292	629	1127	-	-	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1127	-	488	-	-
HCM Lane V/C Ratio	0.037	-	0.149	-	-
HCM Control Delay (s)	8.3	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	127	44	17	128	7	43	28	14	9	27	5
Conflicting Peds, #/hr	2	0	2	2	0	6	5	0	12	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	1	-	400	65	-	0	1	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	97	97	97	82	82	82	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	149	52	18	132	7	52	34	17	10	31	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	-	161	0	0	363	345	167	362	345	136
Stage 1	-	-	-	-	-	-	176	176	-	169	169	-
Stage 2	-	-	-	-	-	-	187	169	-	193	176	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1451	-	0	1418	-	-	593	578	877	594	578	913
Stage 1	-	-	0	-	-	-	826	753	-	833	759	-
Stage 2	-	-	0	-	-	-	815	759	-	809	753	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1449	-	-	1411	-	-	551	561	864	544	561	910
Mov Cap-2 Maneuver	-	-	-	-	-	-	551	561	-	544	561	-
Stage 1	-	-	-	-	-	-	814	742	-	828	748	-
Stage 2	-	-	-	-	-	-	766	748	-	749	742	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.8	11.6	11.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	551	561	864	1449	-	1411	-	-	544	597
HCM Lane V/C Ratio	0.095	0.061	0.02	0.005	-	0.012	-	-	0.019	0.061
HCM Control Delay (s)	12.2	11.8	9.3	7.5	-	7.6	-	-	11.7	11.4
HCM Lane LOS	B	B	A	A	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.3	0.2	0.1	0	-	0	-	-	0.1	0.2

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	51	47	49	0	6	40	6	0	68	335	4
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.65	0.65	0.65	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	59	55	57	0	9	62	9	0	77	381	5
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12	10.8	19.8
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	35%	12%	3%
Vol Thru, %	82%	32%	77%	86%
Vol Right, %	1%	33%	12%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	407	147	52	332
LT Vol	68	51	6	9
Through Vol	335	47	40	287
RT Vol	4	49	6	36
Lane Flow Rate	462	171	80	410
Geometry Grp	1	1	1	1
Degree of Util (X)	0.693	0.297	0.147	0.614
Departure Headway (Hd)	5.396	6.251	6.595	5.391
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	666	571	539	668
Service Time	3.458	4.335	4.693	3.454
HCM Lane V/C Ratio	0.694	0.299	0.148	0.614
HCM Control Delay	19.8	12	10.8	16.7
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	5.6	1.2	0.5	4.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	287	36
Peak Hour Factor	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	354	44
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	16.7
HCM LOS	C

Lane

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	72	113	17	8	90	37	27	6	19	28	6	87
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	7	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	94	94	94	75	75	75	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	138	21	9	96	39	36	8	25	37	8	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	97	0	0	166	0	0	506	445	155	461	455	97
Stage 1	-	-	-	-	-	-	331	331	-	114	114	-
Stage 2	-	-	-	-	-	-	175	114	-	347	341	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1496	-	-	1412	-	-	477	508	891	511	501	959
Stage 1	-	-	-	-	-	-	682	645	-	891	801	-
Stage 2	-	-	-	-	-	-	827	801	-	669	639	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1496	-	-	1412	-	-	392	472	886	465	465	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	392	472	-	465	465	-
Stage 1	-	-	-	-	-	-	638	604	-	838	795	-
Stage 2	-	-	-	-	-	-	716	795	-	604	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.4	13.3	11.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	505	1496	-	-	1412	-	-	738
HCM Lane V/C Ratio	0.137	0.059	-	-	0.006	-	-	0.216
HCM Control Delay (s)	13.3	7.6	-	-	7.6	0	-	11.2
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0	-	-	0.8

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	31	48	11	4	36	15	13	2	4	0	0	0
Conflicting Peds, #/hr	0	0	11	3	0	0	3	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	88	88	88	88	92	88	92	88	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	55	12	5	41	16	15	2	5	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	57	0	0	70	0	0	189	197	67
Stage 1	-	-	-	-	-	-	131	131	-
Stage 2	-	-	-	-	-	-	58	66	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1547	-	-	1531	-	-	800	699	997
Stage 1	-	-	-	-	-	-	895	788	-
Stage 2	-	-	-	-	-	-	965	840	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1533	-	-	1527	-	-	770	0	992
Mov Cap-2 Maneuver	-	-	-	-	-	-	770	0	-
Stage 1	-	-	-	-	-	-	872	0	-
Stage 2	-	-	-	-	-	-	953	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.5	0.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	813	1533	-	-	1527	-	-
HCM Lane V/C Ratio	0.026	0.022	-	-	0.003	-	-
HCM Control Delay (s)	9.5	7.4	0	-	7.4	0	-
HCM Lane LOS	A	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	13	41	32	391	317	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	47	36	444	377	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	907	390	404	0	-	0
Stage 1	390	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	306	658	1155	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	293	658	1155	-	-	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1155	-	506	-	-
HCM Lane V/C Ratio	0.031	-	0.121	-	-
HCM Control Delay (s)	8.2	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	17	318	3	15	341	60	8	21	14	55	33	11
Conflicting Peds, #/hr	2	0	3	3	0	2	9	0	3	2	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	1	-	400	65	-	0	1	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	76	76	76	88	88	88	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	489	5	20	449	79	9	24	16	64	38	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	452	0	-	498	0	0	1068	1042	501	1053	1042	454
Stage 1	-	-	-	-	-	-	551	551	-	491	491	-
Stage 2	-	-	-	-	-	-	517	491	-	562	551	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1109	-	0	1066	-	-	199	230	570	204	230	606
Stage 1	-	-	0	-	-	-	519	515	-	559	548	-
Stage 2	-	-	0	-	-	-	541	548	-	512	515	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1107	-	-	1063	-	-	162	218	564	175	218	603
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	218	-	175	218	-
Stage 1	-	-	-	-	-	-	503	499	-	545	536	-
Stage 2	-	-	-	-	-	-	482	536	-	461	499	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.3	20.6	30.5
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	162	218	564	1107	-	1063	-	-	175	259
HCM Lane V/C Ratio	0.056	0.109	0.028	0.024	-	0.019	-	-	0.365	0.198
HCM Control Delay (s)	28.5	23.5	11.6	8.3	-	8.5	-	-	37	22.3
HCM Lane LOS	D	C	B	A	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.2	0.4	0.1	0.1	-	0.1	-	-	1.6	0.7

Intersection	
Intersection Delay, s/veh	68.4
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	67	106	228	0	28	129	14	0	237	289	12
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.69	0.69	0.69	0.92	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	78	123	265	0	41	187	20	0	304	371	15
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	73.1	29.4	74.8
HCM LOS	F	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	17%	16%	2%
Vol Thru, %	54%	26%	75%	86%
Vol Right, %	2%	57%	8%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	538	401	171	445
LT Vol	237	67	28	9
Through Vol	289	106	129	382
RT Vol	12	228	14	54
Lane Flow Rate	690	466	248	517
Geometry Grp	1	1	1	1
Degree of Util (X)	1	1	0.659	1
Departure Headway (Hd)	8.82	8.437	9.566	8.676
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	421	434	379	424
Service Time	6.82	6.437	7.615	6.676
HCM Lane V/C Ratio	1.639	1.074	0.654	1.219
HCM Control Delay	74.8	73.1	29.4	74.2
HCM Lane LOS	F	F	D	F
HCM 95th-tile Q	12.4	12.6	4.5	12.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	382	54
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	10	444	63
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	74.2
HCM LOS	F

Lane

Intersection	
Int Delay, s/veh	57.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	126	305	42	2	253	167	50	8	20	84	6	89
Conflicting Peds, #/hr	0	0	0	0	0	10	1	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	61	61	61	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	200	484	67	3	415	274	71	11	29	120	9	127

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	415	0	0	552	0	0	1407	1339	528	1359	1373	415
Stage 1	-	-	-	-	-	-	918	918	-	421	421	-
Stage 2	-	-	-	-	-	-	489	421	-	938	952	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1144	-	-	1018	-	-	117	153	550	126	146	637
Stage 1	-	-	-	-	-	-	326	350	-	610	589	-
Stage 2	-	-	-	-	-	-	561	589	-	317	338	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1144	-	-	1010	-	-	76	126	545	~ 95	120	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	76	126	-	~ 95	120	-
Stage 1	-	-	-	-	-	-	269	289	-	503	586	-
Stage 2	-	-	-	-	-	-	440	586	-	236	279	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0	190.1	$ 316.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	103	1144	-	-	1010	-	-	167
HCM Lane V/C Ratio	1.082	0.175	-	-	0.003	-	-	1.531
HCM Control Delay (s)	190.1	8.8	-	-	8.6	0	-	$ 316.8
HCM Lane LOS	F	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	7	0.6	-	-	0	-	-	16.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	57	67	42	5	26	29	16	4	7	0	0	0
Conflicting Peds, #/hr	0	0	11	1	0	0	1	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	88	88	88	88	70	88	70	88	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	76	48	6	30	41	18	6	8	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	71	0	0	125	0	0	326	346	102
Stage 1	-	-	-	-	-	-	264	264	-
Stage 2	-	-	-	-	-	-	62	82	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1529	-	-	1462	-	-	668	577	953
Stage 1	-	-	-	-	-	-	780	690	-
Stage 2	-	-	-	-	-	-	961	827	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1515	-	-	1461	-	-	620	0	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	620	0	-
Stage 1	-	-	-	-	-	-	734	0	-
Stage 2	-	-	-	-	-	-	948	0	-

Approach	EB	WB	NB
HCM Control Delay, s	3	0.6	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	693	1515	-	-	1461	-	-
HCM Lane V/C Ratio	0.046	0.054	-	-	0.004	-	-
HCM Control Delay (s)	10.4	7.5	0	-	7.5	0	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	20	53	37	503	579	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	82	82	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	60	45	613	666	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1379	675	684	0	-	0
Stage 1	675	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	159	454	909	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	147	454	909	-	-	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	453	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.4	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	289	-	-
HCM Lane V/C Ratio	0.05	-	0.287	-	-
HCM Control Delay (s)	9.2	0	22.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	7	328	54	21	309	8	52	34	20	10	33	6
Conflicting Peds, #/hr	2	0	2	2	0	6	5	0	12	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	1	-	400	65	-	0	1	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	97	97	97	82	82	82	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	386	64	22	319	8	63	41	24	11	38	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	321	0	-	398	0	0	800	778	404	799	778	323
Stage 1	-	-	-	-	-	-	414	414	-	364	364	-
Stage 2	-	-	-	-	-	-	386	364	-	435	414	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1239	-	0	1161	-	-	303	328	647	304	328	718
Stage 1	-	-	0	-	-	-	616	593	-	655	624	-
Stage 2	-	-	0	-	-	-	637	624	-	600	593	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1237	-	-	1155	-	-	265	316	637	256	316	716
Mov Cap-2 Maneuver	-	-	-	-	-	-	265	316	-	256	316	-
Stage 1	-	-	-	-	-	-	606	583	-	650	611	-
Stage 2	-	-	-	-	-	-	580	611	-	530	583	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.5	19	17.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	265	316	637	1237	-	1155	-	-	256	346
HCM Lane V/C Ratio	0.239	0.131	0.038	0.007	-	0.019	-	-	0.044	0.128
HCM Control Delay (s)	22.8	18.1	10.9	7.9	-	8.2	-	-	19.7	16.9
HCM Lane LOS	C	C	B	A	-	A	-	-	C	C
HCM 95th %tile Q(veh)	0.9	0.4	0.1	0	-	0.1	-	-	0.1	0.4

Intersection	
Intersection Delay, s/veh	67.3
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	61	118	197	0	22	107	9	0	226	429	15
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.65	0.65	0.65	0.92	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	71	137	229	0	34	165	14	0	257	487	17
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	70.5	24.3	73.6
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	16%	16%	3%
Vol Thru, %	64%	31%	78%	86%
Vol Right, %	2%	52%	7%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	670	376	138	409
LT Vol	226	61	22	13
Through Vol	429	118	107	353
RT Vol	15	197	9	43
Lane Flow Rate	761	437	212	505
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.994	0.564	1
Departure Headway (Hd)	8.483	8.185	9.567	8.371
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	434	446	378	434
Service Time	6.554	6.216	7.609	6.442
HCM Lane V/C Ratio	1.753	0.98	0.561	1.164
HCM Control Delay	73.6	70.5	24.3	73.1
HCM Lane LOS	F	F	C	F
HCM 95th-tile Q	12.6	12.6	3.3	12.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	13	353	43
Peak Hour Factor	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	16	436	53
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	73.1
HCM LOS	F

Lane

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	79	338	17	9	317	41	27	6	20	31	6	95
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	7	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	1	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	94	94	94	75	75	75	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	96	412	21	10	337	44	36	8	27	41	8	125

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	338	0	0	440	0	0	1046	979	430	997	990	338
Stage 1	-	-	-	-	-	-	622	622	-	357	357	-
Stage 2	-	-	-	-	-	-	424	357	-	640	633	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1221	-	-	1120	-	-	206	250	625	223	246	704
Stage 1	-	-	-	-	-	-	474	479	-	661	628	-
Stage 2	-	-	-	-	-	-	608	628	-	464	473	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1221	-	-	1120	-	-	153	226	621	193	223	703
Mov Cap-2 Maneuver	-	-	-	-	-	-	153	226	-	193	223	-
Stage 1	-	-	-	-	-	-	434	439	-	609	621	-
Stage 2	-	-	-	-	-	-	488	621	-	402	433	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0.2	28.2	20.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	1221	-	-	1120	-	-	409
HCM Lane V/C Ratio	0.314	0.079	-	-	0.009	-	-	0.425
HCM Control Delay (s)	28.2	8.2	-	-	8.2	0	-	20.1
HCM Lane LOS	D	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	1.3	0.3	-	-	0	-	-	2.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	31	54	13	5	44	15	16	2	6	0	0	0
Conflicting Peds, #/hr	0	0	11	3	0	0	3	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	88	88	88	88	92	88	92	88	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	61	15	6	50	16	18	2	7	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	66	0	0	79	0	0	209	217	75
Stage 1	-	-	-	-	-	-	139	139	-
Stage 2	-	-	-	-	-	-	70	78	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1536	-	-	1519	-	-	779	681	986
Stage 1	-	-	-	-	-	-	888	782	-
Stage 2	-	-	-	-	-	-	953	830	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1522	-	-	1515	-	-	749	0	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	749	0	-
Stage 1	-	-	-	-	-	-	865	0	-
Stage 2	-	-	-	-	-	-	940	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2.3	0.6	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	801	1522	-	-	1515	-	-
HCM Lane V/C Ratio	0.034	0.022	-	-	0.004	-	-
HCM Control Delay (s)	9.7	7.4	0	-	7.4	0	-
HCM Lane LOS	A	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	16	46	37	613	506	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	52	42	697	602	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1399	618	633	0	-	0
Stage 1	618	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	155	489	950	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	144	489	950	-	-	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	419	-	-	-	-	-

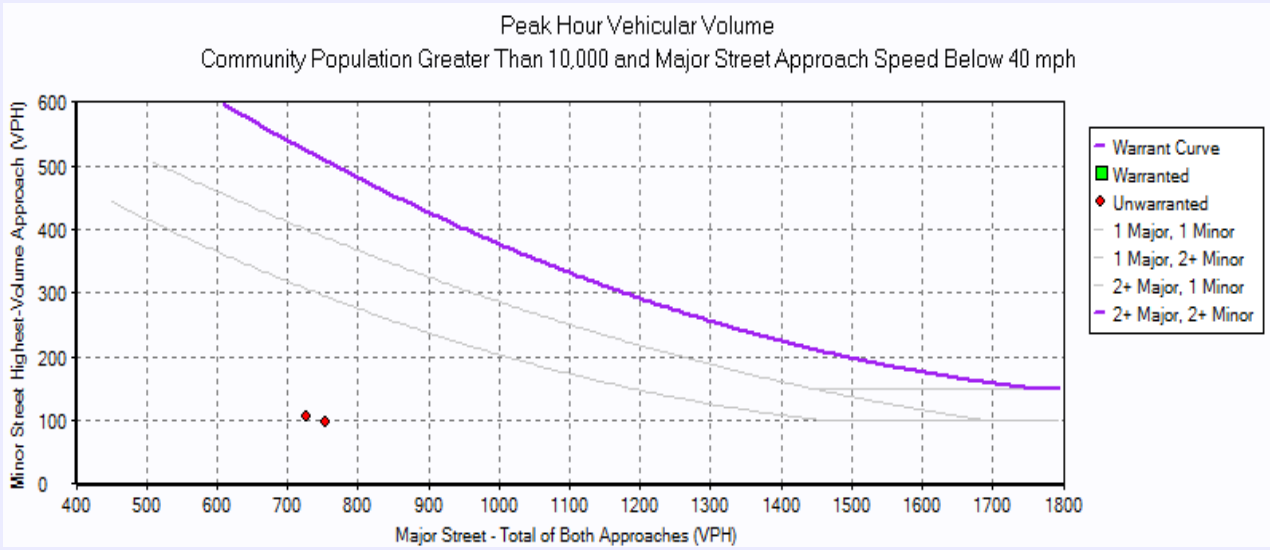
Approach	EB	NB	SB
HCM Control Delay, s	20.5	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	950	-	302	-	-
HCM Lane V/C Ratio	0.044	-	0.233	-	-
HCM Control Delay (s)	9	0	20.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Warrant 3: Peak Hour

1: Lake St & Sunrise Ave / 14 1/2 - 2035 With Projec

Warrant 3

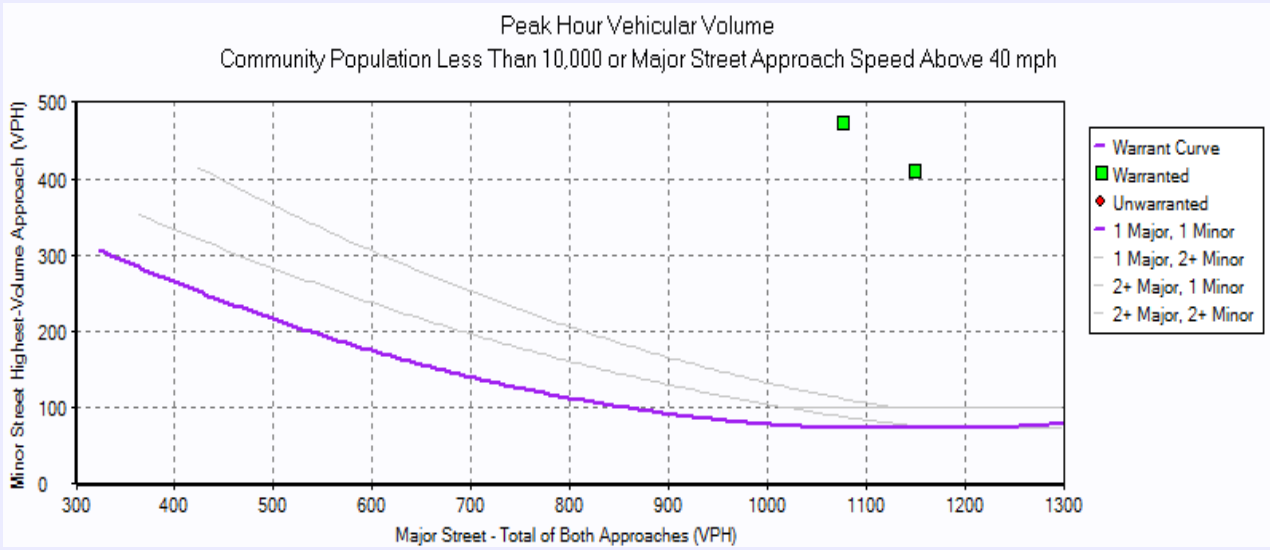


Note: Please turn over for volume information.

Warrant 3: Peak Hour

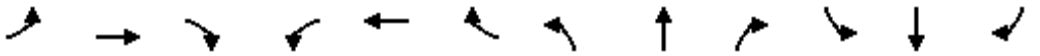
2: Rd 28 / Tozer & Sunrise Ave / 14 1/2

Warrant 3



Note: Please turn over for volume information.

MITIGATED INTERSECTION ANALYSIS SHEETS



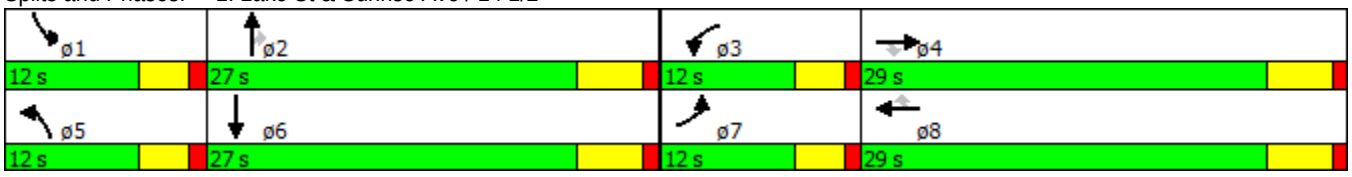
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	318	3	15	341	60	8	21	14	55	33	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	1		400	65		0	1		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.95		0.89	0.95		0.89	0.92		0.89	0.91	0.97	
Frt			0.850			0.850			0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1742	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1676	1863	1409	1688	1863	1409	1620	1863	1409	1614	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			135			135			135		13	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		733			2230			196			786	
Travel Time (s)		12.5			38.0			4.5			17.9	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.65	0.65	0.65	0.76	0.88	0.76	0.88	0.88	0.88	0.86	0.86	0.86
Adj. Flow (vph)	26	489	5	20	388	79	9	24	16	64	38	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	489	5	20	388	79	9	24	16	64	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	12.0	26.9	26.9	12.0	26.9	26.9	12.0	26.9	26.9	12.0	26.9	
Total Split (s)	12.0	29.0	29.0	12.0	29.0	29.0	12.0	27.0	27.0	12.0	27.0	
Total Split (%)	15.0%	36.3%	36.3%	15.0%	36.3%	36.3%	15.0%	33.8%	33.8%	15.0%	33.8%	
Maximum Green (s)	8.0	24.1	24.1	8.0	24.1	24.1	8.0	22.1	22.1	8.0	22.1	
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		15.0	15.0		15.0	15.0		15.0	15.0		15.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	7.0	20.4	20.4	6.8	18.7	18.7	6.5	6.9	6.9	7.6	11.2	
Actuated g/C Ratio	0.15	0.45	0.45	0.15	0.41	0.41	0.14	0.15	0.15	0.17	0.24	
v/c Ratio	0.10	0.59	0.01	0.08	0.51	0.12	0.04	0.09	0.05	0.22	0.12	
Control Delay	24.6	15.1	0.0	24.9	15.9	1.3	25.1	24.7	0.3	24.7	16.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	24.6	15.1	0.0	24.9	15.9	1.3	25.1	24.7	0.3	24.7	16.0	
LOS	C	B	A	C	B	A	C	C	A	C	B	
Approach Delay		15.4			13.9			16.8			20.8	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	6	97	0	5	72	0	2	6	0	15	6	
Queue Length 95th (ft)	21	164	0	21	194	2	15	28	0	54	40	
Internal Link Dist (ft)		653			2150			116			706	
Turn Bay Length (ft)				1		400	65			1		
Base Capacity (vph)	350	1157	926	350	1110	894	350	1018	831	350	957	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.42	0.01	0.06	0.35	0.09	0.03	0.02	0.02	0.18	0.05	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 45.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 48.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Lake St & Sunrise Ave / 14 1/2



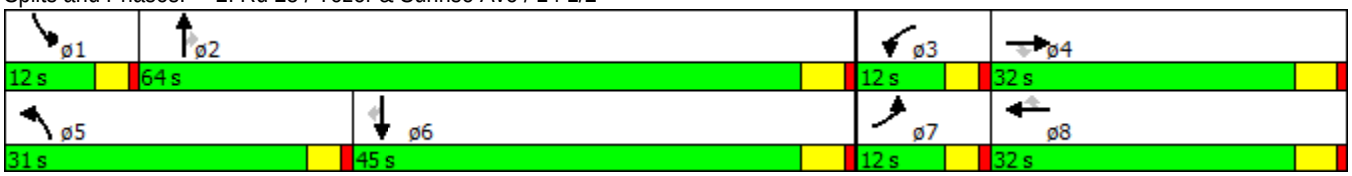
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	106	228	28	129	14	237	289	12	9	382	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.89		0.85	0.98		0.95	0.93		0.95	0.98		0.95
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1583	1863	1340	1729	1863	1509	1639	1863	1509	1741	1863	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			265			126			90			126
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		810			1393			810			1090	
Travel Time (s)		13.8			23.7			13.8			18.6	
Confl. Peds. (#/hr)	50		50	10		10	50		10	10		10
Peak Hour Factor	0.86	0.86	0.86	0.69	0.69	0.69	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	78	123	265	41	187	20	304	371	15	10	444	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	123	265	41	187	20	304	371	15	10	444	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	31.9	31.9	12.0	31.9	31.9	12.0	31.9	31.9	12.0	31.9	31.9
Total Split (s)	12.0	32.0	32.0	12.0	32.0	32.0	31.0	64.0	64.0	12.0	45.0	45.0
Total Split (%)	10.0%	26.7%	26.7%	10.0%	26.7%	26.7%	25.8%	53.3%	53.3%	10.0%	37.5%	37.5%
Maximum Green (s)	8.0	27.1	27.1	8.0	27.1	27.1	27.0	59.1	59.1	8.0	40.1	40.1
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	8.2	17.8	17.8	7.5	15.0	15.0	20.9	50.5	50.5	6.6	26.9	26.9
Actuated g/C Ratio	0.09	0.20	0.20	0.09	0.17	0.17	0.24	0.58	0.58	0.08	0.31	0.31
v/c Ratio	0.47	0.32	0.55	0.27	0.58	0.05	0.72	0.34	0.02	0.07	0.77	0.11
Control Delay	55.6	38.1	9.8	50.5	45.3	0.3	44.4	12.4	0.0	49.0	39.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	38.1	9.8	50.5	45.3	0.3	44.4	12.4	0.0	49.0	39.1	0.4
LOS	E	D	A	D	D	A	D	B	A	D	D	A
Approach Delay		24.9			42.5			26.2			34.6	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	43	63	0	22	99	0	159	99	0	6	229	0
Queue Length 95th (ft)	#117	131	61	51	147	0	261	191	0	25	375	0
Internal Link Dist (ft)		730			1313			730			1010	
Turn Bay Length (ft)	200		150	200		150	200		150	200		150
Base Capacity (vph)	179	640	634	179	640	601	606	1325	1099	179	948	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.19	0.42	0.23	0.29	0.03	0.50	0.28	0.01	0.06	0.47	0.08

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 86.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Rd 28 / Tozer & Sunrise Ave / 14 1/2



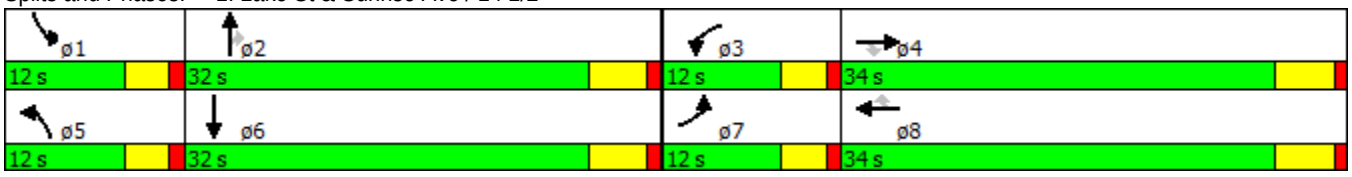
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	328	54	21	309	8	52	34	20	10	33	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	1		400	65		0	1		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.95		0.90	0.95		0.90	0.92		0.90	0.92	0.98	
Frt			0.850			0.850			0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1791	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1675	1863	1421	1683	1863	1421	1631	1863	1421	1630	1791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			120			120		7	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		733			2230			196			786	
Travel Time (s)		12.5			38.0			4.5			17.9	
Confl. Peds. (#/hr)	50		50	50		50	50		50	50		50
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.85	0.85	0.85	0.97	0.97	0.97	0.82	0.82	0.82	0.88	0.88	0.88
Adj. Flow (vph)	8	386	64	22	319	8	63	41	24	11	38	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	386	64	22	319	8	63	41	24	11	45	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes						Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	12.0	31.9	31.9	12.0	31.9	31.9	12.0	31.9	31.9	12.0	31.9	
Total Split (s)	12.0	34.0	34.0	12.0	34.0	34.0	12.0	32.0	32.0	12.0	32.0	
Total Split (%)	13.3%	37.8%	37.8%	13.3%	37.8%	37.8%	13.3%	35.6%	35.6%	13.3%	35.6%	
Maximum Green (s)	8.0	29.1	29.1	8.0	29.1	29.1	8.0	27.1	27.1	8.0	27.1	
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	

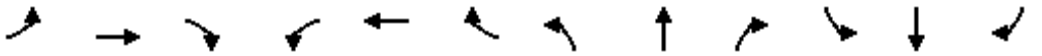
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		20.0	20.0		20.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	6.7	15.7	15.7	7.0	15.8	15.8	7.7	11.9	11.9	6.7	7.5	
Actuated g/C Ratio	0.16	0.38	0.38	0.17	0.38	0.38	0.18	0.28	0.28	0.16	0.18	
v/c Ratio	0.03	0.55	0.11	0.07	0.45	0.01	0.19	0.08	0.05	0.04	0.14	
Control Delay	23.7	15.6	1.1	23.1	13.8	0.0	22.6	16.8	0.2	23.6	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.7	15.6	1.1	23.1	13.8	0.0	22.6	16.8	0.2	23.6	20.0	
LOS	C	B	A	C	B	A	C	B	A	C	C	
Approach Delay		13.7			14.1			16.5			20.7	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	2	73	0	4	57	0	13	5	0	2	8	
Queue Length 95th (ft)	14	188	4	27	160	0	52	37	0	18	40	
Internal Link Dist (ft)		653			2150			116			706	
Turn Bay Length (ft)				1		400	65			1		
Base Capacity (vph)	393	1387	1089	393	1387	1089	393	1342	1057	393	1292	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.28	0.06	0.06	0.23	0.01	0.16	0.03	0.02	0.03	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 41.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 14.6 Intersection LOS: B
Intersection Capacity Utilization 55.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Lake St & Sunrise Ave / 14 1/2





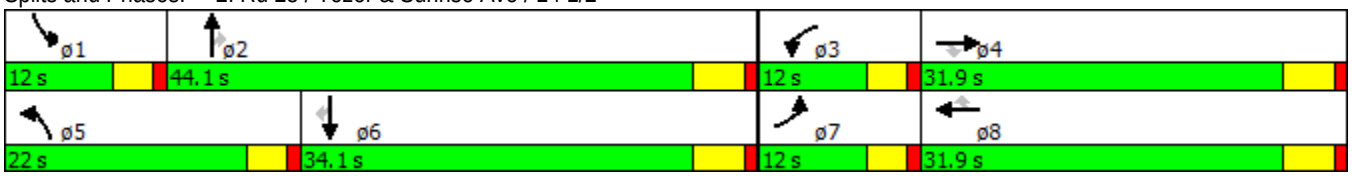
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	118	197	22	107	9	226	429	15	13	353	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.93		0.89	0.98		0.96	0.95		0.96	0.99		0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1639	1863	1408	1743	1863	1523	1680	1863	1523	1753	1863	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			229			152			108			152
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		810			1393			800			1090	
Travel Time (s)		13.8			23.7			13.6			18.6	
Confl. Peds. (#/hr)	50		50	10		10	50		10	10		10
Peak Hour Factor	0.86	0.86	0.86	0.65	0.65	0.65	0.88	0.88	0.88	0.81	0.81	0.81
Adj. Flow (vph)	71	137	229	34	165	14	257	488	17	16	436	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	137	229	34	165	14	257	488	17	16	436	53
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	31.9	31.9	12.0	31.9	31.9	12.0	31.9	31.9	12.0	31.9	31.9
Total Split (s)	12.0	31.9	31.9	12.0	31.9	31.9	22.0	44.1	44.1	12.0	34.1	34.1
Total Split (%)	12.0%	31.9%	31.9%	12.0%	31.9%	31.9%	22.0%	44.1%	44.1%	12.0%	34.1%	34.1%
Maximum Green (s)	8.0	27.0	27.0	8.0	27.0	27.0	18.0	39.2	39.2	8.0	29.2	29.2
Yellow Time (s)	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	3.9	3.0	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9	4.0	4.9	4.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	7.6	15.1	15.1	7.1	12.5	12.5	16.0	41.3	41.3	6.6	23.0	23.0
Actuated g/C Ratio	0.10	0.20	0.20	0.09	0.17	0.17	0.21	0.55	0.55	0.09	0.31	0.31
v/c Ratio	0.40	0.37	0.49	0.20	0.53	0.04	0.68	0.47	0.02	0.10	0.76	0.09
Control Delay	44.0	33.2	8.8	40.0	38.6	0.2	41.2	14.6	0.1	39.2	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	33.2	8.8	40.0	38.6	0.2	41.2	14.6	0.1	39.2	35.0	0.3
LOS	D	C	A	D	D	A	D	B	A	D	C	A
Approach Delay		22.2			36.3			23.2			31.5	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	34	63	0	16	78	0	119	131	0	8	200	0
Queue Length 95th (ft)	79	117	52	34	101	0	#238	302	0	25	285	0
Internal Link Dist (ft)		730			1313			720			1010	
Turn Bay Length (ft)	200		150	200		150	200		150	200		150
Base Capacity (vph)	202	719	684	202	719	681	455	1131	967	202	778	724
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.19	0.33	0.17	0.23	0.02	0.56	0.43	0.02	0.08	0.56	0.07

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 74.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Rd 28 / Tozer & Sunrise Ave / 14 1/2



Appendix I

Pipeline Risk Analysis

Pipeline Risk Analysis

Madera Unified School District
New Elementary School Site
Madera, California

November 2015

J House Environmental, Inc.
Site Assessment ✧ Remediation ✧ Safety Risk Analysis

J House Environmental, Inc.
Site Assessment ✧ Remediation ✧ Safety Risk Analysis

November 16, 2015

Mr. George P. Hattrup, PE, GE
Principal Geotechnical Engineer
RMA GeoScience
3897 N. Ann Avenue
Fresno, Ca 93727

Subject: **Pipeline Risk Analysis**
Madera Unified School District
New Elementary School Site
Madera, California

Dear Mr. Hattrup:

J House Environmental, Inc. is pleased to present the results of our pipeline risk analysis for the Madera Unified School District's proposed New Elementary School site located at the northwest corner of A Street and Tozer Street (Road 28) in Madera County, California. The risk analysis provides an assessment of potential safety hazards posed by high-pressure natural gas pipelines and high-volume water pipelines that are located within 1,500 feet of the site.

The natural gas pipeline risk analysis and the high-volume water pipeline risk analysis are based on information obtained from Pacific Gas and Electric Company, the City of Madera, and Madera Irrigation District regarding construction specifications, operating parameters and inspection and maintenance procedures for the subject pipelines. Potential risks associated with pipeline failure are evaluated and compared to California Department of Education (CDE) risk threshold values.

If you have any questions regarding this report, please contact me at (530) 885-7801.

Sincerely,

Jackie House

Jackie House, PG, CEG, CHG
Principal Geologist

REGISTERED GEOLOGIST
JACQUELYN HOUSE
No. 4221
exp 3/16
STATE OF CALIFORNIA

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www.jhouseenvironmental.com

Pipeline Risk Analysis

Madera Unified School District
New Elementary School Site
Madera, California

November 16, 2015

Prepared for:

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SETTING 2

3.0 NATURAL GAS PIPELINE RISK ANALYSIS 2

4.0 HIGH-VOLUME WATER PIPELINE RISK ANALYSIS 4

5.0 CONCLUSIONS AND RECOMMENDATIONS 9

FIGURES

FIGURE 1……Vicinity Map

FIGURE 2……..Site Map

FIGURE 3……Potential Water Pipeline Impact Area

APPENDICES

APPENDIX A ……Area Reconnaissance Photographs

APPENDIX B……..……..Information Provided by Pacific Gas and Electric Company

APPENDIX C ……...…….....8.625-Inch Natural Gas Pipeline Risk Analysis Forms

APPENDIX D ……...….1.05/2.375-Inch Natural Gas Pipeline Risk Analysis Forms

APPENDIX E……..……...……..Information Provided by City of Madera

APPENDIX F…….... Municipal Water Pipeline CDE Standard Pipeline Reporting Forms

APPENDIX G...……..……...……..Information Provided by Madera Irrigation District

APPENDIX H……..... Irrigation Water Pipeline CDE Standard Pipeline Reporting Forms

PIPELINE RISK ANALYSIS
MADERA UNIFIED SCHOOL DISTRICT
NEW ELEMENTARY SCHOOL SITE
MADERA, CALIFORNIA

1.0 INTRODUCTION

This report presents results of the pipeline risk analysis conducted by J House Environmental, Inc. for the Madera Unified School District's proposed new elementary school site located at the northwest corner of A Street and Tozer Street (Road 28) in Madera County, California (Figure 1 and Figure 2). It is our understanding that the Madera Unified School District (District) is considering plans to develop this approximately 14.25-acre site for use as an elementary school facility that will accommodate approximately 800 students.

Two high-pressure natural gas pipelines owned and operated by Pacific Gas and Electric Company (PG&E) and three high-volume (12-inch diameter and greater) water pipelines have been identified within 1,500 feet of the project site. Two of the high-volume water pipelines are municipal water lines owned and operated by the City of Madera (City). The third high-volume water pipeline is an irrigation water line owned and operated by the Madera Irrigation District (MID). The locations of the subject pipelines are shown on Figure 1 and Figure 2.

1.1 Purpose and Scope

The purpose of the risk analysis is to identify whether the subject pipelines could pose an unacceptable safety hazard at the proposed new elementary school site. California Code of Regulations, Title 5. Education, Section 14010(h), specifies that a school site shall not be located within 1,500 feet of a pipeline that can pose a safety hazard as determined by a risk analysis study.

The pipeline risk analysis is based on information obtained from PG&E, the City, and MID regarding construction specifications, operating parameters, and inspection and maintenance procedures for the subject pipelines and observations made during an area reconnaissance by Ms. Jackie House of J House Environmental, Inc. on November 12, 2015. Potential risks associated with pipeline failure are estimated based on: 1) an identification of events that could lead to failure; 2) an assessment of the probability or frequency of these events occurring; and 3) an estimation of the consequences that could result from a pipeline failure. The risk analysis has been prepared in accordance with guidelines set forth in the February 2007, California Department of Education (CDE) *Guidance Protocol for School Site Pipeline Risk Analysis* (CDE Protocol).

1.2 Report Organization

The remainder of this report is organized into the following sections:

- 2.0 Setting;
- 3.0 Natural Gas Pipeline Risk Analysis;
- 4.0 High Volume Water Pipeline Risk Analysis;
- 5.0 Conclusions and Recommendations.

Site and area reconnaissance photographs are presented in Appendix A. Information provided by PG&E is contained in Appendix B. Standard CDE reporting forms for the high-pressure natural gas pipelines are contained in Appendix C and Appendix D. Information provided by the City of Madera and MID is presented in Appendix E and G, respectively. Standard CDE reporting forms for the high-volume municipal water and irrigation water pipelines are presented in Appendix F and Appendix H, respectively.

2.0 SETTING

The Madera Unified School District is considering plans to develop the approximately 14.25-acre project site for use as an elementary school facility. The proposed new elementary school site is located at the northwest corner of A Street and Tozer Street (Road 28) in Madera County, California (Figure 1 and Figure 2). The new elementary school facility is intended to accommodate approximately 800 students.

The topography in the project area is relatively flat, with a very slight southward slope. The project site is presently vacant land that was formerly used for agricultural purposes. Land use in the area surrounding the proposed school site primarily consists of residential development and agricultural fields. A number of Madera County administrative offices and facilities are located southeast of the project site.

3.0 NATURAL GAS PIPELINE RISK ANALYSIS

PG&E indicates that two high-pressure (greater than 80 pounds per square inch gauge [psig]) natural gas pipelines are located within 1,500 feet of the project site, as follows:

- Line #118A, an 8.625-inch diameter local transmission line located east of the project site within the Tozer Street (Road 28) right-of-way; the normal operating pressure is 400 psig and the maximum allowable operating pressure is 720 psig. At the closest point, this north-south trending pipeline is located approximately 70 feet east of the eastern boundary of the new elementary school site (see Figure 2).

- Line #DREG4418/4419/4420, a high-pressure service line comprised of two 2.375-inch diameter segments and a 1.05-inch diameter segment located north of the project site within the Sunrise Avenue right-of-way; the normal operating pressure is 400 psig and

the maximum allowable operating pressure is 720 psig. At the closest point, this east-west trending pipeline is located approximately 313 feet north of the site (see Figure 2).

The pipeline risk analysis identifies the probability of pipeline failure in the vicinity of the project site, estimates consequences that could result from pipeline failure and estimates the level of individual risk and population risk at the subject property due to proximity to the natural gas pipelines. The risk estimates have been developed in accordance with "Stage 2" analysis guidelines and methodologies set forth in the February 2007, California Department of Education *Guidance Protocol for School Site Pipeline Risk Analysis* (CDE Protocol). Key elements of the risk analysis are presented on standard reporting forms from the CDE Protocol (Appendices C and D).

The natural gas pipeline risk analysis is based on "worst case" conditions; the maximum allowable operating pressure (MAOP) for each pipeline is used in the analysis. The risk analysis for the 1.05/2.375-inch diameter high-pressure natural gas service line (Line #DREG4418/4419/4420) is based upon data derived from the standard CDE protocol charts applicable to a 4-inch diameter pipeline, which is the smallest pipeline for which standard charts are presented in the CDE Protocol; consequently, the risk estimates for the 1.05/2.375-inch diameter pipeline are considered conservative. Risks associated with the 1.05/2.375-inch diameter pipeline would be expected to be lower than estimated in the risk analysis based on a 4-inch diameter pipeline.

A general description of the project site and the subject pipelines, along with a summary of the pipeline risk analysis results, is presented on the administrative, summary, and signature forms (Form 1) presented in Appendix C (Line #118A) and Appendix D (Line #DREG4418/4419/4420). Information obtained from PG&E regarding construction specifications and operating parameters for the subject pipelines is summarized on the pipeline risk analysis input data forms (Form 2, Appendices C and D). The standard protocol calculation summary forms for Line #118A and Line #DREG4418/4419/4420 (Form 3, Appendices C and D) address the likelihood of pipeline failure and resultant consequences. Calculation spreadsheet pages from the CDE *Pipeline Risk Analysis Protocol Total Individual Risk (TIR) Estimating Aid* (March 2007) are included in Appendices C and D.

The estimated level of individual risk at the closest property line to each of the subject pipelines, as derived based on the CDE protocol methodology, is as follows:

• Line #118A – estimated annual individual risk is 3.0E-08 Appendix C)

• Line #DREG4418/4419/4420 – estimated annual individual risk is 1.1E-09 (Appendix D)

The cumulative annual individual risk associated with the two high-pressure natural gas pipelines is 3.1E-08

CDE has established a threshold of 1.0E-06 as the annual individual risk level considered acceptable for new school facility sites. This represents one chance in one million per year of being exposed to a fatal hazard associated with a pipeline incident. The estimated individual risk levels for the subject pipelines are 3.0E-08 (Line #118A) and 1.1E-09 (Line #DREG4418/4419/4420) and the cumulative individual risk level associated with the two

pipelines is 3.1E-08, which represents one chance in 32 million per year of being exposed to a fatal hazard associated with a pipeline incident. Since the cumulative individual risk is well below the CDE threshold risk criterion of 1.0E-06, the subject pipelines are not considered to pose an unacceptable risk for school facilities development as proposed.

The CDE protocol also calls for estimation of a population risk indicator for proposed school sites. The population risk indicator provides a very conservative estimate of the maximum potential number of fatalities at a site in the unlikely event of a worst-case rupture jet fire incident. The population risk indicator does not take into consideration the probability or likelihood of occurrence of the "worst case" incident. The population risk indicators for the project site, as derived based on the CDE protocol methodology, are 40 (Line #118A) and zero (Line #DREG4418/4419/4420) (Appendices C and D). The cumulative population risk indicator associated with the two pipelines is 40. This indicator suggests that a maximum of 40 of the total student population of 800 could be fatally injured in the unlikely event of a "worst case" catastrophic pipeline incident.

The subject pipelines are operated in accordance with State and Federal regulations that are designed to guard against accidental release and ensure public health and safety. Risk management information provided by PG&E is presented in Appendix B. PG&E indicates that the subject pipelines are inspected and maintained in accordance with California Public Utility Commission requirements. Both pipelines have cathodic protection as a corrosion prevention measure. PG&E indicates that no release incidents associated with these two natural gas pipelines have occurred in the project area.

4.0 HIGH-VOLUME WATER PIPELINE RISK ANALYSIS

The City of Madera and Madera Irrigation District were contacted to obtain information regarding the high-volume (12-inch diameter or greater) water pipelines identified within 1,500 feet of the proposed new elementary school site, as follows:

- Line #383, a 12-inch diameter municipal water supply pipeline owned and operated by the City of Madera and located east and north of the project site, within the Tozer Street (Road 28), Sunrise Avenue, and Lilly Street right-of-ways. At the closest point, this pipeline is approximately 35 feet east of the eastern boundary of the project site (see Figure 2).

- Line #385, a 12-inch diameter municipal water supply pipeline owned and operated by the City of Madera and located south of the project site, within the A Street right-of-way. This pipeline transports water from the City of Madera Well #31, which is located south of the southwestern portion of the project site. At the closest point, this pipeline is approximately 40 feet south of the southern boundary of the project site (see Figure 2).

- A 36-inch diameter irrigation water supply pipeline owned and operated by Madera Irrigation District and located southeast of the project site, within the Tozer Street (Road 28) right-of-way and extending east from the intersection at A Street. At the closest point, this pipeline is approximately 70 feet southeast of the project site (see Figure 2). In the area east of the intersection of Tozer Street (Road 28) and A Street, this 36-inch diameter

gravity-fed irrigation water distribution pipeline "daylights" into an open irrigation ditch that extends eastward approximately 400 feet, at which point the ditch feeds into an underground 36-inch diameter gravity-fed pipeline and continues, buried, along an eastward alignment.

The high-volume water pipelines are evaluated in this risk analysis based on a qualitative analysis of potential impacts at the proposed school site in the event of a catastrophic pipeline failure. The estimated volume of water that could be released is identified and an assessment of areas potentially subject to physical impacts, sheet flow runoff and flooding is presented. The estimated water release impacts have been developed based on guidelines set forth in the CDE Protocol.

Since the pipelines do not pose a safety hazard unless their structural integrities are compromised, resulting in a release of water to the environment, the first step in this risk analysis is to identify events that could lead to pipeline rupture or failure. In the second step, a qualitative assessment of the probability or frequency of such events occurring is made. Consequences that could result from pipeline rupture or failure are then evaluated through a qualitative consequence analysis.

4.1 Pipeline Construction Specifications and Operating Parameters

The 12-inch diameter municipal water supply pipelines (Line #383 and Line #385) located east, north, and south of the project site, within the Tozer Street (Road 28), Sunrise Avenue, Lilly Street, and A Street right-of-ways, are constructed of PVC pipe. Information was not available from the City regarding the normal and maximum allowable operating pressure for these pipelines; municipal pipelines such as these typically operate at pressures of approximately 45 to 50 pounds per square inch (psi) with a throughput of approximately 2,000 gallons per minute. The pipelines have a minimum cover of 3 feet in the vicinity of the proposed new elementary school site. In the event of a leak or rupture, manual operation would be required for emergency shutoff of the pipelines. At the closest point, 12-inch Line #383 is approximately 35 feet east of the eastern boundary of the proposed school site and 12-inch Line #385 is approximately 40 feet south of the southern boundary of the project site (see Figure 2).

The 36-inch diameter MID irrigation water supply pipeline located southeast of the project site is a Class III rubber gasketed reinforced concrete pipe. This gravity-fed line has a throughput of approximately 15 cubic feet per second (cfs). MID indicates that in the event of a pipeline leak or rupture, it would take approximately 2 hours to perform the manual operation needed for full shutoff of the line. At the closest point, this pipeline is approximately 70 feet southeast of the project site (see Figure 2).

4.2 Pipeline Incident Event Identification

Four types of events are generally recognized as the main causes of pipeline rupture and/or failure:

- Third Party Dig-ins;

- Corrosion and Deterioration;
- Weld or Material Defects; and
- Ground Movement.

Third party dig-ins can result from construction activities that are not associated with pipeline construction and maintenance. Third party dig-ins are generally associated with development or reconstruction projects (i.e., subsurface digging with a backhoe or exploratory soil borings).

Pipeline corrosion and deterioration can occur both internally and externally. There are a number of possible causes of corrosion and deterioration. External corrosion or deterioration is generally the result of direct contact of the pipeline material with soils, water, and/or air.

Weld or material defects can weaken pipeline structures and result in leaks and/or ruptures. Improper material selection, pipeline design and construction, or quality control can lead to potential weld and material defects that can compromise the pipeline integrity.

Ground movement can compromise the structural integrity of a pipeline, resulting in leaks or ruptures. Underground pipelines are most sensitive to ground movement associated with seismic shaking, fault rupture, liquefaction, and landslides.

4.3 Pipeline Incident Probability/Frequency Analysis

The probability and/or frequency of a pipeline rupture or failure occurring in the vicinity of the proposed school site is related to the probability of occurrence of the four types of events described above. An assessment of the potential for each of these events to occur is presented below. The qualitative assessment ranks the likelihood of an event occurring as very low, low, moderate, high or very high.

Third Party Dig-ins: The potential for third party dig-ins to occur is typically related to the amount of construction being performed in the immediate vicinity of a pipeline structure. At the time of our site reconnaissance, no construction activities appeared to be underway at the proposed school site or in surrounding areas. Construction activities are planned for the new elementary school site and offsite construction or infrastructure maintenance/repair may take place in the future in the area of the subject pipelines. Information provided by the City of Madera indicates that the buried depth of the municipal water pipelines in the vicinity of the project site is 3 feet or greater. As required by law, Underground Service Alert (USA) will be contacted by contractors working in the area prior to any excavation or drilling activities. The potential for third party dig-ins to occur along the portions of the high-volume water pipelines located on and in the vicinity of the proposed school site is considered low to moderate.

Corrosion and Deterioration: The potential for pipeline corrosion and deterioration to occur is related to pipeline material type, the age of the pipeline and corrosive preventative measures. The 12-inch municipal water supply pipelines are constructed of PVC. The City of Madera did not report any known incidents, accidental releases or repairs associated with the subject pipelines in the area of the proposed school site. The 36-inch irrigation water supply pipeline is a rubber gasketed reinforced concrete pipe. According to MID, routine inspection and maintenance of the

subject pipeline has not identified any concerns with respect to deterioration. The potential for a compromise in the structural integrity of the subject pipelines to occur due to material deterioration is considered low to moderate.

Weld or Material Defects: The potential for weld or material defects to occur is related to the use of insufficiently qualified operators (welders) and/or defectively manufactured materials. High-volume water distribution pipelines, such as those located in proximity to the proposed school site, are designed and constructed in accordance with American Water Works Association (AWWA) standards. The potential for a compromise in the structural integrity of the subject pipelines to occur due to material defects is considered low to moderate.

Ground Movement: The potential for ground movement to occur in the area of the subject pipelines is related to the potential for surface fault rupture, seismic shaking, liquefaction and/or landsliding. The proposed school site and the nearby pipeline segments are not located within a currently-designated Alquist-Priolo Earthquake Fault Zone; these zones are defined by the State of California, Department of Conservation, California Geological Survey (CGS) to identify areas at risk from surface fault rupture. No mapped faults traverse the project site or the nearby pipeline segments (California Department of Conservation, 2005). This suggests that the potential for surface fault rupture to impact the subject pipelines in the vicinity of the proposed school site is low. Ground shaking from earthquakes generated along faults located in the region would not be expected to result in a significant seismic shaking hazard in the area of the proposed school site. The California Geological Survey indicates that for a seismic event with a 10% probability of exceedance in 50 years, a relatively low peak horizontal ground acceleration (PGA), approximately 0.173g (g=gravity), can be expected in the project area. The proposed school site and the nearby pipeline segments are not located in an area considered susceptible to high liquefaction hazard. Based on reported depths to groundwater in the project area of approximately 100 feet below ground surface (bgs), the liquefaction potential can be considered low. Due to the flat-lying nature of the subject property, the site is not considered susceptible to slope failure or landslide hazard. Overall, the potential for a compromise in the structural integrity of the subject pipelines to occur due to ground movement is considered low to very low.

4.4 Pipeline Incident Consequence Analysis

A qualitative evaluation of consequences that could result from rupture or failure of the subject pipelines is presented in this section. Two types of hazards are considered in the consequence analysis: 1) physical impact from a ruptured pipeline and 2) flooding.

Physical Impact: In the unlikely event of a catastrophic pipeline failure, fragments of the pipeline may be projected into areas surrounding the point of rupture, resulting in potential damage to structures and injuries to persons. Subterranean failure of a pipeline can saturate and erode subsurface soils, which can result in subsidence or a sinkhole and create a potential hazard to nearby structures, roads and people.

It is reasonable to assume that the most significant and potentially dangerous physical impacts associated with a catastrophic pipeline failure would occur within approximately 25 feet of the pipeline alignments. Areas most susceptible to physical impact are shown on Figure 3.

At the closest points, the high-volume municipal water supply pipelines are located approximately 35 feet from the eastern boundary of the project site and approximately 40 feet from the southern boundary of the project site and would not, therefore, be expected to pose a significant threat of physical impact at the proposed new elementary school site. The 36-inch diameter irrigation water supply pipeline is located approximately 70 feet from the project site at its closest point. In the event of a catastrophic failure of the MID irrigation water pipeline, significant physical impacts would not be anticipated on the project site.

Flooding: A qualitative hydraulic consequence analysis has been conducted to estimate potential impacts at the proposed new elementary school site associated with a release from the subject high-volume water pipelines. The consequence analysis incorporates simplifying assumptions that provide a conservative estimate of risk and is based on "worst-case" full diameter pipeline rupture with an instantaneous release of water.

Figure 3 shows the anticipated flow directions in the event of a release from the subject pipelines and identifies areas that could potentially be subject to inundation in the event of a catastrophic full release, based on field observations and topographic maps. The flow directions and potential inundation areas shown are based on current conditions in the project area. It should be noted that with build-out of the project site and potential development in nearby areas, natural grades could be modified, affecting the preferred flow paths of water released in the unlikely event of a pipeline rupture.

The proposed school site is located in a relatively flat area. Topographic maps indicate that the ground surface generally slopes very gently toward the south, with an average 0.5 percent slope. In the vicinity of the project site, A Street and Sunrise Avenue are partially curbed. With project site buildout it is anticipated that Tozer Street (Road 28) will be improved with curbs and sidewalks.

In the event of a release from the 12-inch diameter high-volume municipal water supply pipelines, water would discharge as surface runoff. It is anticipated that a portion of the released water would be contained within the paved and partially curbed road surfaces of Tozer Street (Road 28), Sunrise Avenue, Lilly Street, and A Street, depending upon the point of release. Excess sheetflow would be likely to flow onto adjoining areas beyond the paved roadways. A release from Line #383 (located east and north of the site) or from Line #385 (located south of the site) has the potential to result in sheet flow runoff onto the proposed school site. However, due to the generally flat-lying nature of the site and since there are no significant constraints to surface flow in immediately surrounding areas, the depth of water would not be expected to exceed 0.5 to 1.0 feet and therefore, potential inundation is not considered to pose a significant safety hazard.

In the event of a release from the 36-inch diameter MID irrigation water supply pipeline, water would discharge as surface runoff. It is anticipated that a portion of the released water would be contained within the paved and partially curbed road surface of Tozer Street (Road 28), south and southeast of the project site. Excess sheetflow would be likely to flow onto adjoining areas beyond the paved roadways and away from the project site. In the unpaved area east of the intersection of Tozer Street (Road 28) and A Street, a release from the MID irrigation pipeline would result in sheet flow runoff that would be anticipated to flow southward, away from the

project site. Based on the distance from the project site to the 36-inch diameter MID irrigation water pipeline and local features and topographic conditions, a release from this pipeline would not be anticipated to impact the proposed school site.

4.5 Risk Management

Risk management measures are intended to: 1) reduce the probability of occurrence of an event that could result in a pipeline failure and 2) mitigate the consequences that could result if pipeline failure were to occur due to such an event. The pipeline owners and operators have a number of risk management measures in place to accomplish these goals. The matrix table presented below highlights measures intended to reduce the probability of occurrence of the key events associated with pipeline failure.

Risk Management Measures	Main Causes of Pipeline Failure			
	Third Party Dig-ins	**Corrosion and Deterioration**	**Ground Movement**	**Weld or Material Defects**
Design, construction, operation, and maintenance in accordance with AWWA standards.		**X**		**X**
Monitoring, regular maintenance and pipeline inspection.		**X**		**X**
Participation in USA.	**X**			
Development and maintenance of emergency response planning documents.	**X**	**X**	**X**	**X**

According to the City of Madera and MID, there have been no rupture or failure incidents related to the subject pipelines.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The natural gas pipeline risk analysis indicates an insignificant level of annual individual risk to persons at the proposed new elementary school site due to proximity to the subject pipelines. The cumulative estimated annual individual risk associated with the two natural gas pipelines is 3.1E-08, well below the CDE threshold for new school facility sites of 1.0E-06. Therefore, the high-pressure natural gas pipelines are not considered to pose an unacceptable safety hazard for school facility development at the proposed new elementary school site.

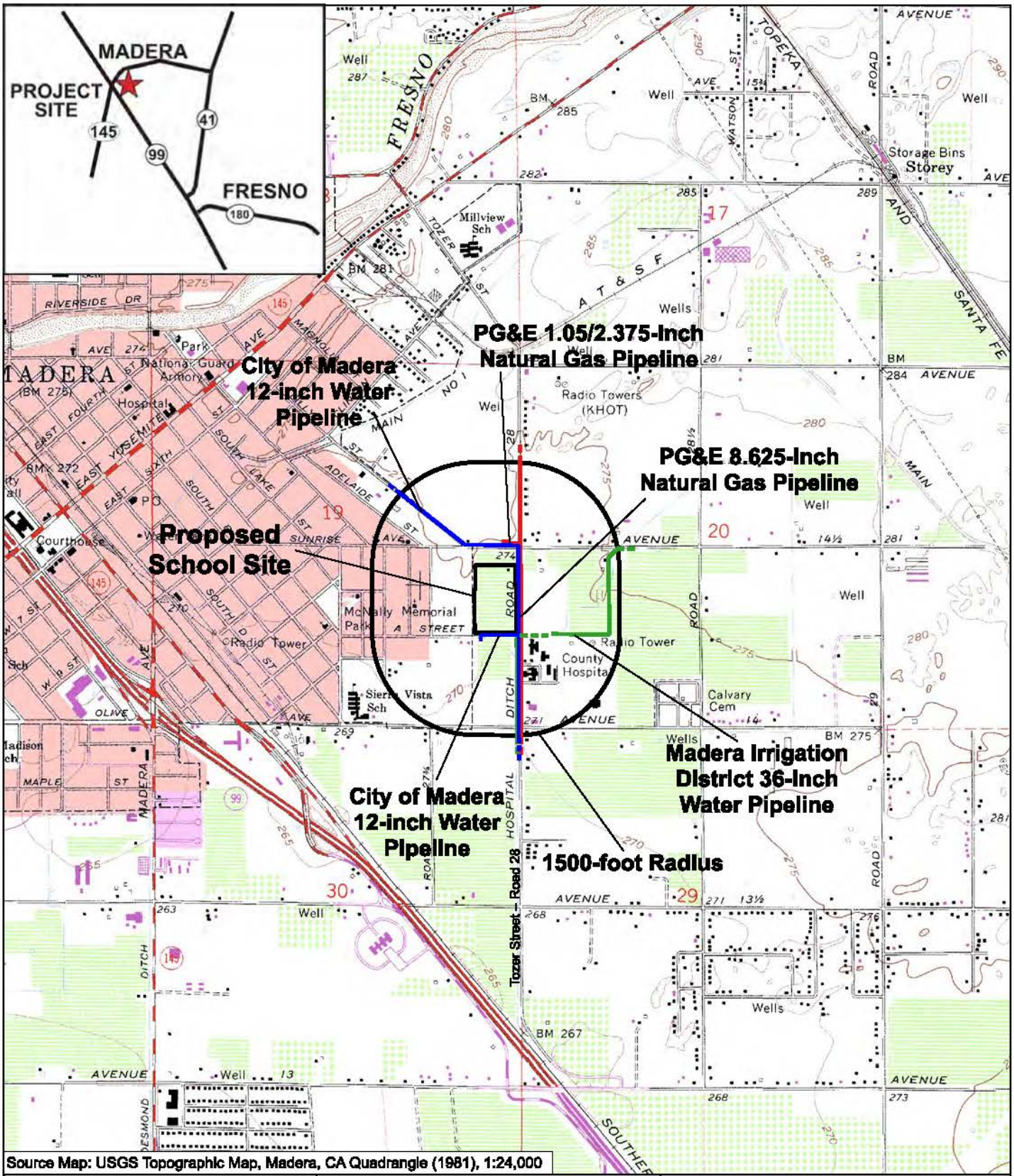
The population risk indicators for the project site associated with catastrophic failure of the natural gas pipelines are 40 (Line #118A) and zero (Line #DREG4418/4419/4420); the cumulative population risk indicator for the two pipelines is 40. This indicator suggests that a maximum of 40 of the total 800 student population could be fatally injured in the unlikely event of a “worst case” catastrophic natural gas pipeline incident.

In the unlikely event of failure of the City's municipal water supply Line #383 (located east and north of the site) or Line #385 (located south of the site), portions of the proposed new elementary school site could be subject to sheet flow runoff. However, the depth of water would not be expected to exceed 0.5 to 1.0 feet and potential inundation at the project site is not, therefore, considered to pose a significant safety hazard. Based on the distance between the municipal water pipelines and the project site, pipeline failure would not be expected to pose a significant threat of physical impact at the proposed new elementary school site.

In the unlikely event of failure of the MID irrigation water supply pipeline, it is anticipated that the majority of the released water would be directed southwestward, away from the project site, and the site would not be expected to be subject to significant physical impacts.

Risk management measures are in place by the utility operators to minimize the potential for occurrence of an event that could result in pipeline failure. To provide an added degree of risk management, J House Environmental, Inc. recommends that any emergency plan documents that are prepared for the proposed new elementary school site identify the presence of the subject pipelines and include an emergency contact list with phone numbers to be used in the event of an incident.

FIGURES



J House Environmental, Inc.
Site Assessment ✧ Remediation ✧ Safety Risk Analysis
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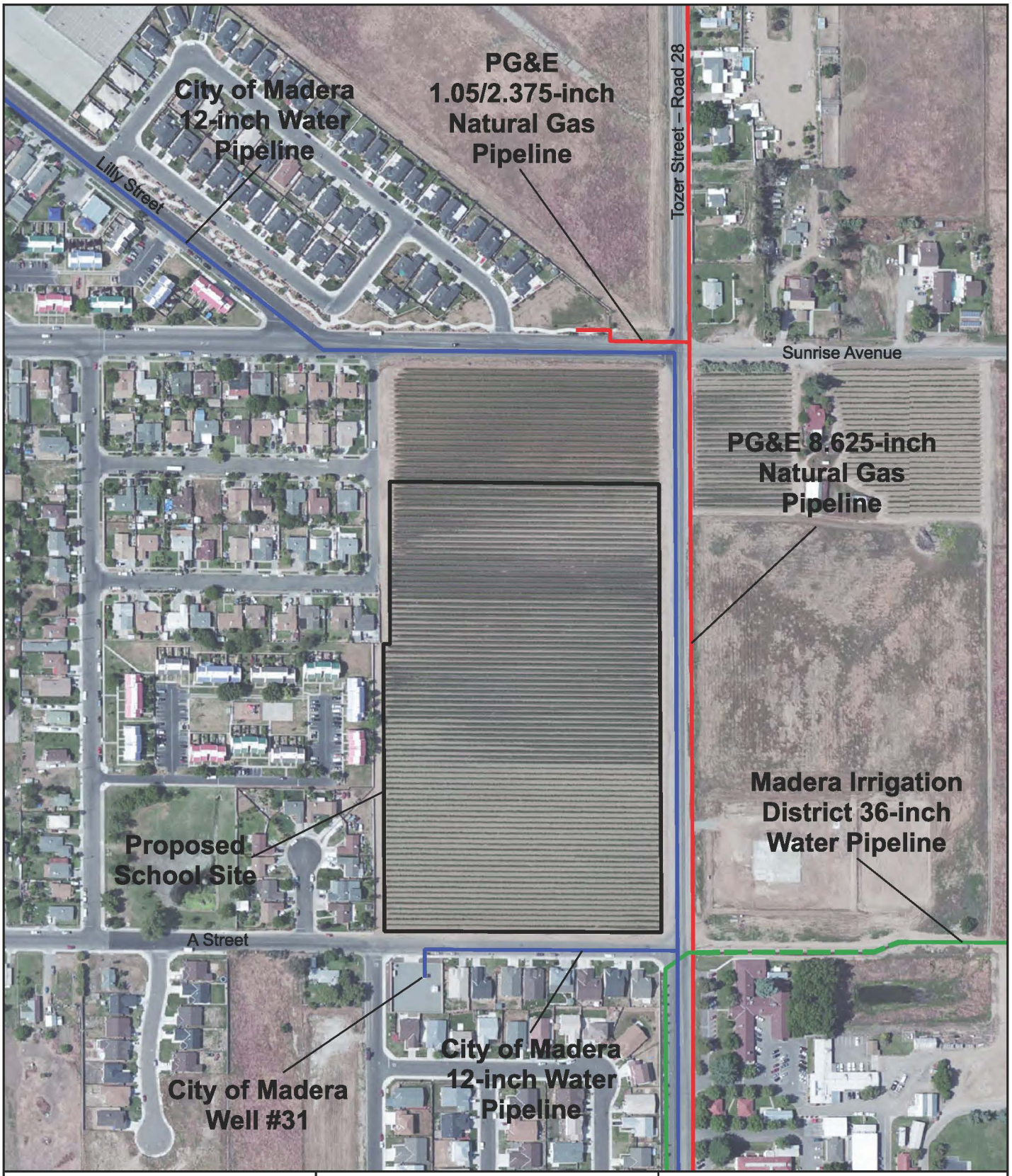
0 1000 2000
Scale in Feet

Figure 1

VICINITY MAP

Madera Unified School District
New Elementary School Site
Madera, California

Map Date: 11-18-15



J House Environmental, Inc.
Site Assessment ✧ Remediation ✧ Safety Risk Analysis

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0 150 300
Scale in Feet

Figure 2

SITE MAP

Madera Unified School District
New Elementary School Site
Madera, California

Map Date: 11-16-15



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0 150 300
Scale in Feet

Figure 3

POTENTIAL WATER PIPELINE IMPACT AREA

Madera Unified School District
New Elementary School Site
Madera, California

Map Date: 11-16-15

APPENDIX A

AREA RECONNAISSANCE PHOTOGRAPHS



Photo 1: View north along PG&E 8.625-inch natural gas pipeline alignment on the east side of Tozer Street (Road 28) from southeast corner of Tozer Street and A Street, southeast of project site.



Photo 2: View west across Tozer Street (Road 28) from PG&E 8.625-inch natural gas pipeline alignment toward project site.

Photo Date: 11-12-15



Photo 3: View east along PG&E 1.05/2.375-inch natural gas pipeline alignment on the north side of Sunrise Avenue, north of project site.



Photo 4: View north along City of Madera water pipeline alignment on west side of Tozer Street (Road 28); project site at left.

Photo Date: 11-12-15



Photo 5: View east along City of Madera water pipeline alignment on south side of Sunrise Avenue, north of project site.



Photo 6: View east along City of Madera water pipeline alignment on A Street, south of project site.

Photo Date: 11-12-15



Photo 7: View south across A Street from south edge of project site toward City of Madera Well #31.



Photo 8: View northwest across project site from City of Madera water pipeline alignment on A Street, south of project site.

Photo Date: 11-12-15



Photo 9: View east along Madera Irrigation District pipeline alignment at location where pipeline “daylights” to open ditch.

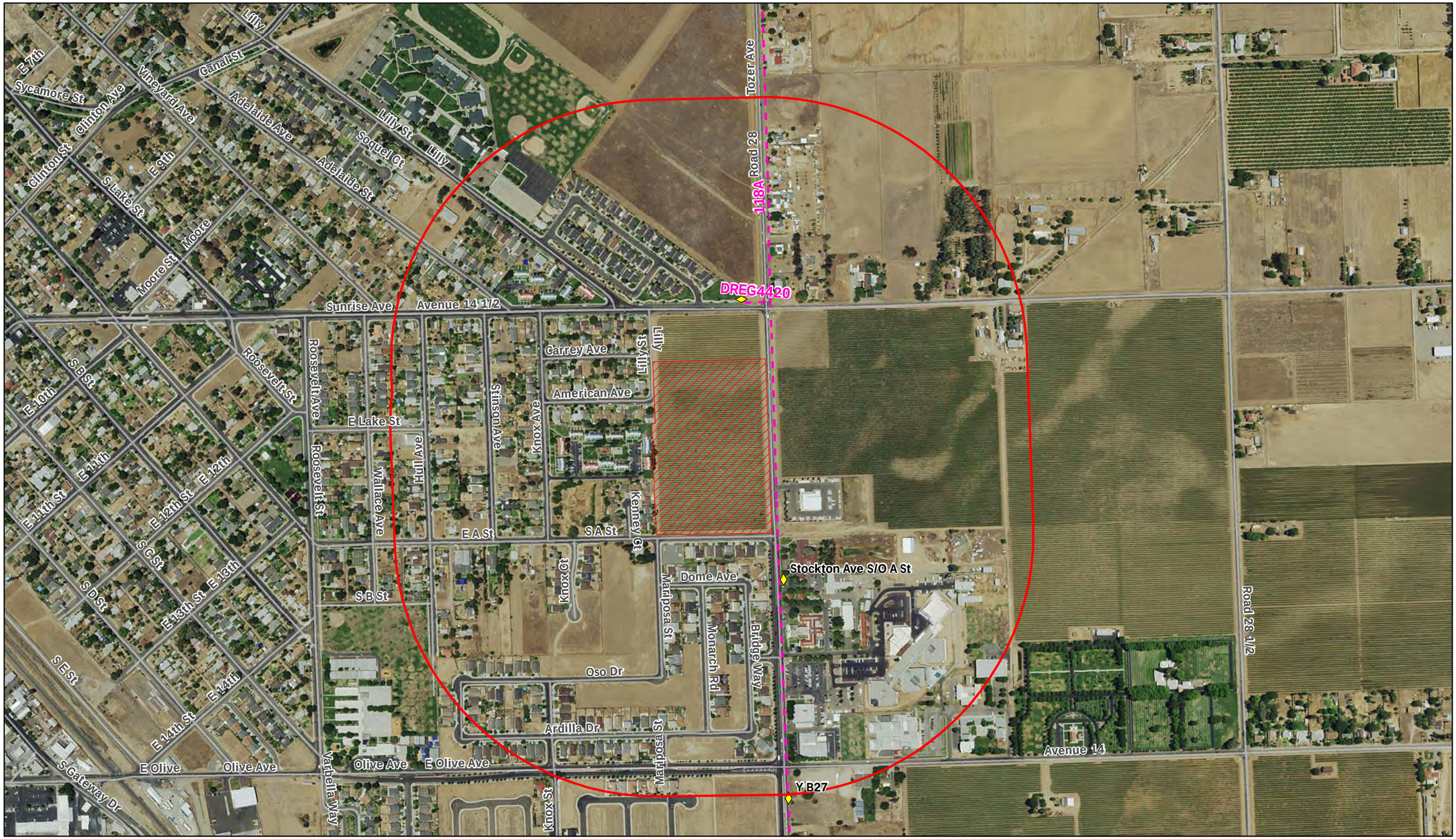


Photo 10: View south along Tozer Street (Road 28) from southeast corner of project site along PG&E, City of Madera, and Madera Irrigation District pipeline alignments.

Photo Date: 11-12-15

APPENDIX B

INFORMATION PROVIDED BY PACIFIC GAS AND ELECTRIC COMPANY



10/28/2015
PG&E Critical Infrastructure Information
Must Be Held In Confidence
Facilities to be Operated by PG&E Personnel Only
Call 811 Before You Dig

School Site Buffer
School Site
Gas Station
Transmission Main

Madera School Site
Tozer St and A St Madera, CA 93638
Gas Engineering & Operations
Geographic Information Services

By: S3LG
1 inch = 500 feet (approx.)
0 0.3
Miles

N

Questionnaire For Natural Gas Pipeline Risk Analysis Study

Subject Property:		Madera School Site, Tozer St and A St Madera, CA 93638
1	Pipeline Reference (identification, line no., etc.):	118A
	1a. Type: (Distribution, Gathering or Transmission):	Local Transmission
2	Date of Installation (Year):	1931
3	Maximum Allowable Operating Pressure (psig):	400
	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	8.625
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .25
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	19.71
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10	History of Incidents:	N/A
11	Pipeline Location Map within 1,500 feet of subject Property:	Attached

1	Pipeline Reference (identification, line no., etc.):	118A
	1a. Type: (Distribution, Gathering or Transmission):	Local Transmission
2	Date of Installation (Year):	1987
3	Maximum Allowable Operating Pressure (psig):	400
	3a. Normal Operation Pressure (MOP)	400

4	Diameter (inches):	8.625
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .25
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	16.43
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10	History of Incidents:	N/A
11	Pipeline Location Map within 1,500 feet of subject Property:	Attached

1	Pipeline Reference (identification, line no., etc.):	118A
	1a. Type: (Distribution, Gathering or Transmission):	Local Transmission
2	Date of Installation (Year):	2014
3	Maximum Allowable Operating Pressure (psig):	720
	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	8.625
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .25
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	29.57
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10	History of Incidents:	N/A

11 Pipeline Location Map within 1,500 feet of subject Property:	Attached

1 Pipeline Reference (identification, line no., etc.):	DREG4418
1a. Type: (Distribution, Gathering or Transmission):	Service
2 Date of Installation (Year):	1982
3 Maximum Allowable Operating Pressure (psig):	400
3a. Normal Operation Pressure (MOP)	400
4 Diameter (inches):	1.05
5 Construction / Wall Thickness (steel, plastic/inches):	Steel / .113
6 Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7 % of Specified Minimum Yield Strength (MAOP):	9
8 Classification (Present) (1,2,3 or 4)	3
9 Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10 History of Incidents:	N/A
11 Pipeline Location Map within 1,500 feet of subject Property:	Attached

1 Pipeline Reference (identification, line no., etc.):	DREG4419
1a. Type: (Distribution, Gathering or Transmission):	Service
2 Date of Installation (Year):	1969
3 Maximum Allowable Operating Pressure (psig):	400

	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	2.375
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .154
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	9
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10	History of Incidents:	N/A
11	Pipeline Location Map within 1,500 feet of subject Property:	Attached

1	Pipeline Reference (identification, line no., etc.):	DREG4420
	1a. Type: (Distribution, Gathering or Transmission):	Service
2	Date of Installation (Year):	1931
3	Maximum Allowable Operating Pressure (psig):	400
	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	2.375
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .154
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	9
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E

10	History of Incidents:	N/A
11	Pipeline Location Map within 1,500 feet of subject Property:	Attached

1	Pipeline Reference (identification, line no., etc.):	DREG4420
	1a. Type: (Distribution, Gathering or Transmission):	Service
2	Date of Installation (Year):	2011
3	Maximum Allowable Operating Pressure (psig):	720
	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	2.375
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .154
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	15.86
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10	History of Incidents:	N/A
11	Pipeline Location Map within 1,500 feet of subject Property:	Attached

1	Pipeline Reference (identification, line no., etc.):	DREG4420
	1a. Type: (Distribution, Gathering or Transmission):	Service
2	Date of Installation (Year):	2014
3	Maximum Allowable Operating Pressure (psig):	720

	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	4.5
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .237
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	19.53
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E
10	History of Incidents:	N/A
11	Pipeline Location Map within 1,500 feet of subject Property:	Attached

1	Pipeline Reference (identification, line no., etc.):	DREG2240
	1a. Type: (Distribution, Gathering or Transmission):	Service
2	Date of Installation (Year):	2014
3	Maximum Allowable Operating Pressure (psig):	720
	3a. Normal Operation Pressure (MOP)	400
4	Diameter (inches):	2.375
5	Construction / Wall Thickness (steel, plastic/inches):	Steel / .154
6	Corrosion Prevention (cathodic protection, tape, etc.):	Cathodic
7	% of Specified Minimum Yield Strength (MAOP):	15.86
8	Classification (Present) (1,2,3 or 4)	3
9	Inspection/Testing Results (method, date, etc.):	Per CPUC 112E

10 History of Incidents: N/A

11 Pipeline Location Map within 1,500 feet of subject Property: Attached

QUESTIONNAIRE COMPLETED BY:

NAME:	Steven Liu	SIGNATURE:	s3lg@pge.com
TITLE	Gas Technical Specialist	DATE:	10/29/2015
COMPANY	PG&E		

APPENDIX C

8.625-INCH NATURAL GAS PIPELINE RISK ANALYSIS FORMS

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form

Local Educational Agency	
Date	November 16, 2015
Local Educational Agency	Madera Unified School District
Contact	Edward Gonzalez, Superintendent
Telephone Number	559-675-4500
E-mail Address	
Street Address	1902 Howard Road
Department or Mail Drop	
City	Madera
County	Madera
Zip Code	93637

Proposed School Campus Site	
Name	New Elementary School Site
Location Description	Located northwest of intersection of Tozer Street (Road 28) and A Street in Madera, Madera County, California.

Pipeline of Interest	
Operator / Owner	Pacific Gas and Electric Company (PG&E)
Product Transported	Natural Gas Line #118A
Pipeline Diameter (inches)	8.625
Operating Pressure (psig)	Normal – 400 Maximum – 720
Closet Approach to Property Line (or boundary between the usable and unusable portion of the site if the unusable portion faces the pipeline.) (ft)	70 ft

Individual Risk Estimate Result						
Type of Analysis (Check One)	**Stage 1 →**		**Stage 2 →**	**X**	**Stage 3 →**	
Individual Risk Estimate Value	**3.0E-08**					
Individual Risk Criterion	**1.0E-06 (0.000001)**					
IR Significance (check one)	**Significant**					
	Insignificant	**X**				

(Continued on next page)

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form
(Continued from previous page)

Population Risk Indicator Result	
Protocol Average IR	9.5E-09
IR Indicator (Average IR / Property Line IR Ratio)	0.32
Population Risk Indicator	40

Prevention and Mitigation Recommendations/Implementations *(Add additional sheets with more details as needed.)*

Prevention Measures:

Pipeline is operated in accordance with State and Federal regulations designed to prevent accidental release and ensure public health and safety. Periodic inspection and testing help ensure pipeline integrity.

Mitigation Measures:

It is suggested that any emergency plan documents prepared for the project site identify the presence of the pipeline and include an emergency contact list with phone numbers to be used in the event of an incident.

Conclusions/Other Suggestions/Recommendations *(Add more sheets, if needed.)*

The risk analysis indicates that the estimated level of individual risk at the property boundary closest to the pipeline is 3.0E-08, well below the CDE threshold criteria of 1.0E-06. Risks associated with school facility development in proximity to the subject pipeline are not considered significant. The population risk indicator for the site is 40. To provide an added degree of risk management, it is suggested that any emergency plan documents prepared for the project site identify the presence of the pipeline and include an emergency contact list to be used in the event of an incident.

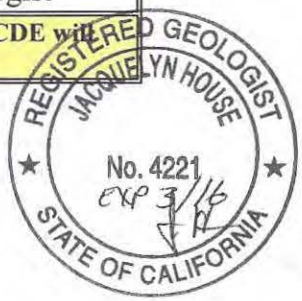
Certification and Signatures of Risk Analyst(s)

This analysis was conducted according to the 2007 CDE Protocol except as noted. All modifications within the Stage 2 framework, and Stage 3 analyses and exceptions to the data and processes established in the 2007 CDE Protocol, if any, were based upon my professional opinion and in a manner consistent with the standards of care and skill ordinarily exercised by professionals working on similar projects.

I certify that the estimated risk levels were derived based upon the 2007 CDE Protocol, unless otherwise noted, and that these levels demonstrate, within reasonable expectations of uncertainties for such estimates, that the estimated Individual Risk for the school site, as the site was planned at the time of this analysis, including mitigation measures, if any, meets the Individual Risk Criterion stated in the 2007 CDE Protocol, based on the information provided to me.

Printed Name	Signature	Position or Title
Jackie House	Jackie House	Principal Geologist

Notice: In the event that the Individual Risk Criterion could not be met, at the option of the LEA, CDE will still accept a report for review and consultation with the LEA.



California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 2 - Pipeline Risk Analysis Input Data

Date: November 16, 2015		
Local Educational Agency: Madera Unified School District		
Proposed School Site Name: New Elementary School Site		
Proposed School Estimated Population: Approximately 800		
Product	*Designate by an "X"*	
Natural gas (NG)	X	
Crude oil		
Gasoline		
Liquefied natural gas (LNG)		
Liquefied petroleum gas (LPG)		
Natural gas liquids (NGL)		
Other refined product (specify)		
Other substance (specify)		
Pipeline Location Attributes	**Units**	**Value**
Segment length	Ft	4,000
Closest approach to property line	Ft	70
Closest approach to usable portion of the school site	ft	70
Land use by class location (49 CFR Part 192)	Class	3
Pipeline Attributes		
Diameter	inches	8.625
Maximum operating pressure	psig	720
Average operating pressure	psig	400
Depth of burial	ft	Info not available
Distance to nearest compressor (gas) or pump station (liquid)	miles	Info not available
Throughput		
Liquid (enter value, meter, etc.)	gpm	
Nearest block valve locations, upstream and downstream of segment of concern		Info not available
Above ground components within 1500-ft zone		Info not available
Number		
Type		
Pipeline location on terrain gradient relative to school (Designate with an "X" by appropriate description)		
Flat		X
Up gradient		
Down gradient		
"Convoluted"		

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 3 - Standard Protocol Calculation Summary

	Release Probability Calculations	Variable	Value	Data Source if Different from Protocol
Basic Data Input				
	Baseline frequency per pipeline mile	F0, releases/ mile-year	1.2E-04	Historical or default release frequency from Table 4-3 or Appendix B.
	Segment length within 1500-ft buffer	SEG, Miles	0.76	Determine from site maps, GIS, or other sources
	Nearest property line distance	R0, ft	70	Determine from maps
	Receptor location distance, if different than nearest property line	R(i), ft		Determine from maps
	Base release probability	P0	1.2E-04	$P0 = 1 - e^{(-F0 \times t)}$
	Probability adjustment factor	PAF	1	Default value selected by analyst
	Adjusted base probability	PA	1.2E-04	PA = P0 × PAF

Special Seismic Considerations

Please summarize and/or list below any adjustments made to the Protocol base risk analysis estimates and the special seismic conditions and studies upon which these adjustments were based.
If adjustments were based upon special seismic conditions, the signature(s) and titles of those professionals involved are required. Attach additional pages if needed.

NONE

Signatures for Above, If Needed

Printed Name	Signature	Title

	Protocol Basis Scenario Probabilities			
	XSEG length, leak, ft:			
	Leak jet or pool fire	0		
	Leak flash fire	259		
	Leak gas or vapor explosion	0		

(Continued on next page.)

	Individual XSEG failure and release probabilities, leak, PA(LX):			
	Leak jet or pool fire	0		
	Leak flash fire	5.9E-06		
	Leak gas or vapor explosion	0		
	XSEG length, rupture, ft:			
	Rupture jet or pool fire	329		
	Rupture flash fire	3497		
	Rupture gas or vapor explosion	0		
	Individual XSEG failure and release probabilities, rupture, PA(RX):			
	Rupture jet or pool fire	7.5E-06		
	Rupture flash fire	7.9E-05		
	Rupture gas or vapor explosion	0		

Insert Protocol default values or exceptions to the Protocol default values:				**(If values other than Protocol default values were used, indicate the value in the appropriate cell and indicate the data source.)**
	Probability of leak	PC(L)	0.8	Default: 0.8
	Probability of rupture	PC(R)	0.2	Default: 0.2
	Probability of leak ignition	PC(LIG)	0.3	Default: gas 0.3 (FEMA 1989); gasoline, 0,09; liquids other than gasoline (e.g., crude oil): 0.03
	Probability of rupture ignition	PC(RIG)	0.45	Default: gas 0.45 (FEMA 1989); gasoline: 0.09; liquids other than gasoline (e.g., crude oil): 0.03

(Continued on next page)

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 3 - Standard Protocol Calculation Summary
(Continued from previous page)

	Release Probability Calculations	Variable	Value	Data Source if Different from Protocol
Insert Protocol default values or exceptions to the Protocol default values:				**(If value other than default used, indicate value in appropriate column and indicate data source.)**
	Probability of fire on ignition	PC(FIG)	0.99	Default: gas 0.99 (FEMA 1989); liquid 0.95
	Probability of explosion on ignition	PC(EIG)	0.01	Default: gas 0.01; liquid 0.05
	Probability of flash fire	PC(FF)	0.01	Default: gas 0.01; liquid 0.05
	Probability of jet fire (gas pipelines) or pool fire (liquid pipelines)	PC(JF)	0.98	Default: gas = 0.98; liquid = 0.95
	Probability of occupancy	PC(OCC)	0.16	Default: 180 days per year, 8 hrs per day.
	Probability of outdoor exposure	PC(OUT)	0.25	Default: 2 hr outdoors during an 8-hour day onsite.
	Probability of leak jet/pool fire impact	PCI(LJF)	0.233	
	Probability of rupture jet/pool fire impact	PCI(RJF)	0.087	
	Probability of leak flash fire impact	PCI(LFF)	0.002	
	Probability of rupture flash fire impact	PCI(RFF)	0.001	
	Probability of leak explosion impact	PCI(LEX)	0.002	
	Probability of rupture explosion impact	PCI(REX)	0.001	
Individual Risk Summary				
	Leak jet fire IR	IR(LJF)	0	
	Rupture jet fire IR	IR(RJF)	2.62E-08	
	Leak flash fire IR	IR(LFF)	5.58E-10	
	Rupture flash fire IR	IR(RFF)	2.83E-09	
	Leak explosion IR	IR(LEX)	0	
	Rupture explosion IR	IR(REX)	0	
Total IR and IRC				
	Total Individual Risk		3.0E-08	
	CDE Individual Risk Criterion		**1.0E-06**	
Check shaded boxes as follows:				
	If TIF / IRC > 1.0			"Significant"
	If TIF / IRC < =1.0		X	"Insignificant"
IR and Population Risk Indicators				
	IR Indicator		0.32	
	Population Risk Indicator		40	

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California Department of Education

PIPELINE RISK ANALYSIS PROTOCOL
TOTAL INDIVIDUAL RISK (TIR) ESTIMATING AID

To be used in conjunction with the CDE Guidance Protocol for School Site Pipeline Risk Analysis

March 2007

CDE provides this template for the convenience of Protocol users as a template. It is the responsibility of the user to ensure that calculations match and are appropriate for the risk analysis being conducted for a particular case. While both CDE and its contractor have sought to make this spreadsheet free of errors there is no expressed or implied warranty to that it is so.

XSEG Calculations

Pipe Size, Pressure, and Hazard Type			Front Property Line - Begin Zone 1			Begin Zone 2			Begin Zone 3			End Zone 3 -Back Property Line		
Pipe Size	Press.	Hazard X	RX (1%)	R0	XSEG	RX (1%)	R0	XSEG	RX (1%)	R0	XSEG	RX (1%)	R0	XSEG
(in)	(psig)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
8.63	720	LJF	33	70	0	33	270	0	33	475	0	33	680	0
8.63	720	RJF	179	70	329	179	270	0	179	475	0	179	680	0
8.63	720	LFF	147	70	259	147	270	0	147	475	0	147	680	0
8.63	720	RFF	1750	70	3497	1750	270	3458	1750	475	3369	1750	680	3225
8.63	720	LEX	0	70	0	0	270	0	0	475	0	0	680	0
8.63	720	REX	0	70	0	0	270	0	0	475	0	0	680	0

Green cells indicate where input data are entered for the case being analyzed.

The numbers shown apply for a the specific example illustrated. Substitute the appropriate values for the actual number being analyzed.

The Pipe Size is the pipe diameter in inches. The Pressure is the operating pressure in punds per square inch gage (psig).

Hazard acronyms are defined in the Protocol.

The 1% mortality (0.01) probability impact distance RX for each hazard is obtained from the appropriate hazard figure in the Protocol, Chapter 4.

R0 is the receptor distance being analyzed and is explained in the Protocol, Chapter 4.

XSEG is as described in the Protocol, Chapter 4.

Zones 1, 2, and 3 are defined in the Protocol, Chapter 4 for use in the TIR calculations. If more than three zones are used, as explained in the Protocol, Section 4, more worksheets of the same type as shown can be added.

VARIABLES LIST

	DATA SOURCE or DEFAULT VALUE
Input Data	
Product	Phase I EA, etc.
Diameter	Phase I EA, etc.
Pressure	Phase I EA, etc.
R0	Site Map or Field Data
XSEG(LJF)	Protocol Calculation
XSEG(RJF)	Protocol Calculation
XSEG(LFF)	Protocol Calculation
XSEG(RFF)	Protocol Calculation
XSEG(LEX)	Protocol Calculation
XSEG(REX)	Protocol Calculation
Base and Conditional Probability Calculations Data	
Base Probabilities	
F0	Protocol Table
P0	Protocol Table
PAF	User data
PA	Protocol Calculation
P(FF)	Protocol Calculation
P(JF)	Protocol Calculation
P(EX)	Protocol Calculation
Leak Conditional Probabilities	
PC(L)	0.8
PC(LIG)	0.3
PC(FIG)	0.99
PC(JF)	0.98
PC(FF)	0.01
PC(EIG)	0.01
Rupture Conditional Probabilities	
PC(R)	0.2
PC(RIG)	0.45
PC(FIG)	0.99
PC(JF)	0.98
PC(FF)	0.01
PC(EIG)	0.01
Conditional Probability of Impacts	
PCI(LJF)	Protocol Calculation
PCI(RJF)	Protocol Calculation
PCI(LFF)	Protocol Calculation
PCI(RFF)	Protocol Calculation
PCI(LEX)	Protocol Calculation
PCI(REX)	Protocol Calculation
Maximum Fatality Probability for XSEG	
PF(LJF)	Protocol Calculation
PF(RJF)	Protocol Calculation
PF(LFF)	Protocol Calculation
PF(RFF)	Protocol Calculation
PF(LEX)	Protocol Calculation
PF(REX)	Protocol Calculation

TIR CALCULATIONS - BEGIN ZONE 1 - FRONT PROPERTY LINE

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	8.625	inches
Pressure	720	psig
R0	70	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	329	ft
XSEG(LFF)	259	ft
XSEG(RFF)	3497	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

1. These instruction boxes apply to Worksheets TIR1, 2, 3, and 4.
2. Enter the Input Data indicated for the case under analysis.
3. Enter the XSEG values from Worksheet "XSEG Calculations".
4. In the table below enter the F0 data for the appropriate type pf pipeline from the failure frequency data in the Protocol, Chapter 4.
5.Enter a value for the other green cell variables as explained in Chapter 4.

Base and Conditional Probability Calculations							
Base		**Leak**		**Rupture**		**Exposure**	
F0	1.2E-04	**PC(L)**	0.8	**PC(R)**	0.2	**PC(OCC)**	0.16
P0	1.2E-04	**PC(LIG)**	0.3	**PC(RIG)**	0.45	**PC(OUT)**	0.25
PAF	1.0	**PC(FIG)**	0.99	**PC(FIG)**	0.99		
PA	1.2E-04	**PC(JF)**	0.98	**PC(JF)**	0.98		
		PC(FF)	0.01	**PC(FF)**	0.01		
		PC(EIG)	0.01	**PC(EIG)**	0.01		
Calculated Values:							
PA(LJF)	0.0E+00	**PCI(LJF)**	0.233	**PCI(RJF)**	0.087		
PA(RJF)	7.5E-06	**PCI(LFF)**	0.002	**PCI(RFF)**	0.001		
PA(LFF)	5.9E-06	**PCI(LEX)**	0.002	**PCI(REX)**	0.001	**PC(EXPO)**	0.04
PA(RFF)	7.9E-05						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				**Values**			
PC(LJF) =	**PA(LJF) x**	**PCI(LJF) x**	**PC(EXPO) =**	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	**PA(RJF) x**	**PCI(RJF) x**	**PC(EXPO) =**	7.5E-06	0.09	0.040	**2.6E-08**
PC(LFF) =	**PA(LFF) x**	**PCI(LFF) x**	**PC(EXPO) =**	5.9E-06	0.002	0.040	**5.6E-10**
PC(RFF) =	**PA(RFF) x**	**PCI(RFF) x**	**PC(EXPO) =**	7.9E-05	0.001	0.040	**2.8E-09**
PC(LEX) =	**PA(LEX) x**	**PCI(LEX) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	**PA(REX) x**	**PCI(REX) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

IR Calculation				
	MAX PF(X)		**PC(X)**	**IR(X)**
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	1.00		2.6E-08	**2.62E-08**
IR(LFF) =	1.00		5.6E-10	**5.58E-10**
IR(RFF) =	1.00		2.8E-09	**2.83E-09**
IR(LEX) =	0.00		0.0E+00	**0.00E+00**
IR(REX) =	0.00		0.0E+00	**0.00E+00**
TOTAL INDIVIDUAL RISK, TIR				**3.0E-08**
CDE INDIVIDUAL RISK CRITERION, IRC				**1.0E-06**
TIR/IRC RATIO				**0.03**
PROTOCOL TIR INDICATOR RATIO				**0.32**

6. Enter the maximum fatality probability that corresponds to the maximum impact for each hazard type according to the Protocol, Chapter 4.

TIR CALCULATIONS - END ZONE 1 - BEGIN ZONE 2

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	8.625	inches
Pressure	720	psig
R0	270	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	3458	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

Base and Conditional Probability Calculations							
Base		Leak		Rupture		Exposure	
F0	1.2E-04	PC(L)	0.8	PC(R)	0.2	PC(OCC)	0.16
P0	1.2E-04	PC(LIG)	0.3	PC(RIG)	0.45	PC(OUT)	0.25
PAF	1.0	PC(FIG)	0.99	PC(FIG)	0.99		
PA	1.2E-04	PC(JF)	0.98	PC(JF)	0.98		
		PC(FF)	0.01	PC(FF)	0.01		
		PC(EIG)	0.01	PC(EIG)	0.01		
PA(LJF)	0.0E+00	PCI(LJF)	0.233	PCI(RJF)	0.087		
PA(RJF)	0.0E+00	PCI(LFF)	0.002	PCI(RFF)	0.001		
PA(LFF)	0.0E+00	PCI(LEX)	0.002	PCI(REX)	0.001	PC(EXPO)	0.04
PA(RFF)	7.9E-05						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				Values			
PC(LJF) =	PA(LJF) x	PCI(LJF) x	PC(EXPO) =	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	PA(RJF) x	PCI(RJF) x	PC(EXPO) =	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	PA(LFF) x	PCI(LFF) x	PC(EXPO) =	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	PA(RFF) x	PCI(RFF) x	PC(EXPO) =	7.9E-05	0.001	0.040	**2.8E-09**
PC(LEX) =	PA(LEX) x	PCI(LEX) x	PC(EXPO) =	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	PA(REX) x	PCI(REX) x	PC(EXPO) =	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

IR Calculation				
	MAX PF(X)		PC(X)	IR(X)
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.0E+00**
IR(LFF) =	0.00		0.0E+00	**0.0E+00**
IR(RFF) =	1.00		2.8E-09	**2.8E-09**
IR(LEX) =	0.00		0.0E+00	**0.0E+00**
IR(REX) =	0.00		0.0E+00	**0.0E+00**
TIR2 =				**2.8E-09**

TIR CALCULATIONS - END ZONE 2 - BEGIN ZONE 3

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	8.625	inches
Pressure	720	psig
R0	475	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	3369	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

Base and Conditional Probability Calculations							
Base		**Leak**		**Rupture**		**Exposure**	
F0	1.2E-04	**PC(L)**	0.8	**PC(R)**	0.2	**PC(OCC)**	0.16
P0	1.2E-04	**PC(LIG)**	0.3	**PC(RIG)**	0.45	**PC(OUT)**	0.25
PAF	1.0	**PC(FIG)**	0.99	**PC(FIG)**	0.99		
PA	1.2E-04	**PC(JF)**	0.98	**PC(JF)**	0.98		
		PC(FF)	0.01	**PC(FF)**	0.01		
		PC(EIG)	0.01	**PC(EIG)**	0.01		
PA(LJF)	0.0E+00	**PCI(LJF)**	0.233	**PCI(RJF)**	0.087		
PA(RJF)	0.0E+00	**PCI(LFF)**	0.002	**PCI(RFF)**	0.001		
PA(LFF)	0.0E+00	**PCI(LEX)**	0.002	**PCI(REX)**	0.001	**PC(EXPO)**	0.04
PA(RFF)	7.7E-05						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				**Values**			
PC(LJF) =	**PA(LJF) x**	**PCI(LJF) x**	**PC(EXPO) =**	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	**PA(RJF) x**	**PCI(RJF) x**	**PC(EXPO) =**	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	**PA(LFF) x**	**PCI(LFF) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	**PA(RFF) x**	**PCI(RFF) x**	**PC(EXPO) =**	7.7E-05	0.001	0.040	**2.7E-09**
PC(LEX) =	**PA(LEX) x**	**PCI(LEX) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	**PA(REX) x**	**PCI(REX) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

IR Calculation				
	MAX PF(X)		**PC(X)**	**IR(X)**
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.0E+00**
IR(LFF) =	0.00		0.0E+00	**0.0E+00**
IR(RFF) =	1.00		2.7E-09	**2.7E-09**
IR(LEX) =	0.00		0.0E+00	**0.0E+00**
IR(REX) =	0.00		0.0E+00	**0.0E+00**
TIR3 =				**2.7E-09**

TIR CALCULATIONS - END ZONE 3 - BACK PROPERTY LINE

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	8.625	inches
Pressure	720	psig
R0	680	ft

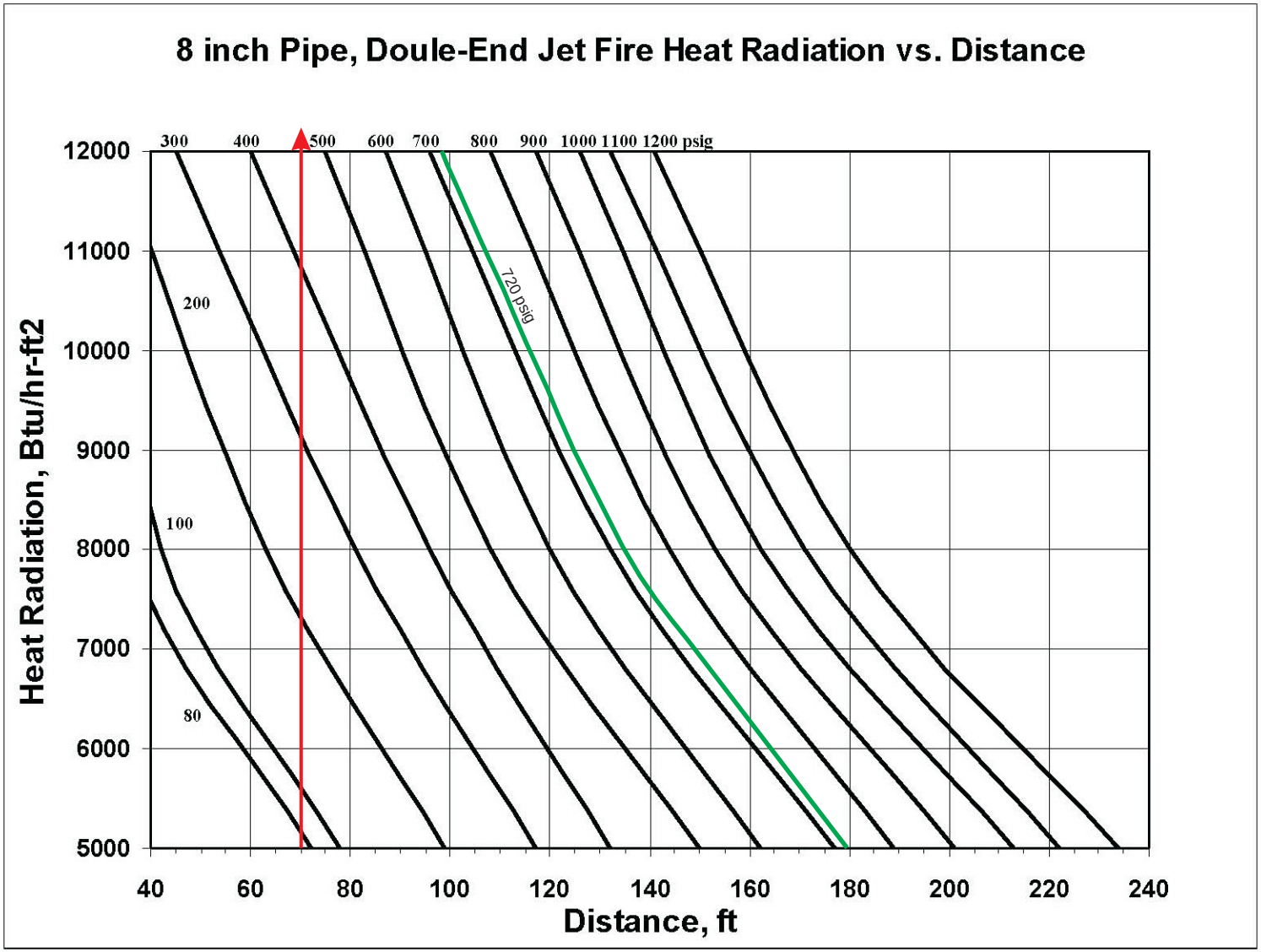
XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	3225	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

Base and Conditional Probability Calculations							
Base		**Leak**		**Rupture**		**Exposure**	
F0	1.2E-04	**PC(L)**	0.8	**PC(R)**	0.2	**PC(OCC)**	0.16
P0	1.2E-04	**PC(LIG)**	0.3	**PC(RIG)**	0.45	**PC(OUT)**	0.25
PAF	1.0	**PC(FIG)**	0.99	**PC(FIG)**	0.99		
PA	1.2E-04	**PC(JF)**	0.98	**PC(JF)**	0.98		
		PC(FF)	0.01	**PC(FF)**	0.01		
		PC(EIG)	0.01	**PC(EIG)**	0.01		
PA(LJF)	0.0E+00	**PCI(LJF)**	0.233	**PCI(RJF)**	0.087		
PA(RJF)	0.0E+00	**PCI(LFF)**	0.002	**PCI(RFF)**	0.001		
PA(LFF)	0.0E+00	**PCI(LEX)**	0.002	**PCI(REX)**	0.001	**PC(EXPO)**	0.04
PA(RFF)	7.3E-05						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				**Values**			
PC(LJF) =	**PA(LJF) x**	**PCI(LJF) x**	**PC(EXPO) =**	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	**PA(RJF) x**	**PCI(RJF) x**	**PC(EXPO) =**	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	**PA(LFF) x**	**PCI(LFF) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	**PA(RFF) x**	**PCI(RFF) x**	**PC(EXPO) =**	7.3E-05	0.001	0.040	**2.6E-09**
PC(LEX) =	**PA(LEX) x**	**PCI(LEX) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	**PA(REX) x**	**PCI(REX) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

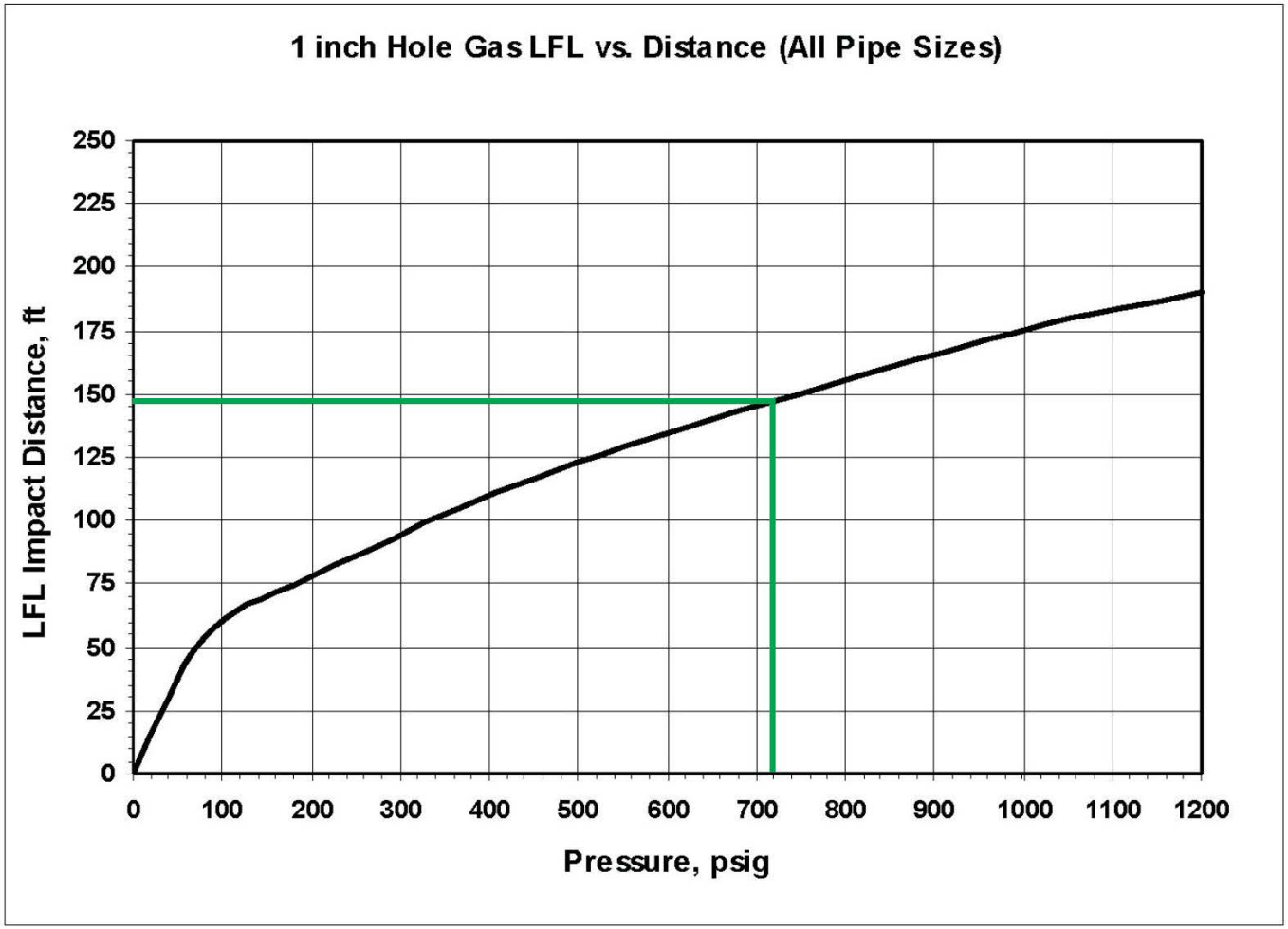
IR Calculation				
	MAX PF(X)		**PC(X)**	**IR(X)**
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.0E+00**
IR(LFF) =	0.00		0.0E+00	**0.0E+00**
IR(RFF) =	1.00		2.6E-09	**2.6E-09**
IR(LEX) =	0.00		0.0E+00	**0.0E+00**
IR(REX) =	0.00		0.0E+00	**0.0E+00**
TIR4 =				**2.6E-09**



Note: Graph curves from left to right apply for pressure of 80, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, and 1200 pisg.

Figure 4-8. Natural Gas Release Rupture Jet Fire Heat Radiation Impact, 8-inch Pipe

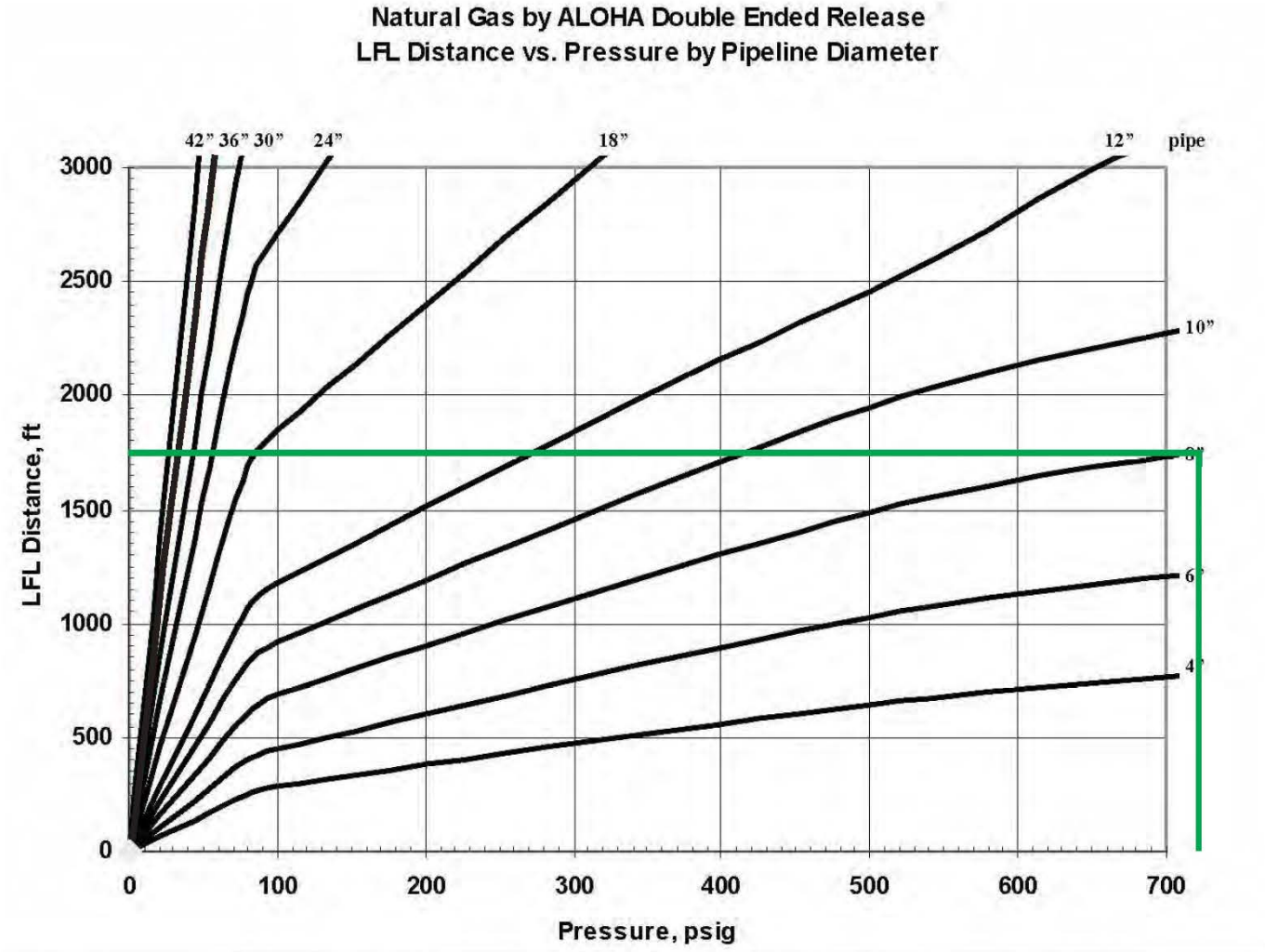
179 feet for 720 psig
Heat Radiation at 70 feet >12000 Btu/hr-ft^2



Note: The 1.0 inch hole leak in a pipeline was simulated in ALOHA using a 1.0 inch hole in a vessel wall. This is because the tank wall is considered to be more representative of a leak in a pipe wall than a 1.0 inch pipe release that reflects a release from the end of a long tube. The vessel wall simulation yields a greater impact distance. Note: ALOHA does not account for the buoyancy of methane or natural gas so that modeled impact distances might also be greater than would be encountered with the actual substances, other conditions being equal.

Figure 4-16. Natural Gas Leak (1-inch hole) LFL Impact Distance

LFL = 147 feet



Note: ALOHA does not account for the buoyancy of methane or natural gas so that modeled impact distances might also be greater than would be encountered with the actual substances, other conditions being equal.

Figure 4-17. Natural Gas Rupture LFL Impact Distance

LFL = 1750 feet

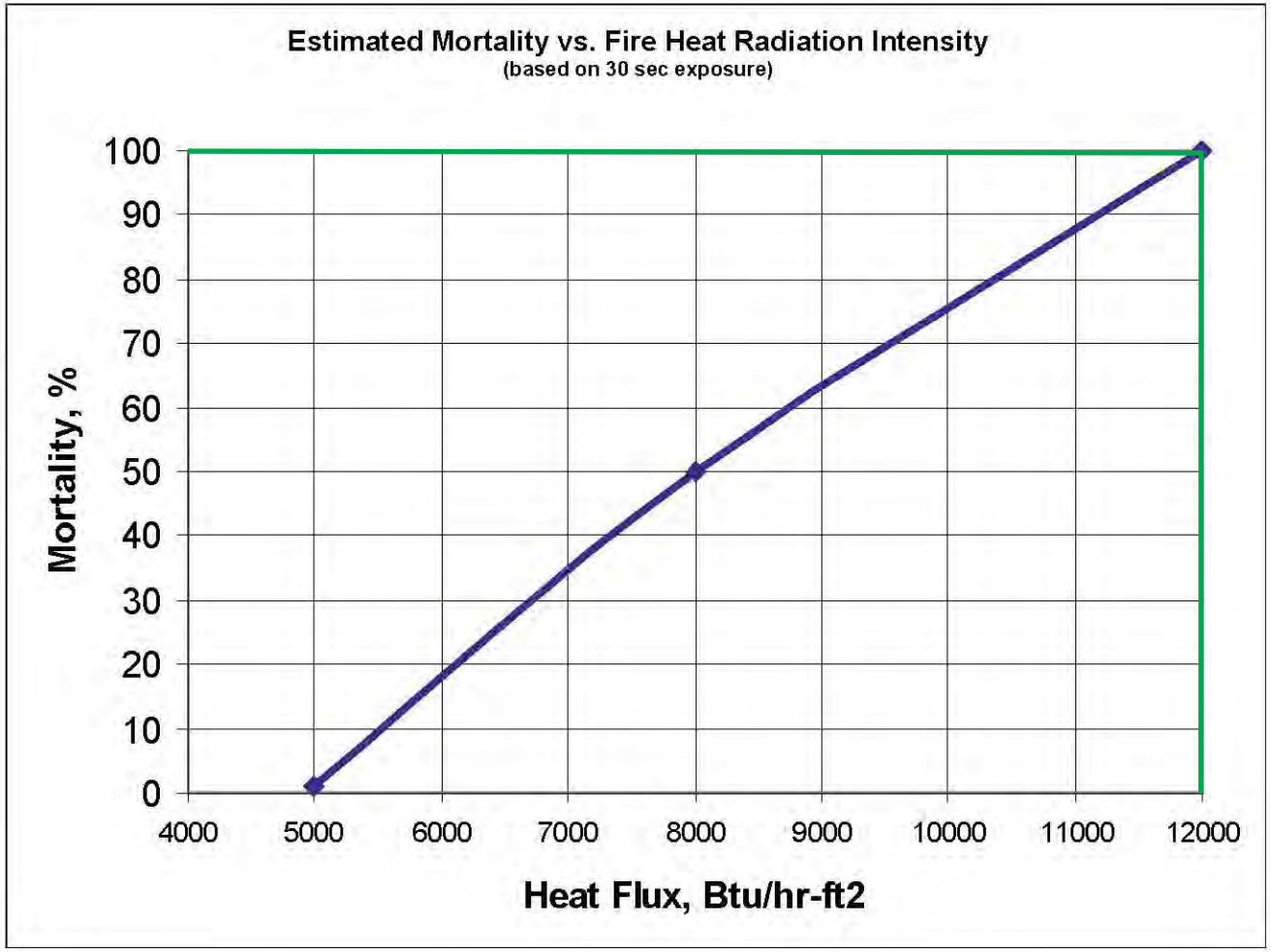


Figure 4-4. Estimated Mortality from Fire Heat Radiation

Mortality = 100%

APPENDIX D

1.05/2.375-INCH NATURAL GAS PIPELINE RISK ANALYSIS FORMS

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form

Local Educational Agency	
Date	November 16, 2015
Local Educational Agency	Madera Unified School District
Contact	Edward Gonzalez, Superintendent
Telephone Number	559-675-4500
E-mail Address	
Street Address	1902 Howard Road
Department or Mail Drop	
City	Madera
County	Madera
Zip Code	93637
Proposed School Campus Site	
Name	New Elementary School Site
Location Description	Located northwest of intersection of Tozer Street (Road 28) and A Street in Madera, Madera County, California.
Pipeline of Interest	
Operator / Owner	Pacific Gas and Electric Company (PG&E)
Product Transported	Natural Gas Line #DREG4418/4419/4420
Pipeline Diameter (inches)	1.05-2.375
Operating Pressure (psig)	Normal – 400 Maximum – 400-720
Closet Approach to Property Line (or boundary between the usable and unusable portion of the site if the unusable portion faces the pipeline.) (ft)	313 ft

Individual Risk Estimate Result						
Type of Analysis (Check One)	**Stage 1 →**		**Stage 2 →**	**X**	**Stage 3 →**	
Individual Risk Estimate Value	**1.1E-09**					
Individual Risk Criterion	**1.0E-06 (0.000001)**					
IR Significance (check one)	**Significant**					
	Insignificant	**X**				

(Continued on next page)

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form
(Continued from previous page)

Population Risk Indicator Result	
Protocol Average IR	9.0E-10
IR Indicator (Average IR / Property Line IR Ratio)	0.40
Population Risk Indicator	0

Prevention and Mitigation Recommendations/Implementations *(Add additional sheets with more details as needed.)*

Prevention Measures:

Pipeline is operated in accordance with State and Federal regulations designed to prevent accidental release and ensure public health and safety. Periodic inspection and testing help ensure pipeline integrity.

Mitigation Measures:

It is suggested that any emergency plan documents prepared for the project site identify the presence of the pipeline and include an emergency contact list with phone numbers to be used in the event of an incident.

Conclusions/Other Suggestions/Recommendations *(Add more sheets, if needed.)*

The risk analysis indicates that the estimated level of individual risk at the property boundary closest to the pipeline is 1.1E-09, well below the CDE threshold criteria of 1.0E-06. Risks associated with school facility development in proximity to the subject pipeline are not considered significant. The population risk indicator for the site is zero. To provide an added degree of risk management, it is suggested that any emergency plan documents prepared for the project site identify the presence of the pipeline and include an emergency contact list to be used in the event of an incident.

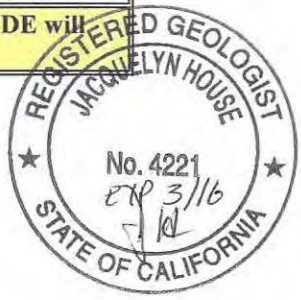
Certification and Signatures of Risk Analyst(s)

This analysis was conducted according to the 2007 CDE Protocol except as noted. All modifications within the Stage 2 framework, and Stage 3 analyses and exceptions to the data and processes established in the 2007 CDE Protocol, if any, were based upon my professional opinion and in a manner consistent with the standards of care and skill ordinarily exercised by professionals working on similar projects.

I certify that the estimated risk levels were derived based upon the 2007 CDE Protocol, unless otherwise noted, and that these levels demonstrate, within reasonable expectations of uncertainties for such estimates, that the estimated Individual Risk for the school site, as the site was planned at the time of this analysis, including mitigation measures, if any, meets the Individual Risk Criterion stated in the 2007 CDE Protocol, based on the information provided to me.

Printed Name	Signature	Position or Title
Jackie House	Jackie House	Principal Geologist

Notice: In the event that the Individual Risk Criterion could not be met, at the option of the LEA, CDE will still accept a report for review and consultation with the LEA.



California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 2 - Pipeline Risk Analysis Input Data

Date: November 16, 2015		
Local Educational Agency: Madera Unified School District		
Proposed School Site Name: New Elementary School Site		
Proposed School Estimated Population: Approximately 800		
Product	*Designate by an "X"*	
Natural gas (NG)	X	
Crude oil		
Gasoline		
Liquefied natural gas (LNG)		
Liquefied petroleum gas (LPG)		
Natural gas liquids (NGL)		
Other refined product (specify)		
Other substance (specify)		
Pipeline Location Attributes	**Units**	**Value**
Segment length	Ft	280
Closest approach to property line	Ft	313
Closest approach to usable portion of the school site	ft	313
Land use by class location (49 CFR Part 192)	Class	3
Pipeline Attributes		
Diameter	inches	1.05-2.375
Maximum operating pressure	psig	400-720
Average operating pressure	psig	400
Depth of burial	ft	Info not available
Distance to nearest compressor (gas) or pump station (liquid)	miles	Info not available
Throughput		
Liquid (enter value, meter, etc.)	gpm	
Nearest block valve locations, upstream and downstream of segment of concern		Info not available
Above ground components within 1500-ft zone		Info not available
Number		
Type		
Pipeline location on terrain gradient relative to school (Designate with an "X" by appropriate description)		
Flat		X
Up gradient		
Down gradient		
"Convoluted"		

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 3 - Standard Protocol Calculation Summary

	Release Probability Calculations	Variable	Value	Data Source if Different from Protocol
Basic Data Input				
	Baseline frequency per pipeline mile	F0, releases/ mile-year	1.2E-04	Historical or default release frequency from Table 4-3 or Appendix B.
	Segment length within 1500-ft buffer	SEG, Miles	.05	Determine from site maps, GIS, or other sources
	Nearest property line distance	R0, ft	313	Determine from maps
	Receptor location distance, if different than nearest property line	R(i), ft		Determine from maps
	Base release probability	P0	1.2E-04	$P0 = 1 - e^{(-F0 \times t)}$
	Probability adjustment factor	PAF	1	Default value selected by analyst
	Adjusted base probability	PA	1.2E-04	PA = P0 × PAF

Special Seismic Considerations

Please summarize and/or list below any adjustments made to the Protocol base risk analysis estimates and the special seismic conditions and studies upon which these adjustments were based.
If adjustments were based upon special seismic conditions, the signature(s) and titles of those professionals involved are required. Attach additional pages if needed.

NONE

Signatures for Above, If Needed

Printed Name	Signature	Title

	Protocol Basis Scenario Probabilities			
	XSEG length, leak, ft:			
	Leak jet or pool fire	0		
	Leak flash fire	0		
	Leak gas or vapor explosion	0		

(Continued on next page.)

	Individual XSEG failure and release probabilities, leak, PA(LX):			
	Leak jet or pool fire	0		
	Leak flash fire	0		
	Leak gas or vapor explosion	0		
	XSEG length, rupture, ft:			
	Rupture jet or pool fire	0		
	Rupture flash fire	1418		
	Rupture gas or vapor explosion	0		
	Individual XSEG failure and release probabilities, rupture, PA(RX):			
	Rupture jet or pool fire	0		
	Rupture flash fire	3.2E-05		
	Rupture gas or vapor explosion	0		

Insert Protocol default values or exceptions to the Protocol default values:				**(If values other than Protocol default values were used, indicate the value in the appropriate cell and indicate the data source.)**
	Probability of leak	PC(L)	0.8	Default: 0.8
	Probability of rupture	PC(R)	0.2	Default: 0.2
	Probability of leak ignition	PC(LIG)	0.3	Default: gas 0.3 (FEMA 1989); gasoline, 0,09; liquids other than gasoline (e.g., crude oil): 0.03
	Probability of rupture ignition	PC(RIG)	0.45	Default: gas 0.45 (FEMA 1989); gasoline: 0.09; liquids other than gasoline (e.g., crude oil): 0.03

(Continued on next page)

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 3 - Standard Protocol Calculation Summary
(Continued from previous page)

	Release Probability Calculations	Variable	Value	Data Source if Different from Protocol
Insert Protocol default values or exceptions to the Protocol default values:				**(If value other than default used, indicate value in appropriate column and indicate data source.)**
	Probability of fire on ignition	PC(FIG)	0.99	Default: gas 0.99 (FEMA 1989); liquid 0.95
	Probability of explosion on ignition	PC(EIG)	0.01	Default: gas 0.01; liquid 0.05
	Probability of flash fire	PC(FF)	0.01	Default: gas 0.01; liquid 0.05
	Probability of jet fire (gas pipelines) or pool fire (liquid pipelines)	PC(JF)	0.98	Default: gas = 0.98; liquid = 0.95
	Probability of occupancy	PC(OCC)	0.16	Default: 180 days per year, 8 hrs per day.
	Probability of outdoor exposure	PC(OUT)	0.25	Default: 2 hr outdoors during an 8-hour day onsite.
	Probability of leak jet/pool fire impact	PCI(LJF)	0.233	
	Probability of rupture jet/pool fire impact	PCI(RJF)	0.087	
	Probability of leak flash fire impact	PCI(LFF)	0.002	
	Probability of rupture flash fire impact	PCI(RFF)	0.001	
	Probability of leak explosion impact	PCI(LEX)	0.002	
	Probability of rupture explosion impact	PCI(REX)	0.001	
Individual Risk Summary				
	Leak jet fire IR	IR(LJF)	0	
	Rupture jet fire IR	IR(RJF)	0	
	Leak flash fire IR	IR(LFF)	0	
	Rupture flash fire IR	IR(RFF)	1.1E-09	
	Leak explosion IR	IR(LEX)	0	
	Rupture explosion IR	IR(REX)	0	
Total IR and IRC				
	Total Individual Risk		1.1E-09	
	CDE Individual Risk Criterion		**1.0E-06**	
Check shaded boxes as follows:				
	If TIF / IRC > 1.0			"Significant"
	If TIF / IRC < =1.0		X	"Insignificant"
IR and Population Risk Indicators				
	IR Indicator		0.40	
	Population Risk Indicator		0	

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California Department of Education

PIPELINE RISK ANALYSIS PROTOCOL
TOTAL INDIVIDUAL RISK (TIR) ESTIMATING AID

To be used in conjunction with the CDE Guidance Protocol for School Site Pipeline Risk Analysis

March 2007

CDE provides this template for the convenience of Protocol users as a template. It is the responsibility of the user to ensure that calculations match and are appropriate for the risk analysis being conducted for a particular case. While both CDE and its contractor have sought to make this spreadsheet free of errors there is no expressed or implied warranty to that it is so.

XSEG Calculations

Pipe Size, Pressure, and Hazard Type			Front Property Line - Begin Zone 1			Begin Zone 2			Begin Zone 3			End Zone 3 -Back Property Line		
Pipe Size	Press.	Hazard X	RX (1%)	R0	XSEG	RX (1%)	R0	XSEG	RX (1%)	R0	XSEG	RX (1%)	R0	XSEG
(in)	(psig)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
4.00	720	LJF	33	313	0	33	645	0	33	975	0	33	1305	0
4.00	720	RJF	78	313	0	78	645	0	78	975	0	78	1305	0
4.00	720	LFF	147	313	0	147	645	0	147	975	0	147	1305	0
4.00	720	RFF	775	313	1418	775	645	859	775	975	0	775	1305	0
4.00	720	LEX	0	313	0	0	645	0	0	975	0	0	1305	0
4.00	720	REX	0	313	0	0	645	0	0	975	0	0	1305	0

Green cells indicate where input data are entered for the case being analyzed.

The numbers shown apply for a the specific example illustrated. Substitute the appropriate values for the actual number being analyzed.

The Pipe Size is the pipe diameter in inches. The Pressure is the operating pressure in punds per square inch gage (psig).

Hazard acronyms are defined in the Protocol.

The 1% mortality (0.01) probability impact distance RX for each hazard is obtained from the appropriate hazard figure in the Protocol, Chapter 4.

R0 is the receptor distance being analyzed and is explained in the Protocol, Chapter 4.

XSEG is as described in the Protocol, Chapter 4.

Zones 1, 2, and 3 are defined in the Protocol, Chapter 4 for use in the TIR calculations. If more than three zones are used, as explained in the Protocol, Section 4, more worksheets of the same type as shown can be added.

VARIABLES LIST

	DATA SOURCE or DEFAULT VALUE
Input Data	
Product	Phase I EA, etc.
Diameter	Phase I EA, etc.
Pressure	Phase I EA, etc.
R0	Site Map or Field Data
XSEG(LJF)	Protocol Calculation
XSEG(RJF)	Protocol Calculation
XSEG(LFF)	Protocol Calculation
XSEG(RFF)	Protocol Calculation
XSEG(LEX)	Protocol Calculation
XSEG(REX)	Protocol Calculation
Base and Conditional Probability Calculations Data	
Base Probabilities	
F0	Protocol Table
P0	Protocol Table
PAF	User data
PA	Protocol Calculation
P(FF)	Protocol Calculation
P(JF)	Protocol Calculation
P(EX)	Protocol Calculation
Leak Conditional Probabilities	
PC(L)	0.8
PC(LIG)	0.3
PC(FIG)	0.99
PC(JF)	0.98
PC(FF)	0.01
PC(EIG)	0.01
Rupture Conditional Probabilities	
PC(R)	0.2
PC(RIG)	0.45
PC(FIG)	0.99
PC(JF)	0.98
PC(FF)	0.01
PC(EIG)	0.01
Conditional Probability of Impacts	
PCI(LJF)	Protocol Calculation
PCI(RJF)	Protocol Calculation
PCI(LFF)	Protocol Calculation
PCI(RFF)	Protocol Calculation
PCI(LEX)	Protocol Calculation
PCI(REX)	Protocol Calculation
Maximum Fatality Probability for XSEG	
PF(LJF)	Protocol Calculation
PF(RJF)	Protocol Calculation
PF(LFF)	Protocol Calculation
PF(RFF)	Protocol Calculation
PF(LEX)	Protocol Calculation
PF(REX)	Protocol Calculation

TIR CALCULATIONS - BEGIN ZONE 1 - FRONT PROPERTY LINE

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	4	inches
Pressure	720	psig
R0	313	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	1418	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

1. These instruction boxes apply to Worksheets TIR1, 2, 3, and 4.
2. Enter the Input Data indicated for the case under analysis.
3. Enter the XSEG values from Worksheet "XSEG Calculations".
4. In the table below enter the F0 data for the appropriate type pf pipeline from the failure frequency data in the Protocol, Chapter 4.
5.Enter a value for the other green cell variables as explained in Chapter 4.

Base and Conditional Probability Calculations							
Base		**Leak**		**Rupture**		**Exposure**	
F0	1.2E-04	**PC(L)**	0.8	**PC(R)**	0.2	**PC(OCC)**	0.16
P0	1.2E-04	**PC(LIG)**	0.3	**PC(RIG)**	0.45	**PC(OUT)**	0.25
PAF	1.0	**PC(FIG)**	0.99	**PC(FIG)**	0.99		
PA	1.2E-04	**PC(JF)**	0.98	**PC(JF)**	0.98		
		PC(FF)	0.01	**PC(FF)**	0.01		
		PC(EIG)	0.01	**PC(EIG)**	0.01		
Calculated Values:							
PA(LJF)	0.0E+00	**PCI(LJF)**	0.233	**PCI(RJF)**	0.087		
PA(RJF)	0.0E+00	**PCI(LFF)**	0.002	**PCI(RFF)**	0.001		
PA(LFF)	0.0E+00	**PCI(LEX)**	0.002	**PCI(REX)**	0.001	**PC(EXPO)**	0.04
PA(RFF)	3.2E-05						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				**Values**			
PC(LJF) =	**PA(LJF) x**	**PCI(LJF) x**	**PC(EXPO) =**	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	**PA(RJF) x**	**PCI(RJF) x**	**PC(EXPO) =**	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	**PA(LFF) x**	**PCI(LFF) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	**PA(RFF) x**	**PCI(RFF) x**	**PC(EXPO) =**	3.2E-05	0.001	0.040	**1.1E-09**
PC(LEX) =	**PA(LEX) x**	**PCI(LEX) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	**PA(REX) x**	**PCI(REX) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

IR Calculation				
	MAX PF(X)		**PC(X)**	**IR(X)**
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.00E+00**
IR(LFF) =	0.00		0.0E+00	**0.00E+00**
IR(RFF) =	1.00		1.1E-09	**1.15E-09**
IR(LEX) =	0.00		0.0E+00	**0.00E+00**
IR(REX) =	0.00		0.0E+00	**0.00E+00**
TOTAL INDIVIDUAL RISK, TIR				**1.1E-09**
CDE INDIVIDUAL RISK CRITERION, IRC				**1.0E-06**
TIR/IRC RATIO				**0.00**
PROTOCOL TIR INDICATOR RATIO				**0.40**

6. Enter the maximum fatality probability that corresponds to the maximum impact for each hazard type according to the Protocol, Chapter 4.

TIR CALCULATIONS - END ZONE 1 - BEGIN ZONE 2

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	4	inches
Pressure	720	psig
R0	645	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	859	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

Base and Conditional Probability Calculations							
Base		Leak		Rupture		Exposure	
F0	1.2E-04	PC(L)	0.8	PC(R)	0.2	PC(OCC)	0.16
P0	1.2E-04	PC(LIG)	0.3	PC(RIG)	0.45	PC(OUT)	0.25
PAF	1.0	PC(FIG)	0.99	PC(FIG)	0.99		
PA	1.2E-04	PC(JF)	0.98	PC(JF)	0.98		
		PC(FF)	0.01	PC(FF)	0.01		
		PC(EIG)	0.01	PC(EIG)	0.01		
PA(LJF)	0.0E+00	PCI(LJF)	0.233	PCI(RJF)	0.087		
PA(RJF)	0.0E+00	PCI(LFF)	0.002	PCI(RFF)	0.001		
PA(LFF)	0.0E+00	PCI(LEX)	0.002	PCI(REX)	0.001	PC(EXPO)	0.04
PA(RFF)	2.0E-05						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				Values			
PC(LJF) =	PA(LJF) x	PCI(LJF) x	PC(EXPO) =	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	PA(RJF) x	PCI(RJF) x	PC(EXPO) =	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	PA(LFF) x	PCI(LFF) x	PC(EXPO) =	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	PA(RFF) x	PCI(RFF) x	PC(EXPO) =	2.0E-05	0.001	0.040	**7.0E-10**
PC(LEX) =	PA(LEX) x	PCI(LEX) x	PC(EXPO) =	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	PA(REX) x	PCI(REX) x	PC(EXPO) =	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

IR Calculation				
	MAX PF(X)		PC(X)	IR(X)
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.0E+00**
IR(LFF) =	0.00		0.0E+00	**0.0E+00**
IR(RFF) =	1.00		7.0E-10	**7.0E-10**
IR(LEX) =	0.00		0.0E+00	**0.0E+00**
IR(REX) =	0.00		0.0E+00	**0.0E+00**
TIR2 =				**7.0E-10**

TIR CALCULATIONS - END ZONE 2 - BEGIN ZONE 3

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	4	inches
Pressure	720	psig
R0	975	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	0	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

Base and Conditional Probability Calculations							
Base		**Leak**		**Rupture**		**Exposure**	
F0	1.2E-04	**PC(L)**	0.8	**PC(R)**	0.2	**PC(OCC)**	0.16
P0	1.2E-04	**PC(LIG)**	0.3	**PC(RIG)**	0.45	**PC(OUT)**	0.25
PAF	1.0	**PC(FIG)**	0.99	**PC(FIG)**	0.99		
PA	1.2E-04	**PC(JF)**	0.98	**PC(JF)**	0.98		
		PC(FF)	0.01	**PC(FF)**	0.01		
		PC(EIG)	0.01	**PC(EIG)**	0.01		
PA(LJF)	0.0E+00	**PCI(LJF)**	0.233	**PCI(RJF)**	0.087		
PA(RJF)	0.0E+00	**PCI(LFF)**	0.002	**PCI(RFF)**	0.001		
PA(LFF)	0.0E+00	**PCI(LEX)**	0.002	**PCI(REX)**	0.001	**PC(EXPO)**	0.04
PA(RFF)	0.0E+00						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				**Values**			
PC(LJF) =	**PA(LJF) x**	**PCI(LJF) x**	**PC(EXPO) =**	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	**PA(RJF) x**	**PCI(RJF) x**	**PC(EXPO) =**	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	**PA(LFF) x**	**PCI(LFF) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	**PA(RFF) x**	**PCI(RFF) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**
PC(LEX) =	**PA(LEX) x**	**PCI(LEX) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	**PA(REX) x**	**PCI(REX) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

IR Calculation				
	MAX PF(X)		**PC(X)**	**IR(X)**
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.0E+00**
IR(LFF) =	0.00		0.0E+00	**0.0E+00**
IR(RFF) =	0.00		0.0E+00	**0.0E+00**
IR(LEX) =	0.00		0.0E+00	**0.0E+00**
IR(REX) =	0.00		0.0E+00	**0.0E+00**
TIR3 =				**0.0E+00**

TIR CALCULATIONS - END ZONE 3 - BACK PROPERTY LINE

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	4	inches
Pressure	720	psig
R0	1305	ft

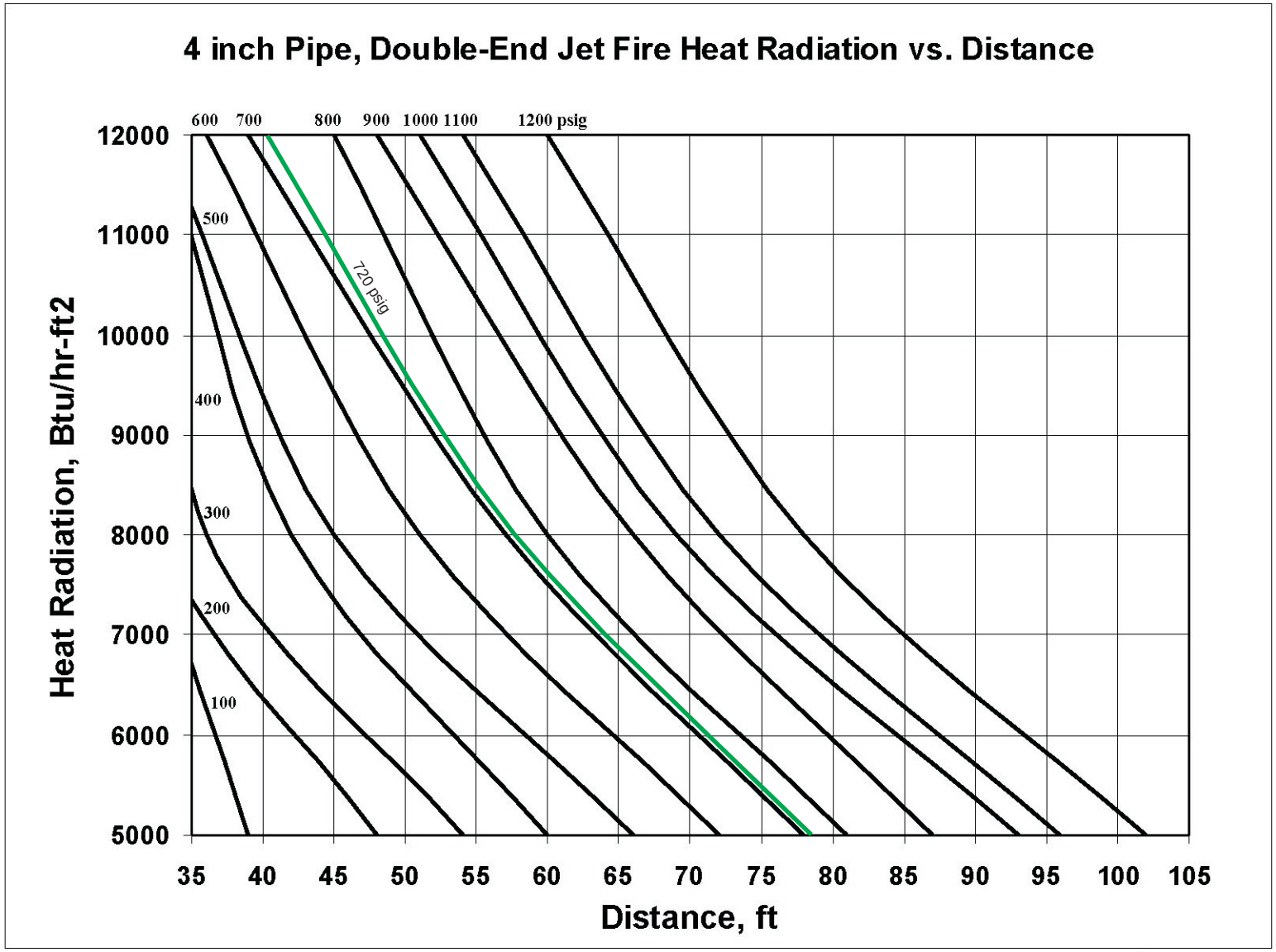
XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	0	ft
XSEG(LFF)	0	ft
XSEG(RFF)	0	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

Base and Conditional Probability Calculations							
Base		**Leak**		**Rupture**		**Exposure**	
F0	1.2E-04	**PC(L)**	0.8	**PC(R)**	0.2	**PC(OCC)**	0.16
P0	1.2E-04	**PC(LIG)**	0.3	**PC(RIG)**	0.45	**PC(OUT)**	0.25
PAF	1.0	**PC(FIG)**	0.99	**PC(FIG)**	0.99		
PA	1.2E-04	**PC(JF)**	0.98	**PC(JF)**	0.98		
		PC(FF)	0.01	**PC(FF)**	0.01		
		PC(EIG)	0.01	**PC(EIG)**	0.01		
PA(LJF)	0.0E+00	**PCI(LJF)**	0.233	**PCI(RJF)**	0.087		
PA(RJF)	0.0E+00	**PCI(LFF)**	0.002	**PCI(RFF)**	0.001		
PA(LFF)	0.0E+00	**PCI(LEX)**	0.002	**PCI(REX)**	0.001	**PC(EXPO)**	0.04
PA(RFF)	0.0E+00						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						

Impact Probability Calculations							
Probability Term				**Values**			
PC(LJF) =	**PA(LJF) x**	**PCI(LJF) x**	**PC(EXPO) =**	0.0E+00	0.23	0.040	**0.0E+00**
PC(RJF) =	**PA(RJF) x**	**PCI(RJF) x**	**PC(EXPO) =**	0.0E+00	0.09	0.040	**0.0E+00**
PC(LFF) =	**PA(LFF) x**	**PCI(LFF) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(RFF) =	**PA(RFF) x**	**PCI(RFF) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**
PC(LEX) =	**PA(LEX) x**	**PCI(LEX) x**	**PC(EXPO) =**	0.0E+00	0.002	0.040	**0.0E+00**
PC(REX) =	**PA(REX) x**	**PCI(REX) x**	**PC(EXPO) =**	0.0E+00	0.001	0.040	**0.0E+00**

Based on data from impact distance figures in Section 4.6 and mortality figures in Section 4.5, enter the maximum impact probability at receptor location for each hazard in MAX PF(X) column.

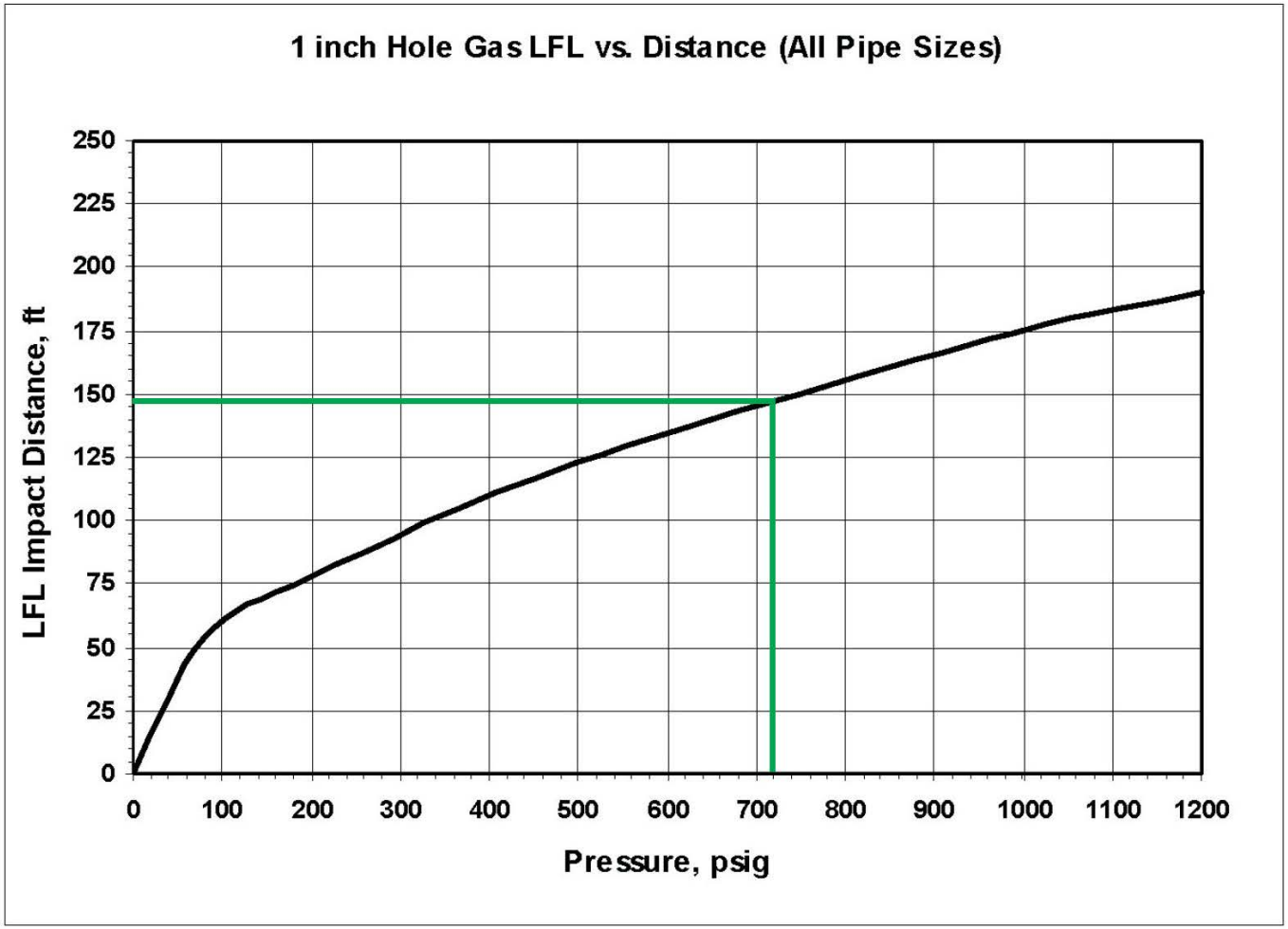
IR Calculation				
	MAX PF(X)		**PC(X)**	**IR(X)**
IR(LJF) =	0.00		0.0E+00	**0.0E+00**
IR(RJF) =	0.00		0.0E+00	**0.0E+00**
IR(LFF) =	0.00		0.0E+00	**0.0E+00**
IR(RFF) =	0.00		0.0E+00	**0.0E+00**
IR(LEX) =	0.00		0.0E+00	**0.0E+00**
IR(REX) =	0.00		0.0E+00	**0.0E+00**
TIR4 =				**0.0E+00**



Note: Graph curves from left to right apply for pressures of 100, 200, 300, 400, 500, 600, 700,800, 900, 1000, 1100, and 1200 psig.

Figure 4-6. Natural Gas Release Rupture Jet Fire Heat Radiation Impact, 4-inch Pipe

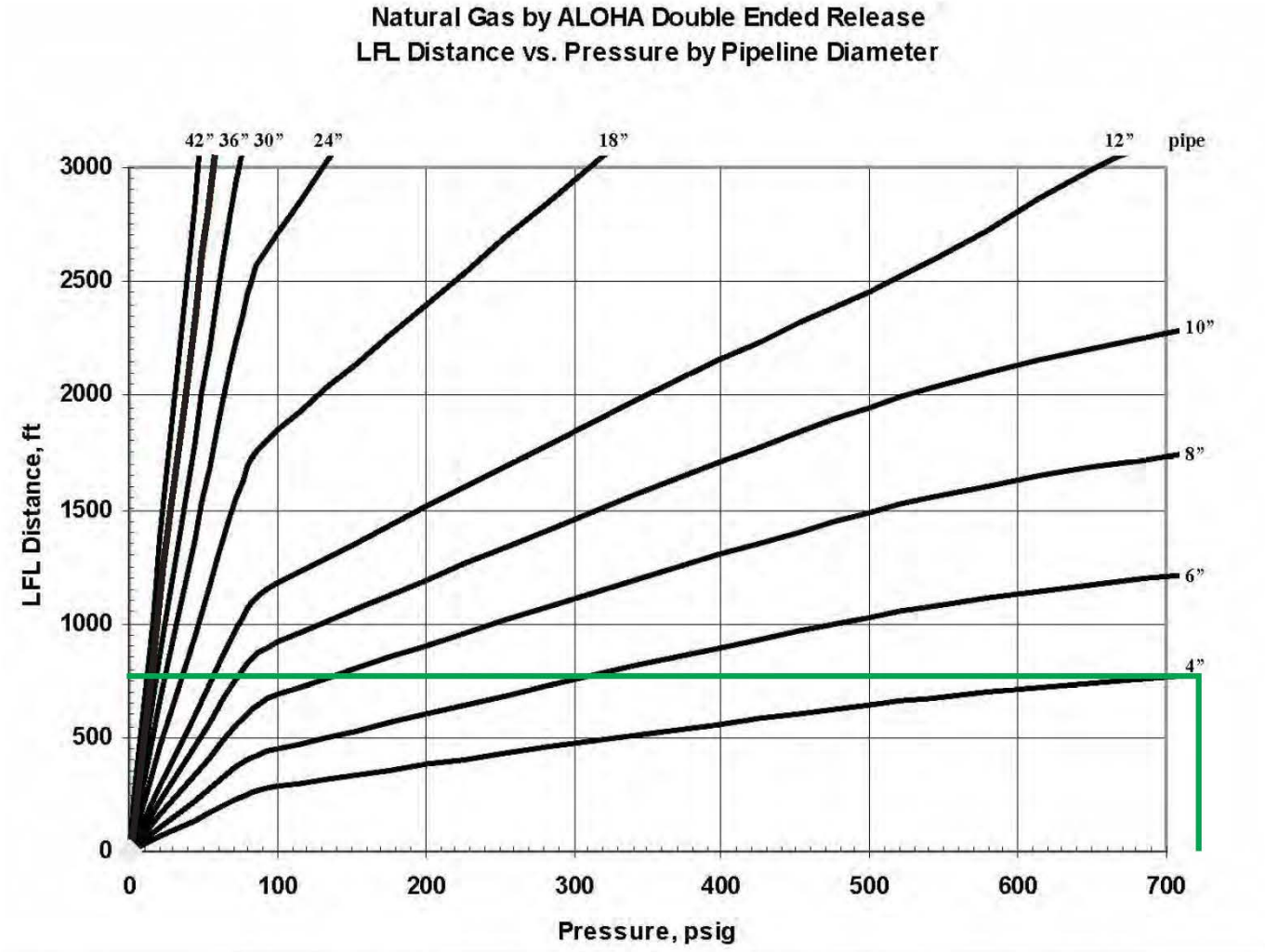
78 feet for 720 psig
Heat Radiation at 313 feet <5000 Btu/hr-ft^2



Note: The 1.0 inch hole leak in a pipeline was simulated in ALOHA using a 1.0 inch hole in a vessel wall. This is because the tank wall is considered to be more representative of a leak in a pipe wall than a 1.0 inch pipe release that reflects a release from the end of a long tube. The vessel wall simulation yields a greater impact distance. Note: ALOHA does not account for the buoyancy of methane or natural gas so that modeled impact distances might also be greater than would be encountered with the actual substances, other conditions being equal.

Figure 4-16. Natural Gas Leak (1-inch hole) LFL Impact Distance

LFL = 147 feet



Note: ALOHA does not account for the buoyancy of methane or natural gas so that modeled impact distances might also be greater than would be encountered with the actual substances, other conditions being equal.

Figure 4-17. Natural Gas Rupture LFL Impact Distance

LFL = 775 feet

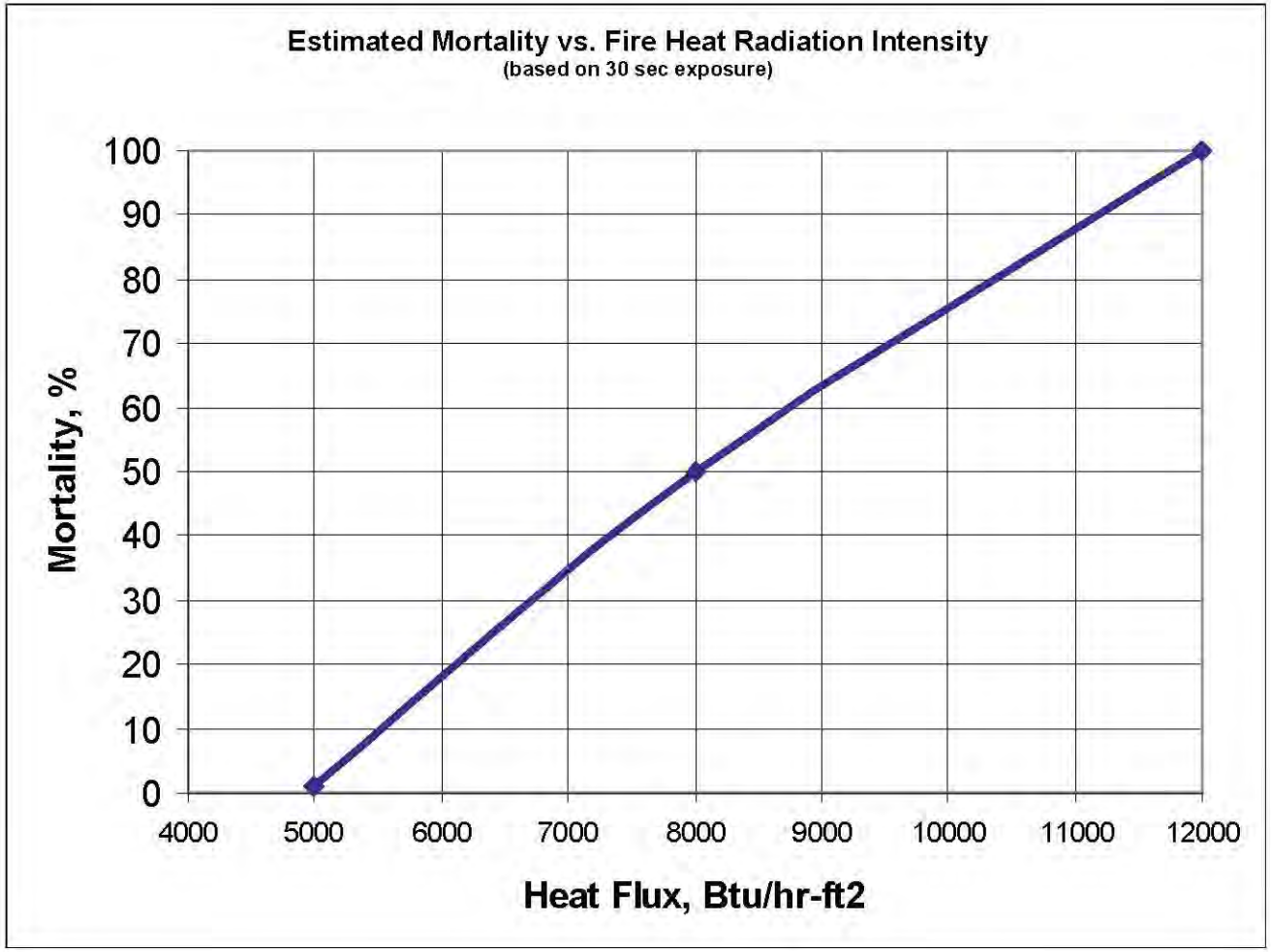


Figure 4-4. Estimated Mortality from Fire Heat Radiation

Mortality = 0%

APPENDIX E

INFORMATION PROVIDED BY CITY OF MADERA

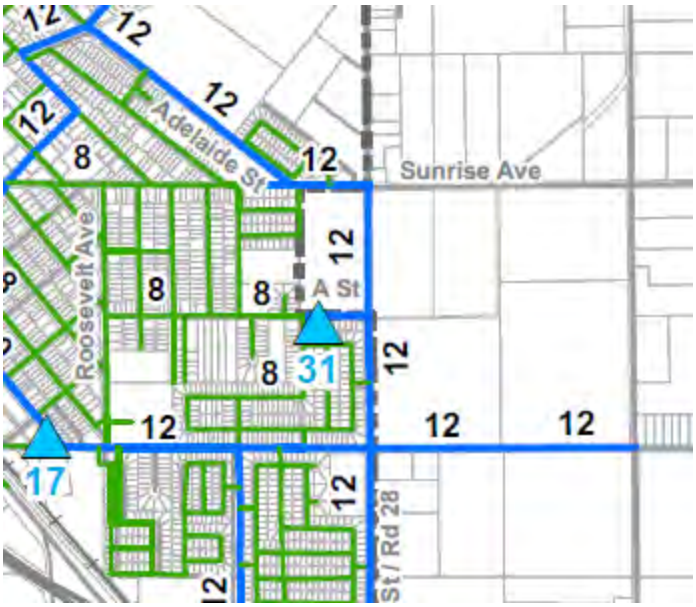
From:	Keith Helmuth
To:	Jackie House
Cc:	Danny Martin
Subject:	FW: Request for Water Pipeline Information - Madera Unified School District Proposed New Elementary School Site
Date:	Thursday, November 05, 2015 3:43:31 PM
Attachments:	image001.png Madera Unified School District Project Site Location.pdf High Volume Water Pipeline Questionnaire.doc

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Ms. House,

I have completed the tables to the degree I can within Engineering. It is possible that Public Works can complete the remaining questions they are copied on this email). If they cannot complete some questions that deal with pressure or throughput, I would need to put you in touch with the consultant responsible for the water system model. Unfortunately, if that level of information must be obtained from the consultant, you may need to hire them as a review of the modeling software would need to be conducted.

Danny, Please answer the remaining questions if possible.



Please review. I'm not sure whether you need an answer to every question though I realize that is the expectancy of this exercise.

Keith Helmuth, P.E.
City Engineer
City of Madera
205 W. Fourth Street
Madera, CA 93637

559-661-5418

QUESTIONNAIRE FOR HIGH-VOLUME WATER PIPELINE RISK ANALYSIS

SUBJECT PROPERTY: Madera Unified School District,
Northwest corner of A Street and Tozer Street (Road 28), Madera

INFORMATION REQUEST:

1. Pipeline ID and type (line #, distribution/transmission): _385 (Current GIS)_____
2. Pipeline location (describe right-of-way/alignment) A Street – Mariposa to Tozer -60' Ultimate
3. Date of Installation (year): Record Not Available_____
4. Pipeline diameter (inches): 12"_____
5. Construction Material/ Wall Thickness (inches): PVC_____
6. Depth of Burial (feet) in vicinity of proposed school: For time frame installed. Practical Min Depth is 3'
7. Operating Pressure (psig): _____
8. Throughput (cfs/gpm): _____
9. Distance to Nearest Pump Stations: Well at A Street and Mariposa _____
10. Distance to Nearest Shutoff Valves: Well and valve at A and Mariposa, valve at A and Tozer
11. Shutoff Valve Type (automated or manual?): _Manual_____
12. Estimated time to full shutoff in the event of leak/rupture: _____
13. Standard Safety and Inspection Practices: _____
14. Inspection/Testing Results (method, date, etc.): _____
15. History of Incidents, Accidental Releases: _____
16. Estimated volume that could be released in the event of pipeline failure: _____

QUESTIONNAIRE COMPLETED BY:

Name: ____Keith Helmuth_____ Signature: _____

Title: _____City Engineer_____ Date: _11-5-15_____Phone: 559-661-5418

Company: City of Madera _____ Email: khelmuth@Cityofmadera.com_____

RETURN TO: J House Environmental, 371 Nevada Street #7366, Auburn, CA 95604

Ph 530-885-7801, fax 530-885-7895, jhouse@jhouseenvironmental.com

QUESTIONNAIRE FOR HIGH-VOLUME WATER PIPELINE RISK ANALYSIS

SUBJECT PROPERTY: Madera Unified School District,
Northwest corner of A Street and Tozer Street (Road 28), Madera

INFORMATION REQUEST:

1. Pipeline ID and type (line #, distribution/transmission): _383 (Current GIS)_____
2. Pipeline location (describe right-of-way/alignment) Tozer Street – "A" to Sunrise -100' Ultimate
3. Date of Installation (year): Record Not Available_____
4. Pipeline diameter (inches): 12"_____
5. Construction Material/ Wall Thickness (inches): PVC_____
6. Depth of Burial (feet) in vicinity of proposed school: For time frame installed. Practical Min Depth is 3'
7. Operating Pressure (psig): _____
8. Throughput (cfs/gpm): _____
9. Distance to Nearest Pump Stations: Well at A Street and Mariposa _____
10. Distance to Nearest Shutoff Valves: Valve at A and Tozer, At least 2 other valves to isolate this pipe (north of A and west of Tozer)
11. Shutoff Valve Type (automated or manual?): _Manual_____
12. Estimated time to full shutoff in the event of leak/rupture: _____
13. Standard Safety and Inspection Practices: _____
14. Inspection/Testing Results (method, date, etc.): _____
15. History of Incidents, Accidental Releases: _____
16. Estimated volume that could be released in the event of pipeline failure: _____

QUESTIONNAIRE COMPLETED BY:

Name: ____Keith Helmuth_____ Signature: _____

Title: _____City Engineer_____ Date: _11-5-15_____Phone: 559-661-5418

Company: City of Madera _____ Email: khelmuth@Cityofmadera.com_____

RETURN TO: J House Environmental, 371 Nevada Street #7366, Auburn, CA 95604

Ph 530-885-7801, fax 530-885-7895, jhouse@jhouseenvironmental.com

APPENDIX F

MUNICIPAL WATER PIPELINE
CDE STANDARD PIPELINE REPORTING FORMS

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form

Local Educational Agency	
Date	November 16, 2015
Local Educational Agency	Madera Unified School District
Contact	Edward Gonzalez, Superintendent
Telephone Number	559-675-4500
E-mail Address	
Street Address	1902 Howard Road
Department or Mail Drop	
City	Madera
County	Madera
Zip Code	93637

Proposed School Campus Site	
Name	New Elementary School Site
Location Description	Located northwest of intersection of Tozer Street (Road 28) and A Street in Madera, Madera County, California.

Pipeline of Interest	
Operator / Owner	City of Madera - #383; #385
Product Transported	Municipal Water
Pipeline Diameter (inches)	12
Operating Pressure (psig)	Info not available; 45-50 psi typical for municipal systems
Closet Approach to Property Line (or boundary between the usable and unusable portion of the site if the unusable portion faces the pipeline.) (ft)	35 ft to #383; 40 ft to #385

Individual Risk Estimate Result – NOT APPLICABLE						
Type of Analysis (Check One)	**Stage 1 →**		**Stage 2 →**		**Stage 3 →**	
Individual Risk Estimate Value						
Individual Risk Criterion						
IR Significance (check one)	**Significant**					
	Insignificant					

(Continued on next page)

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form
(Continued from previous page)

Population Risk Indicator Result	
Protocol Average IR	
IR Indicator (Average IR / Property Line IR Ratio)	
Population Risk Indicator	

Prevention and Mitigation Recommendations/Implementations *(Add additional sheets with more details as needed.)*

Prevention Measures:

The City of Madera pipelines are operated in accordance with State regulations and industry standards designed to prevent accidental release and ensure public health and safety.

Mitigation Measures:

It is suggested that any emergency plan documents prepared for the project site identify the presence of the pipelines and include an emergency contact list with phone numbers to be used in the event of an incident.

Conclusions/Other Suggestions/Recommendations *(Add more sheets, if needed.)*

The risk analysis indicates that the proposed New Elementary School site would not be expected to be subject to physical impact or significant flood inundation in the event of failure of the subject pipelines. Portions of the project site may be subject to sheet flow runoff in the event of pipeline rupture, however the depth of water would not be expected to exceed 0.5 to 1.0 feet. Therefore, the subject pipelines are not considered to pose an unacceptable safety risk at the proposed school site. To provide an added degree of risk management, it is suggested that any emergency plan documents prepared for the project site identify the presence of the pipelines and include an emergency contact list to be used in the event of an incident.

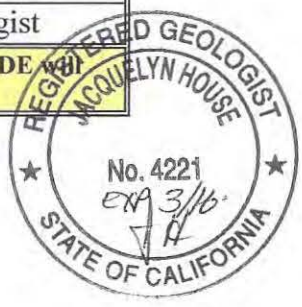
Certification and Signatures of Risk Analyst(s)

This analysis was conducted according to the 2007 CDE Protocol except as noted. All modifications within the Stage 2 framework, and Stage 3 analyses and exceptions to the data and processes established in the 2007 CDE Protocol, if any, were based upon my professional opinion and in a manner consistent with the standards of care and skill ordinarily exercised by professionals working on similar projects.

I certify that the estimated risk levels were derived based upon the 2007 CDE Protocol, unless otherwise noted, and that these levels demonstrate, within reasonable expectations of uncertainties for such estimates, that the estimated Individual Risk for the school site, as the site was planned at the time of this analysis, including mitigation measures, if any, meets the Individual Risk Criterion stated in the 2007 CDE Protocol, based on the information provided to me.

Printed Name	Signature	Position or Title
Jackie House	Jackie House	Principal Geologist

Notice: In the event that the Individual Risk Criterion could not be met, at the option of the LEA, CDE will still accept a report for review and consultation with the LEA.



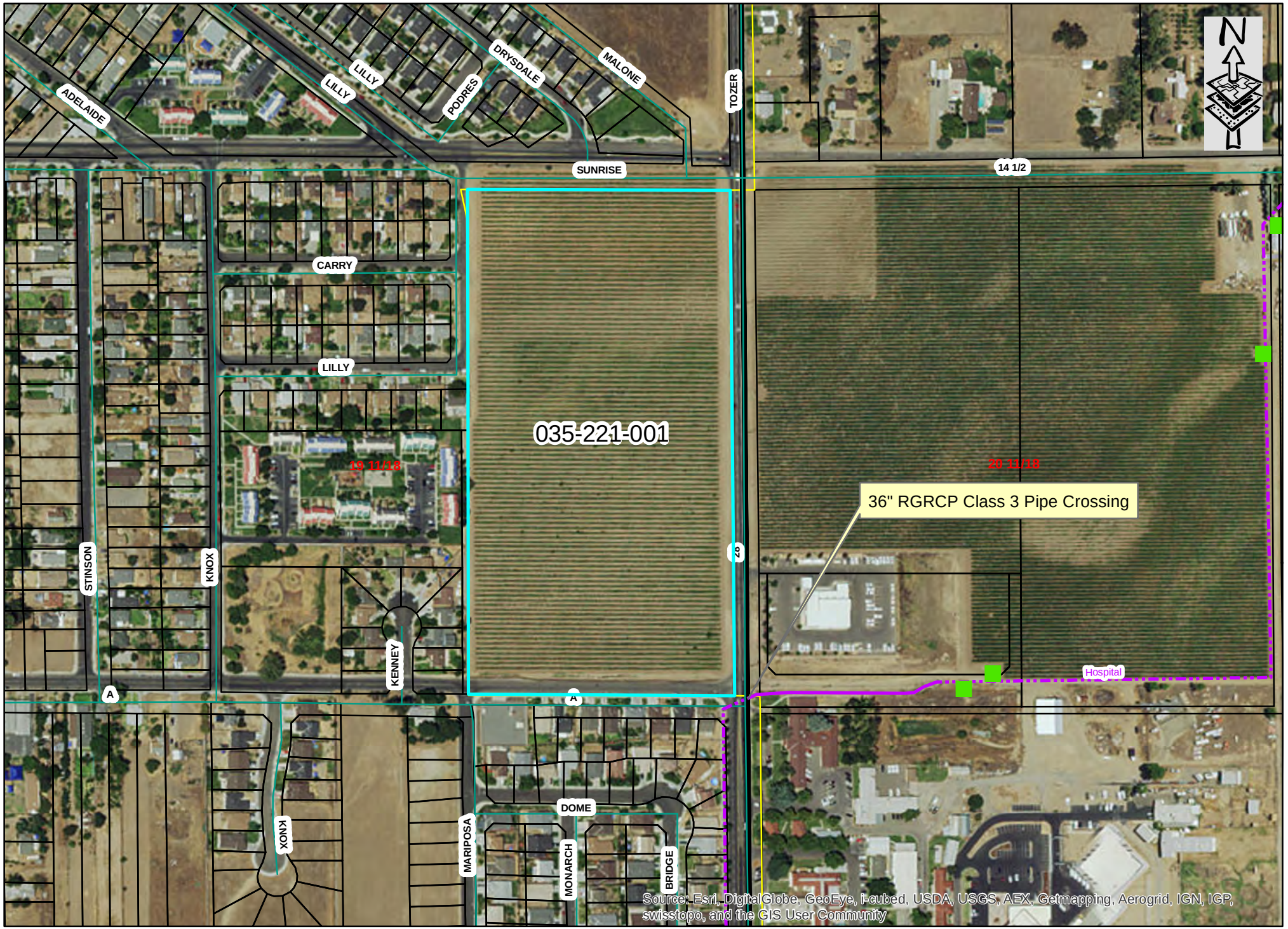
California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 2 - Pipeline Risk Analysis Input Data

Date: November 16, 2015		
Local Educational Agency: Madera Unified School District		
Proposed School Site Name: New Elementary School Site		
Proposed School Estimated Population: Approximately 800		
Product	*Designate by an "X"*	
Natural gas (NG)		
Crude oil		
Gasoline		
Liquefied natural gas (LNG)		
Liquefied petroleum gas (LPG)		
Natural gas liquids (NGL)		
Other refined product (specify)		
Other substance (specify)	X	Water
Pipeline Location Attributes	**Units**	**Value**
Segment length	Ft	
Closest approach to property line	Ft	#383-35'; #385-40'
Closest approach to usable portion of the school site	ft	#383-35'; #385-40'
Land use by class location (49 CFR Part 192)	Class	
Pipeline Attributes		
Diameter	inches	12
Maximum operating pressure	psig	
Average operating pressure	psig	Info not avail; typical municipal is 45-50
Depth of burial	ft	3
Distance to nearest compressor (gas) or pump station (liquid)	miles	
Throughput		
Liquid (enter value, meter, etc.)	gpm	Info not avail
Nearest block valve locations, upstream and downstream of segment of concern		
Above ground components within 1500-ft zone		
Number		
Type		
Pipeline location on terrain gradient relative to school (Designate with an "X" by appropriate description)		
Flat		X
Up gradient		
Down gradient		
"Convoluted"		

APPENDIX G

INFORMATION PROVIDED BY MADERA IRRIGATION DISTRICT

Proposed New Elementary School Site



QUESTIONNAIRE FOR HIGH-VOLUME WATER PIPELINE RISK ANALYSIS

SUBJECT PROPERTY: Madera Unified School District,
Northwest corner of A Street and Tozer Street (Road 28), Madera

INFORMATION REQUEST:

1. Pipeline ID and type (line #, distribution/transmission): Hospital Pipeline
2. Pipeline location (describe right-of-way/alignment) Tozar & A Street
3. Date of Installation (year): June of 2006
4. Pipeline diameter (inches): 36" RGRCP Class III
5. Construction Material/ Wall Thickness (inches): N/A
6. Depth of Burial (feet) in vicinity of proposed school: N/A
7. Operating Pressure (psig): N/A
8. Throughput (cfs/gpm): 15 cfs
9. Distance to Nearest Pump Stations: None
10. Distance to Nearest Shutoff Valves: None
11. Shutoff Valve Type (automated or manual?): None
12. Estimated time to full shutoff in the event of leak/rupture: 2 hours
13. Standard Safety and Inspection Practices: N/A
14. Inspection/Testing Results (method, date, etc.): N/A
15. History of Incidents, Accidental Releases: N/A
16. Estimated volume that could be released in the event of pipeline failure: 15 cfs

QUESTIONNAIRE COMPLETED BY:

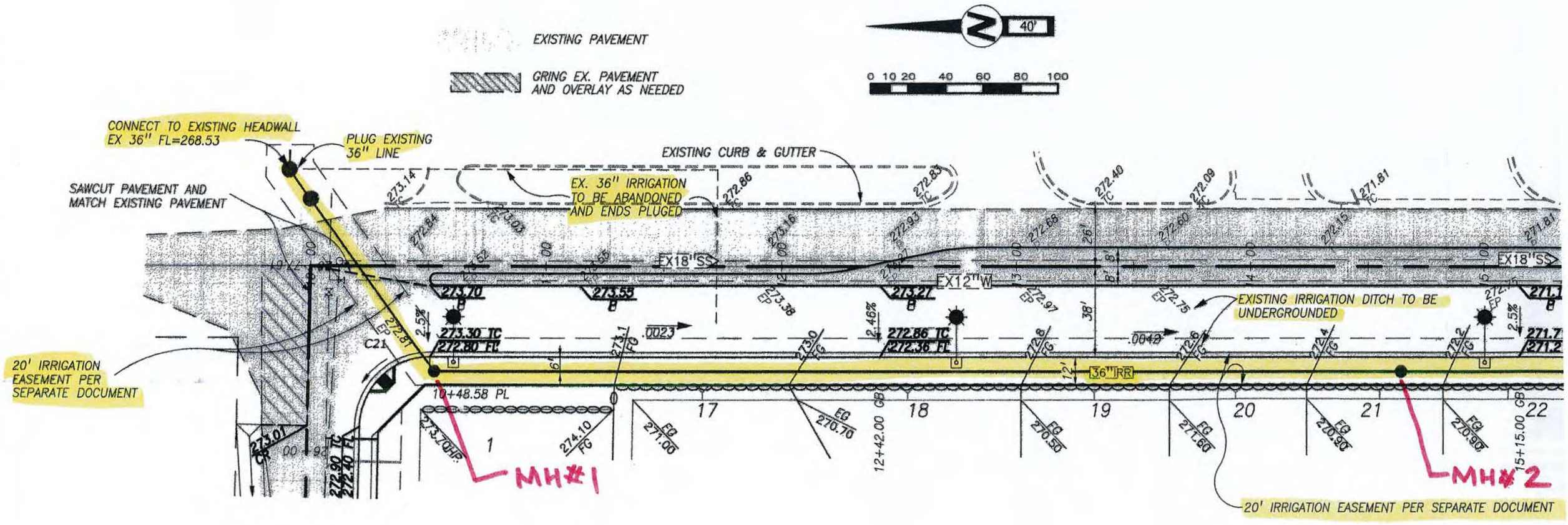
Name: Darren Garcia Signature: 

Title: Engineering Tech 3 Date: 10-26-15 Phone: 559-673-3514

Company: Madera Irrigation District Email: dgarcia@madera-id.org

RETURN TO: J House Environmental, 371 Nevada Street #7366, Auburn, CA 95604

Ph 530-885-7801, fax 530-885-7895, jhouse@jhouseenvironmental.com



SOUTH A STREET

(SEE SHEET 21)

PLAN AND PROFILE

STATION: 10+00.00 TO 16+00.00

TOZER STREET

CATION OF WATER LINE IS APPROXIMATE.
USTMENTS TO EXISTING WATER LINE
BE FIELD FITS. IT IS THE CONTRACTORS
SPONSIBILITY TO INFORM THE ENGINEER
EDIATELY OF AND CHANGES TO EXISTING
ITIES.

273.6 RIM(IRR)
10+00.00 ℄ A STREET
273.3 RIM(IRR)
273.60 RIM(SS)
272.8 RIM(IRR)
10+48.58 RETURN FL/PL
12+42.00 GB
EXISTING CONCRETE HEADWALLS (TO BE REMOVED)
.0023
EXISTING GROUND @ CENTERLINE
PROPOSED TOP OF CURB (W)
.0042
271.9 RIM(IRR)
EXISTING
10+07.88 EX. WATER TEE
EXISTING IRRIGATION XING TO BE ABANDONED IN-PLACE AND PLUGED AT ENDS OF PIPE
260.76± EX.36"IR
3' MIN.
EXISTING TOE OF IRR

15 LF 36" RGRCP CLASS III IRRIGATION S=.3153

268.33 36"IRR(SW)

638 LF EX. 12" WATER

9+90.82 IRRIGATION MANHOLE CUT = 5.02'

265.60 EX.8"SS(W)

88 LF 36" RGRCP CLASS III IRRIGATION S=.0034

411 LF 36" RGRCP CLASS III IRRIGATION S=.0004

263.80 36"IRR(SW)
263.50 36"IRR(S)
263.60 36"IRR(NE)
263.46 36"IRR

10+01.22 IRRIGATION MANHOLE CUT = 9.5'

10+53.20 IRRIGATION MANHOLE CUT = 8.70'

14+64.00 IRRIGATION MANHOLE CUT = 8.30'

260.76 EX.18"SS(S)

679 LF EX. 18" SEWER

APPENDIX H

IRRIGATION WATER PIPELINE
CDE STANDARD PIPELINE REPORTING FORMS

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form

Local Educational Agency	
Date	November 16, 2015
Local Educational Agency	Madera Unified School District
Contact	Edward Gonzalez, Superintendent
Telephone Number	559-675-4500
E-mail Address	
Street Address	1902 Howard Road
Department or Mail Drop	
City	Madera
County	Madera
Zip Code	93637

Proposed School Campus Site	
Name	New Elementary School Site
Location Description	Located northwest of intersection of Tozer Street (Road 28) and A Street in Madera, Madera County, California.

Pipeline of Interest	
Operator / Owner	Madera Irrigation District
Product Transported	Irrigation Water
Pipeline Diameter (inches)	36
Operating Pressure (psig)	Gravity fed; not pressurized
Closet Approach to Property Line (or boundary between the usable and unusable portion of the site if the unusable portion faces the pipeline.) (ft)	70

Individual Risk Estimate Result – NOT APPLICABLE						
Type of Analysis (Check One)	**Stage 1 →**		**Stage 2 →**		**Stage 3 →**	
Individual Risk Estimate Value						
Individual Risk Criterion						
IR Significance (check one)	**Significant**					
	Insignificant					

(Continued on next page)

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 1 – Administrative, Summary, and Signature Form
(Continued from previous page)

Population Risk Indicator Result	
Protocol Average IR	
IR Indicator (Average IR / Property Line IR Ratio)	
Population Risk Indicator	

Prevention and Mitigation Recommendations/Implementations *(Add additional sheets with more details as needed.)*

Prevention Measures:

The Madera Irrigation District pipeline is operated in accordance with State regulations and industry standards designed to prevent accidental release and ensure public health and safety.

Mitigation Measures:

It is suggested that any emergency plan documents prepared for the project site identify the presence of the pipeline and include an emergency contact list with phone numbers to be used in the event of an incident.

Conclusions/Other Suggestions/Recommendations *(Add more sheets, if needed.)*

The risk analysis indicates that the proposed New Elementary School site would not be expected to be subject to physical impact, sheet flow runoff, or significant flood inundation in the event of failure of the subject pipeline. The subject pipeline is not considered to pose an unacceptable safety risk at the proposed school site. To provide an added degree of risk management, it is suggested that any emergency plan documents prepared for the project site identify the presence of the pipeline and include an emergency contact list to be used in the event of an incident.

Certification and Signatures of Risk Analyst(s)

This analysis was conducted according to the 2007 CDE Protocol except as noted. All modifications within the Stage 2 framework, and Stage 3 analyses and exceptions to the data and processes established in the 2007 CDE Protocol, if any, were based upon my professional opinion and in a manner consistent with the standards of care and skill ordinarily exercised by professionals working on similar projects.

I certify that the estimated risk levels were derived based upon the 2007 CDE Protocol, unless otherwise noted, and that these levels demonstrate, within reasonable expectations of uncertainties for such estimates, that the estimated Individual Risk for the school site, as the site was planned at the time of this analysis, including mitigation measures, if any, meets the Individual Risk Criterion stated in the 2007 CDE Protocol, based on the information provided to me.

Printed Name	Signature	Position or Title
Jackie House	Jackie House	Principal Geologist

Notice: In the event that the Individual Risk Criterion could not be met, at the option of the LEA, CDE will still accept a report for review and consultation with the LEA.

REGISTERED GEOLOGIST
JACQUELYN HOUSE
No. 4221
EXP 3/16
STATE OF CALIFORNIA

California Department of Education
CCR, Title 5, Pipeline Risk Analysis Report
Form 2 - Pipeline Risk Analysis Input Data

Date: November 16, 2015		
Local Educational Agency: Madera Unified School District		
Proposed School Site Name: New Elementary School Site		
Proposed School Estimated Population: Approximately 800		
Product	*Designate by an "X"*	
Natural gas (NG)		
Crude oil		
Gasoline		
Liquefied natural gas (LNG)		
Liquefied petroleum gas (LPG)		
Natural gas liquids (NGL)		
Other refined product (specify)		
Other substance (specify)	X	Water
Pipeline Location Attributes	**Units**	**Value**
Segment length	Ft	
Closest approach to property line	Ft	70
Closest approach to usable portion of the school site	ft	70
Land use by class location (49 CFR Part 192)	Class	
Pipeline Attributes		
Diameter	inches	36
Maximum operating pressure	psig	Gravity fed, not pressurized
Average operating pressure	psig	Gravity fed, not pressurized
Depth of burial	ft	
Distance to nearest compressor (gas) or pump station (liquid)	miles	
Throughput		
Liquid (enter value, meter, etc.)	gpm	6732 (15 cfs)
Nearest block valve locations, upstream and downstream of segment of concern		
Above ground components within 1500-ft zone		
Number		
Type		
Pipeline location on terrain gradient relative to school (Designate with an "X" by appropriate description)		
Flat		X
Up gradient		
Down gradient		
"Convoluted"		

Return to Agenda

REPORT TO CITY COUNCIL

Approved by:

Department Director

City Administrator

Council Meeting of March 16, 2016

Agenda Number: C-2

SUBJECT: Public Hearing and Consideration of a Resolution of the City Council Confirming Special Assessments for Delinquent Administrative Fines

RECOMMENDATION: That the City Council of the City of Madera adopt a resolution confirming delinquent administrative fines for the purpose of recording liens against property to recover such delinquent fines.

SUMMARY: On or about March 2016, while pursuing collections actions for the City of Madera's Code Enforcement department, it was determined that the citations issued in relation to the several properties located in the City of Madera, and attached as Exhibit A to the Resolution, could be collected through the City's special assessment procedure. As such, the homeowners were notified by first class mail that on March 16, 2016, a public hearing would be held at 6:00 pm in the City Hall Council Chambers to confirm the delinquent assessments.

DISCUSSION: Madera Municipal Code Section 1-9.11 allows the City Council of the City of Madera to confirm the amount of delinquent fines, and authorizes the City Administrator to place liens on the properties, which may then be turned over to the County Tax Assessor for placement on the property tax roll for collection.

FINANCIAL IMPACT: There is no direct impact to the General Fund from this action.

VISION AND ACTION PLAN: This action is not specifically addressed in the Vision Plan.

RESOLUTION NO.

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA CONFIRMING SPECIAL ASSESSMENTS FOR DELINQUENT ADMINISTRATIVE FINES.

WHEREAS, the City of Madera has identified property against which administrative citations have been issued imposing fines which remain unpaid and are now delinquent, which properties are identified in Exhibit "A" which is attached hereto and incorporated by reference; and

WHEREAS, the City of Madera has provided notice of the public hearing to confirm special assessments for the delinquent fine amounts to the property owners in compliance with Section 1-9.09 of the Madera Municipal Code; and

WHEREAS, the City Council of the City of Madera has conducted a public hearing to confirm special assessments for the delinquent citation amounts in the attached Exhibit "A", in accordance with the Madera Municipal Code.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY, finds orders, and resolves as follows:

1. The above recitals are true and correct.
2. The amounts of the special assessments for delinquent fines against the properties identified in Exhibit "A" are hereby confirmed.
3. The City Administrator is authorized to cause a Notice of Lien for each of the respective properties to be recorded with the County Recorder and thereafter cause a copy of the Notice of Lien to be provided to the County Tax Assessor for inclusion in the next regular tax bill.
4. This resolution is effective immediately upon adoption.

****

EXHIBIT "A"

Assessor's Parcel No.	Property Location	Delinquent Amount
006-494-014	1000 Harbor Court	$5,116.67
012-043-013	127 Santa Bonita Street	$1,100.00

Return to Agenda

Report to City Council

Council Meeting of March 16, 2016
Agenda Item Number C-3

Approved by:

Department Director

City Administrator

Second Reading and Consideration of Adoption of an Ordinance Amending Subsection E of §2-2.305 of Title II of the Madera Municipal Code Relating to Civil Service and Exceptions to the Competitive Service

RECOMMENDED ACTION

It is recommended Council adopt the ordinance amending the exceptions to the competitive service within the Madera Municipal Code.

SITUATION

As part of the 2015-16 mid-year budget, staff recommended creation of a Communications Manager position that would be at will and report directly to the City Administrator. In order for the position to be excepted from Competitive Service and be classified as at will, the position must be reflected in the Municipal Code as such. Additionally, staff is recommending some basic cleanup since the last update to this code section in 2009.

The proposed ordinance was introduced at the regularly scheduled City Council meeting held on March 2, 2016.

FISCAL IMPACT

Amendment of the Municipal Code does not create a fiscal impact.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN

Amendments to the Municipal Code relative to competitive service are not addressed in the vision or action plan; the requested action is also not in conflict with any of the actions or goals contained in that plan.

ORDINANCE NO. _____ C.S.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA AMENDING SUBSECTION E OF §2-2.305 OF TITLE II OF THE MADERA MUNICIPAL CODE RELATING TO CIVIL SERVICE AND EXCEPTIONS TO THE COMPETITIVE SERVICE

THE COUNCIL OF THE CITY OF MADERA DOES ORDAIN AS FOLLOWS:

SECTION 1. Subsection E of §2-2.305 of Title II of the Madera Municipal Code is amended to read as follows:

(E) The City Administrator, Police Chief, Golf Course Superintendent, ~~Director of Finance/Treasurer~~[Director of Financial Services], City Attorney and attorney subordinates, if any, City Clerk, City Engineer, Director of Community Development, Public Works Operations Director, Director of Parks and Community Services, Planning Manager, Director of Human Resources, Executive Director [of the Successor Agency to the Former Madera] Redevelopment Agency, Director of Administrative Services, Chief Building Official, Grant Administrator, Information Services Manager, [Communications Manager] and Neighborhood Preservation Manager.

SECTION 2. If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared unconstitutional or void for any other reason.

SECTION 3. This Ordinance shall be effective and of full force and effect at 12:01 a.m. on the thirty-first day after its passage.

****

Return to Agenda

REPORT TO CITY COUNCIL

Approved by:

Sonia Alvarez
City Clerk

City Administrator

Council Meeting of: 3/16/16

Agenda Number: C-4

SUBJECT:
Public Hearing and Consideration of a Resolution Nominating a Council Member as a Candidate for Appointment to the San Joaquin Valley Air Pollution Control District Governing Board

RECOMMENDATION:
Staff requests that Council, after consideration of the information presented, hold a public hearing and nominate a candidate, by resolution, to the San Joaquin Valley Air Pollution Control District Special City Selection Committee (Committee) for consideration of appointment to the San Joaquin Valley Air Pollution Control District (District) Governing Board. The resolution provided contains blank spaces to be filled in with the nominee information pursuant to Council's motion for action.

SUMMARY:
The City received a letter from the South San Joaquin Valley Division of the League of California Cities. The letter advised of a current vacancy on the District's Governing Board and included information on the process for filling the vacancy. See Exhibit A.

DISCUSSION:
There is currently a vacancy on the San Joaquin Valley Air Pollution Control District (District) Governing Board to be filled by a Council Member from a small city (population under 100,000) in Madera County or Kings County. Appointments to the District's Governing Board are made by the District's Special City Selection Committee. Eligible cities are asked to nominate one candidate from the following list of applicants. Candidate applications are attached as Exhibit B.

Mayor Waseem Ahmed, City of Chowchilla
Council Member David Ayers, City of Hanford
Council Member Andrew Medellin, City of Madera
Council Member William Oliver, City of Madera
Council Member Derek Robinson, City of Madera

Staff requests that the Council consider the information provided, hold a public hearing, and nominate a candidate, by resolution, for consideration by the Committee for appointment to the San Joaquin Valley Air Pollution Control District Governing Board. The resolution provided contains blank spaces to be filled in with the nominee information pursuant to Council's motion for action.

FINANCIAL IMPACT:
No financial impact.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:
The requested action is not specifically addressed in the vision or action plans however, it is consistent with the Vision statement of a Well Planned City and A Safe and Healthy Environment:

Strategy 111 – Local Agencies Share a Vision: Promote greater alignment of local government agencies under a shared community vision.

ATTACHMENT
Resolution
Exhibit A - District Letter
Exhibit B – Candidate Applications

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA, CALIFORNIA NOMINATING A COUNCIL MEMBER TO THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT SPECIAL CITY SELECTION COMMITTEE FOR CONSIDERATION OF APPOINTMENT TO THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT GOVERNING BOARD

WHEREAS, Health and Safety Code Section 40600.5 created a Special City Selection Committee for the appointment of City Council Members to the San Joaquin Valley Air Pollution Control District (District) Governing Board; and,

WHEREAS, there is currently a vacancy on the District Governing Board which is to be filled by a "small" city with less than 100,000 population from the Central Region which consists of Madera, Fresno and Kings Counties; and,

WHEREAS, there can only be one city representative on the Governing Board from each county and there is already a city representative from Fresno County and, the remaining eligible cities to fill this vacancy are "small" cities from Madera and Kings Counties; and,

WHEREAS, the Committee has adopted procedures for soliciting applications from eligible Council Members, and having eligible cities nominate an individual from interested applicants to the Committee, for consideration of appointment; and,

WHEREAS, in selecting the nominee for appointment by the Committee to the District Governing Board, the City Council considered the application materials from the eligible candidates; and

WHEREAS, the vote to select a nominee took place as an item on the publicly noticed agenda and was discussed during the normal City Council meeting with time for public comment.

NOW, THEREFORE, BE IT RESOLVED, THE CITY COUNCIL OF THE CITY OF MADERA does hereby resolve, find and order as follows:

1. The above recitals are true and correct.

2. The City Council of the City of Madera nominates City of _____ Council Member _____ as its recommended candidate for appointment to the District Governing Board.

3. The City Clerk is directed to forward a copy of this resolution to the San Joaquin Valley Air Pollution Control District Special City Selection Committee.

4. This resolution is effective immediately upon adoption.

* * * * * * * * * * *

Exhibit A

League of California Cities
Central Valley Division
South San Joaquin Valley Division

March 2, 2016

Sonia Alvarez
City Clerk
205 W. 4th Street
Madera, CA 93637

RE: Nominations to the Governing Board of the San Joaquin Valley Air Pollution Control District (District)

Sonia:

There is currently a vacancy on the District's Governing Board that must be filled by a Council Member from a small city in Madera or Kings County. Pursuant to the Health and Safety Code Section 40600.5, appointments to the District's Governing Board will be made by the District's Special City Selection Committee (Committee). According to procedures adopted by the Committee, applications from eligible Council Members have been solicited. The next step in the appointment process is for all of the cities in Madera and Kings County to review the applicants and nominate one candidate for the vacant position. These nominations will then be reviewed by the Committee who will make the final appointment. The League of California Cities (League) is assisting in a limited role in order to promptly fill the vacant seat. The League is simply providing assistance in implementing a fair and transparent process that complies with all pertinent laws.

The following candidates have submitted applications for the vacant seat:

Mayor Waseem Ahmed, City of Chowchilla
Council Member David Ayers, City of Hanford
Council Member Andrew Medellin, City of Madera
Council Member William Oliver, City of Madera
Council Member Derek Robinson, City of Madera

Your City Council must vote to nominate one of these candidates to the Committee for appointment to the District's Governing Board. The vote must take place as an item on your City Council's publicly noticed agenda and be discussed during your regularly scheduled City Council Meeting. In order to assist your city, you will find these items attached to this letter:

Sample Resolution
Copies of Candidates Applications & Supporting Information (if included)

In order for your city's nomination to be considered by the Committee, you must return a copy of your city's City Council Resolution on this matter to the Committee by **March 22, 2016. Please scan the resolution and email it to specialcityselectioncommittee@gmail.com no later than March 22, 2016.**

Central Valley Division Staff – Stephen Qualls, squalls@cacities.org
South San Joaquin Valley Division Staff – Hilary Baird, hbaird@cacities.org

Each of the six cities nominations, the result of their city council action, will be presented to the District's Special City Selection Committee at their March 29th meeting for them to consider in making an appointment to fill the vacant seat. The timeline for the appointment is as follows:
March 2, 2016 – Nomination materials mailed to city clerks of the six cities in Madera and Kings Counties – sent via email and US mail.
March 2 through March 21, 2016 – Each city schedules a publicly noticed council meeting to vote for a nominee from the slate of applicants.
March 22, 2016 – Deadline for city clerks to submit city nomination results to the League via email at specialcityselectioncommittee@gmail.com
March 29, 2016 – District's Special City Selection Committee convenes, reviews city nominations to make an appointment to the District's Governing Board

If you have any questions, please feel free to contact me.

Sincerely,



Craig Vejvoda
SSJVD Director, Board of Directors, League of California Cities
Council Member, City of Tulare
Cell: 559-358-0577
Email: cvejvoda@lightspeed.net

CC: Seyed Sadredin, Executive Director, SJVAPCD – via US Mail
Madera City Manager – via email

Exhibit B

APPLICATION FOR APPOINTMENT AS A CITY REPRESENTATIVE ON GOVERNING BOARD OF THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

Current Vacancies
Small City: *One member representing the cities with a population less than 100,000 from Kings or Madera Counties. Councilmembers from Chowchilla, Madera, Avenal, Hanford, Corcoran, and Lemoore are eligible to apply.*

If you are an elected official on the council of the cities identified above, you may submit an application for appointment to the Governing Board of the San Joaquin Valley Air Pollution Control District to fulfill a currently vacant seat for the remainder of the term. The term for this seat ends December 31, 2017.

Applicant Name: WASEEM AHMED

Residence Address (Must live within the boundaries of the San Joaquin Valley APCD): [redacted], CHOWCHILLA CA 93610

Mailing Address: [redacted], CHOWCHILLA CA 93610

Telephone: (559) [redacted] (559) [redacted]
Primary Alt.

Email Address: WA4CHOWCHILLA@GMAIL.COM

When does your current City Council term end: DECEMBER, 2018

Applicant Signature: [signature] **Date:** 02-24-16

Please submit this form along with any other pertinent information (e.g., resume, candidate statement, education, experience) that you desire to be considered to the email address below. **Please limit additional information to no more than one page.**

Please complete this application and return it by February 29, 2016 to:
specialcityselectioncommittee@gmail.com

For questions, please contact Craig Vejvoda either by cell (559-358-0577) or email (cvejvoda@lightspeed.net).

Thank you for your prompt attention.

Waseem Ahmed

[redacted], Chowchilla, CA 93610, Phone (559)[redacted]
E-Mail: wa4chowchilla@gmail.com

Profile:

I'm currently serving as Mayor of Chowchilla. I devoted virtually my entire career to public service. Before taking office in 2014, I served as Chairman of the Chowchilla Planning Commission.

I have been a long time Chowchilla resident who knows the area, understand the needs of the community and I'm proud to call Chowchilla my home. Before moving to Chowchilla I owned and established several businesses throughout northern California.

I was raised and graduated from high school in Concord California. After high school, I attended San Francisco State University where I majored in business administration. Later in pursuit of advancement in business education, I went to Sacramento State University.

I believe that government was put into place to serve all people, and was established to help them do things for the collective group that everyone otherwise cannot do for themselves. I know that winning is not a one-person effort, it's a TEAM effort. The value of the team is greater than the sum of its individual parts.

I have previously served on the San Joaquin Valley Air Pollution Citizens Advisory Board (SJVUAPCD), board member of the Chowchilla Industrial Development Corporation, two terms as President of the Chowchilla District Chamber of Commerce, member of the Madera County Work Force Investment Board and the Chowchilla Parks and Recreation Commission. I have an established history of service to the community, an appreciation of Chowchilla's near 100-year heritage and a vision for its future.

I was elected to my first term with the Chowchilla City Council in December 2014 and my term expires in December 2018.

APPLICATION FOR APPOINTMENT AS A CITY REPRESENTATIVE ON GOVERNING BOARD OF THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

Current Vacancies
Small City: *One member representing the cities with a population less than 100,000 from Kings or Madera Counties. Councilmembers from Chowchilla, Madera, Avenal, Hanford, Corcoran, and Lemoore are eligible to apply.*

If you are an elected official on the council of the cities identified above, you may submit an application for appointment to the Governing Board of the San Joaquin Valley Air Pollution Control District to fulfill a currently vacant seat for the remainder of the term. The term for this seat ends December 31, 2017.

Applicant Name:	David Ayers
Residence Address (Must live within the boundaries of the San Joaquin Valley APCD) :	[redacted] Hanford, CA 93230
Mailing Address:	[redacted] Hanford, CA 93230
Telephone: (559) [redacted] Primary	(559) [redacted] Alt.
Email Address:	dgayerspt@comcast.net
When does your current City Council term end:	12-2018
Applicant Signature:	**Date:** 2-28-16

Please submit this form along with any other pertinent information (e.g., resume, candidate statement, education, experience) that you desire to be considered to the email address below. **Please limit additional information to no more than one page.**

Please complete this application and return it by February 29, 2016 to:
specialcityselectioncommittee@gmail.com

For questions, please contact Craig Vejvoda either by cell (559-358-0577) or email (cvejvoda@lightspeed.net).

Thank you for your prompt attention.

APPLICATION FOR APPOINTMENT AS A CITY REPRESENTATIVE ON GOVERNING BOARD OF THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

Current Vacancies
Small City: *One member representing the cities with a population less than 100,000 from Kings or Madera Counties. Councilmembers from Chowchilla, Madera, Avenal, Hanford, Corcoran, and Lemoore are eligible to apply.*

If you are an elected official on the council of the cities identified above, you may submit an application for appointment to the Governing Board of the San Joaquin Valley Air Pollution Control District to fulfill a currently vacant seat for the remainder of the term. The term for this seat ends December 31, 2017.

Applicant Name:	Andrew J. Medellin
Residence Address (Must live within the boundaries of the San Joaquin Valley APCD) :	[redacted], Madera, CA 93637
Mailing Address:	[redacted]
Telephone:	(559) [redacted] Primary (559) [redacted] Alt.
Email Address:	asd3661@yahoo.com
When does your current City Council term end:	12/7/16
Applicant Signature:	Date: 2/29/16

Please submit this form along with any other pertinent information (e.g., resume, candidate statement, education, experience) that you desire to be considered to the email address below. **Please limit additional information to no more than one page.**

Please complete this application and return it by February 29, 2016 to:
specialcityselectioncommittee@gmail.com

For questions, please contact Craig Vejvoda either by cell (559-358-0577) or email (cvejvoda@lightspeed.net).

Thank you for your prompt attention.

APPLICATION FOR APPOINTMENT AS A CITY REPRESENTATIVE ON GOVERNING BOARD OF THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

Current Vacancies
Small City: *One member representing the cities with a population less than 100,000 from Kings or Madera Counties. Councilmembers from Chowchilla, Madera, Avenal, Hanford, Corcoran, and Lemoore are eligible to apply.*

If you are an elected official on the council of the cities identified above, you may submit an application for appointment to the Governing Board of the San Joaquin Valley Air Pollution Control District to fulfill a currently vacant seat for the remainder of the term. The term for this seat ends December 31, 2017.

Applicant Name:	William G. Oliver
Residence Address (Must live within the boundaries of the San Joaquin Valley APCD) :	[redacted] Madera CA 93638
Mailing Address:	Same
Telephone:	(559) [redacted] Primary ; (559) [redacted] Alt.
Email Address:	woliver21@gmail.com
When does your current City Council term end:	December 2018
Applicant Signature:	**Date:** 02/29/16

Please submit this form along with any other pertinent information (e.g., resume, candidate statement, education, experience) that you desire to be considered to the email address below. **Please limit additional information to no more than one page.**

Please complete this application and return it by February 29, 2016 to:
specialcityselectioncommittee@gmail.com

For questions, please contact Craig Vejvoda either by cell (559-358-0577) or email (cvejvoda@lightspeed.net).

Thank you for your prompt attention.

William Oliver Candidate Statement

Please accept my application for the City Representative position on the Governing Board of the San Joaquin Valley Air Pollution Control District. I believe my experience and aptitude are well-suited to benefit the District in realizing its mission, vision and values.

I am a third generation Maderan with roots to the San Joaquin Valley for over 100 years. I am proud of my Valley heritage and place great value on its future. I believe there is no greater public health, safety and economic concern than the air we breathe. As a Governing Board member, I would welcome the challenges we face with a proactive and team-oriented approach while basing decisions on science, facts and stakeholder input. Challenges such as perpetual drought, triple-digit heat and intensifying wildfires, among others, have failed to evade us and require the best of our ingenuity, focus and hard-work in short-order, but also require a long-term, eye to the future.

As a Madera City Councilmember, I've approached decisions with an open-mind and open-door. Whether making myself available through constituent mobile office hours, making my cellular phone available to the public, or collecting input and concerns through neighborhood watch, public engagement has been the basis for which I make decisions and carry out my policy priorities. If appointed, I intend to bring that same approach while working with my Board colleagues, staff and the public to ensure prudent, inclusive and accountable decision making.

Moreover, I recognize the District's jurisdiction meets at the intersection of business, government and community sectors. Through my current employment with the Fresno County Economic Development Corporation as a Business Support Manager, I've worked with businesses impacted by public projects such as California High-Speed Rail. As a business advocate, I've developed best practices in addressing business hardships due to a consequential public project or decision, employing empathy, dissemination of accurate information and a platform to collect and address issues and concerns.

I believe my experience, focus and commitment complement the values of the District for which I would be humbled to serve. I know I am poised to serve the residents of our region well on the San Joaquin Valley Air Pollution Control District Governing Board. Thank you for your consideration.

APPLICATION FOR APPOINTMENT AS A CITY REPRESENTATIVE ON GOVERNING BOARD OF THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

Current Vacancies
Small City: *One member representing the cities with a population less than 100,000 from Kings or Madera Counties. Councilmembers from Chowchilla, Madera, Avenal, Hanford, Corcoran, and Lemoore are eligible to apply.*

If you are an elected official on the council of the cities identified above, you may submit an application for appointment to the Governing Board of the San Joaquin Valley Air Pollution Control District to fulfill a currently vacant seat for the remainder of the term. The term for this seat ends December 31, 2017.

Applicant Name:	DEREK O. ROBINSON, SR.
Residence Address (Must live within the boundaries of the San Joaquin Valley APCD) :	[redacted] MADERA, CA. 93638
Mailing Address:	[redacted] MADERA, CA. 93638
Telephone: (559) [redacted] Primary	(____) _____ Alt.
Email Address:	DOROBINSON12@GMAIL.COM
When does your current City Council term end:	12-07-16
Applicant Signature:	Derek O Robinson **Date:** 02-24-2016

Please submit this form along with any other pertinent information (e.g., resume, candidate statement, education, experience) that you desire to be considered to the email address below. **Please limit additional information to no more than one page.**

Please complete this application and return it by February 29, 2016 to:
specialcityselectioncommittee@gmail.com

For questions, please contact Craig Vejvoda either by cell (559-358-0577) or email (cvejvoda@lightspeed.net).

Thank you for your prompt attention.

Mayor Pro Tem Derek O. Robinson Sr.
Madera City Council District 4

Derek Robinson was elected to the City Council in 2012 and served as Mayor Pro Tem in 2014. He also serves as a Board Member on the Successor Agency to the Former Madera Redevelopment Agency and the Housing Authority of the City of Madera.

Derek graduated from John Muir High School in Pasadena, California. He served in the United States Army from 1973 to 1978. He attended Long Beach City College and then earned his Bachelor of Arts degree from the University of California Berkeley.

Derek worked for the U.S. Postal Service in Fresno from 1984 through 2002 and served as a shop steward in the American Postal Workers Union in Berkeley, California from 1988 to 1990. Derek also served as a youth counselor at the San Francisco Youth Correctional Center from 1984 to 1986; the Byron Boys Ranch, Contra Costa Correctional Facility from 1989 to 1993; and the Fresno Juvenile Correctional Facility from 1995 to 2002.

Derek competed in track and field events from 1978 to 2002. He also served as a student coach, an assistant coach and as a coach at Long Beach City College; Saint Mary's High School in Berkeley, California; Miramonte High School in Orinda, California; Berkeley High School in Berkeley, California; San Joaquin Valley Tomahawks in Fresno, California; Fresno City College in Fresno, California; Kings River Community College in Reedley, California; and Clovis High School in Clovis, California.

Derek has been a resident of Madera since 1992. He is married to Michelle Robinson and they have one daughter. Derek has four other children.

Professional Affiliations / Other Public Service
Currently serving on or served in the past:
Madera County Local Child Care and Development Planning Council Steering Committee
Community Action Partnership of Madera County
Madera County Economic Development Commission
Madera County Transportation Commission
San Joaquin River Conservancy
2nd Vice President for the League of California Cities South San Joaquin Valley Division
League of California Cities Administrative Services Policy Committee
United Way Fresno and Madera Counties Board
City of Madera Parks and Recreation Advisory Board
Madera Elks Lodge
Madera Kiwanis Club

Awards and Special Achievements
Special Achievement Award United States Postal Service October 1998
Special Achievement Award Defense Language Institute, Presidio of Monterey, California January 1978
United States Postal Service Certificate of Appreciation July 1987
Letter of Commendation United States Postal Service July 1991
Athlete of the Year, Metropolitan Conference of the California Community and Junior College Association 1979
African American Trailblazers Award 2015

Return to Agenda

REPORT TO CITY COUNCIL

MEETING DATE: March 16, 2016

AGENDA ITEM NUMBER: E-1

Approved By:

for PUBLIC WORKS DIRECTOR

CITY ADMINISTRATOR

SUBJECT: Consideration of a resolution approving an agreement with the County of Madera to temporarily provide water to the Parkwood water system and authorizing the Mayor to execute the agreement.

RECOMMENDATION: It is recommended that the Council approve the attached resolution authorizing the Mayor to execute the attached agreement to provide water to the Parkwood area.

SUMMARY: The County has requested that the City provide water to the Parkwood water system via an intertie to the City's system while they install a 250,000 gallon water tank for the Parkwood water system.

DISCUSSION: The County has requested that the City provide water to the Community of Parkwood via an intertie to the City's system while they are under construction of a 250,000 gallon storage tank which will assist them in meeting their peak domestic water demands. The intertie with our system will be equipped with back check valves and monitoring points to ensure that the City's water system is not at risk from cross contamination.

The proposed agreement is for a 6 month term, but may be terminated earlier. The agreement calls for the County to reimburse the City for all costs incurred in making and monitoring the intertie connection. The County will pay for the water received at the same tiered water rates City residential customers pay. The City has adequate wells and water production capacity to provide the water without compromising pressures within the City. If the City were to experience a problem with production capacity, the agreement allows the City to discontinue service during portions of a day or completely if capacity is needed for the City.

The City previously provided an intertie to assist Parkwood during the process of repairing the remaining well that serves the neighborhood. That project was completed approximately 1 year

ago, at which time the intertie was disconnected. The County notes that they continue to have problems with the refurbished well, but that a number of additional projects are in process to improve the water system, the first of which is the above ground water storage tank. The attached letter of January 6, 2016 from Norm Allinder to Dave Merchen describes the status of the water system as well as the planned projects in Parkwood.

FINANCIAL IMPACT: Any related expenses would occur in the Water Fund; however, the agreement calls for the County to pay for all the related costs and the water provided to Parkwood, hence there should be no financial impact.

MADERA VISION 2025: The proposed action is not specifically addressed as part of the Plan, but is not in conflict with it and is sympathetic of the underlying principles of the 2025 Plan.

RESOLUTION NO.____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MADERA APPROVING AN AGREEMENT WITH THE COUNTY OF MADERA TO TEMPORARILY PROVIDE WATER TO THE PARKWOOD WATER SYSTEM AND AUTHORIZNG THE MAYOR TO EXECUTE THE AGREEMENT

WHEREAS, the County of Madera has certain needs for the provision of water service to the community of Parkwood to sustain public health and economic stability; and

WHEREAS, the continuing drought conditions in the State and subsequent lowering water table in the area does reduce the capacity of the County's water production wells; and

WHEREAS, the County only has one well for the provision of water service to the Parkwood water system; and

WHEREAS, the County may experience interruption of services from this well while installing a 250,000 gallon storage facility to enhance its capacity to serve the area; and

WHEREAS, the City of Madera has previously provided a temporary intertie from the City's water system to the Parkwood water system to provide temporary water for the area; and

WHEREAS, the City and the County have determined it would be prudent to enact an agreement approving the provision of water from the City to the Parkwood area for a limited time; and

WHEREAS, the City and the county have agreed to the terms and particulars set forth in the agreement

NOW, THEREFORE THE CITY COUNCIL OF THE CITY OF MADERA, hereby finds, determines, resolves and orders as follows:

1. The recitals listed above are true and correct.
2. The agreement to provide temporary water to the Parkwood area of the County, a copy of which is on file in the office of the City Clerk and referred to for particulars, is hereby approved.
3. The Mayor of the City of Madera is hereby authorized to execute said agreement with the County of Madera.
4. This resolution is effective immediately upon adoption.

* * * * * * * * * * *

INTERTIE AGREEMENT FOR PROVISION OF CITY WATER SERVICE TO THE COUNTY OF MADERA FOR THE PARKWOOD AREA

THIS AGREEMENT is entered into this ____ day of _____, 2016 by and between the CITY OF MADERA ("City"), the COUNTY OF MADERA and the BOARD OF SUPERVISORS OF THE COUNTY OF MADERA SITTING AS THE BOARD OF DIRECTORS OF COUNTY MAINTENANCE DISTRICTS 19 A AND B (collectively the "County"), who agree as follows:

RECITALS

WHEREAS, the Parkwood area located in County is largely a residential neighborhood, which has certain needs for the provision of water service.

WHEREAS, the County has had three wells, which at various times have provided water to the residents of the Parkwood water service area. County now has only one working well remaining out of the three, with limited production capacity.

WHEREAS, the County has plans to install a 250,000 gallon water storage tank, to augment its water system.

WHEREAS, the construction of the storage tank could necessitate disruptions of water service from the Parkwood well; County desires to temporarily connect to City water services through an intertie comprised of one or two points of connection during the construction, so as to be able to maintain water service and fire flow capacity; and

WHEREAS, the City desires for a limited period of time to provide a temporary connection to the Parkwood water system from the City water system through interties, subject to the terms, conditions, and agreements set forth herein.

NOW, THEREFORE, the parties hereto mutually agree as follows:

1. WATER SERVICE. The City shall reconnect a previously installed intertie between the City and Parkwood's water system. The County may elect to install a second point of connection in the area of Raymond Road and San Bruno Ave to increase fire flows. All points of connection for the intertie would include valves, backflow devices, meters, and monitoring ports as needed. The intertie will be placed below road surfaces; temporary pavement patching will be placed until permanent patches are installed. City makes no representations or warranties as to minimum water pressure or flow to be provided by the intertie. Due to limitations on the City's water supply, the parties hereto acknowledge that the supply of water contemplated hereunder may be adjusted based upon availability and peak demand as determined by the Public Works Director or his designee at their sole discretion. This may include a determination that no water can be supplied to Parkwood during all or portions of certain days.

2. CHARGES. County shall pay City for water flowing through the intertie and measured by water meters installed at the interties. The charge to County for such water shall be the current tiered rate for City residential water customers. In the event a new rate structure for water use is adopted by the City Council, the County agrees to pay the then current rate as amended.

At the end of each calendar month, City shall determine the applicable charges for the month by determining the total amount of water delivered to the Parkwood system, and billing it based upon the tiered residential rates based on the agreed count of 602 connections; and shall submit a statement of charges to County. County shall pay the statement charges within 30 days from the date of the statement. Delinquent payments shall accrue interest on the unpaid balance at the rate of one percent per month.

3. COST OF INTERTIE EQUIPMENT & MONITORING. County may, if it elects, install the second point of connection based upon a design submitted to and approved by the City Engineer, and inspected and approved by the City. County shall reimburse City for all costs associated with the review and inspection of the installation, and monitoring of the intertie between the City water system and the water system for Parkwood. Such reimbursement shall include all and any costs incurred by the City including inspection of work, and weekly testing of water quality at the intertie points of connection. City shall provide County an invoice for all costs as contemplated in this section within 30 days of provision of such services. County shall pay City pursuant to such invoice within 30 days of the date of the invoice.

4. INDEMNIFICATION. County, at its sole cost and expense, shall reimburse the City for the cost to repair or replace City's equipment, facilities or other property damaged by the delivery or receipt of water or by the County or County-arranged trucks, equipment or personnel. County also shall indemnify, defend, protect, and hold harmless City, and its officers, employees, agents and volunteers, from and against any and all liability, losses, claims, damages, expenses, and costs (including attorney, expert witness and consultant fees, and litigation costs) of every nature, arising out of this Agreement or caused in whole or in part by any act or omission of County or its officers, employees, agents or contractors under this Agreement. The indemnification provisions contained in this section shall also extend to any action or claim brought against the City by Madera County LAFCO arising from the activities contemplated in this Agreement.

5. TERM. This Agreement shall terminate six (6) months from the date set forth above, or until terminated pursuant to Section 14 herein. This Agreement may be extended by the mutual consent of the parties expressed in writing.

6. CITY WATER SUPPLY EXCLUSIVE. There shall be no blending of water between the County water system for Parkwood and the City system. The County water pumps for Parkwood shall not be operated while there is an intertie between the City water system and County water system.

7. MORATORIUM ON NEW COUNTY WATER USERS. The County shall not allow any new water connections to its Parkwood service area during the term of this Agreement. The County acknowledges that the provision of water pursuant to this Agreement is solely to service County water users in the Parkwood service area as of the date of execution of this Agreement.

8. OPERATION OF CITY WATER EQUIPMENT. Only City personnel shall operate the valves and backflow devices comprising the intertie between the City and County water systems.

9. STATUS UPDATES ON COUNTY WATER SYSTEM. Every two weeks, County shall provide City with a status report on the refurbishment and repair of the County water system for Parkwood. Such reports shall be sent to the Public Works Director on or before the expiration of one week after the relevant time period.

10. EXISTING CITY WATER USERS PRIORITY. The parties acknowledge that the City shall

provide water first to existing users of the City water system. In the event there is insufficient water supply to service both existing City users and users within the County's Parkwood service area, the City shall provide water service to existing City users first and then provide any excess water supply to Parkwood users to the extent possible. This may result in intermittent service to Parkwood depending on fluctuation demands and supply capacity. A minimum of 30 psi working pressure and adequate fire flows must be maintained to current City customers. If the working capacity of the City's water system declines below the 30 PSI working pressure or below fire flow standards, the City may reduce the flow of water to Parkwood, limit it to certain hours when demand is lower or discontinue service if capacity is not available to fully meet the City's demand. The necessity of adjusting flows from the City water system to Parkwood shall be solely determined by the City. In the event of such an adjustment in flow from the City to Parkwood, the City shall provide 24 hours prior written notice to the County. In emergency situations as determined solely by the Public Works Director or his designee, the 24 hour notice provided in this section may be shortened or dispensed with altogether.

11. FIRE SUPPRESSION WATER SERVICE. The parties agree that nothing in this Agreement shall be construed to provide a guarantee of water service to the County Parkwood service area in an amount adequate to provide fire suppression service. The parties acknowledge that the water to be provided by the intertie subject to this Agreement is limited to that which is for essential residential and commercial service needs. Such essential needs shall not include uses such as outdoor watering and similar uses which are prohibited under the Stage 4 drought conditions.

12. COUNTY STAGE 4 DROUGHT CONDITIONS TO REMAIN IN EFFECT. The County has implemented water conservation measures in compliance with Stage 4 of its drought contingency plan. County shall continue to maintain said Stage 4 conditions through the term of this Agreement. County shall use its best efforts to enforce all Stage 4 conditions while this Agreement is in force.

13. WATER QUALITY MONITORING. County shall continue to perform required water sampling and maintain regulatory compliance for its water system for Parkwood through the term of this Agreement. City shall perform weekly monitoring of samples taken at the City backflow device serving the intertie to the County water system for Parkwood.

14. TERMINATION. Once the County has installed the planned tank for the Parkwood system , or at the end of the term of the agreement whichever comes first, water service will be discontinued and at the request of the City the intertie will be removed and the roadways patched with permanent paving material at the sole cost of County. Notwithstanding the agreement term set forth herein, this Agreement shall terminate earlier by providing a written notice of termination 30 days prior to the requested date of termination.

15. GENERAL PROVISIONS.

15.1. Integration. This Agreement constitutes the sole, final, complete, exclusive and integrated expression and statement of the terms of this contract among the parties concerning the subject matter addressed herein, and supersedes all prior negotiations, representations or agreements, either oral or written, that may be related to the subject matter of this Agreement, except those other documents that are expressly referenced in this Agreement.

15.2. Amendment. This Agreement may be modified or amended only by a subsequent written agreement approved and executed by both parties.

15.3. Assignment. County shall not assign or transfer this Agreement without the prior

written consent of City.

15.4. No Third Party Beneficiaries. This Agreement shall not be construed to create any third party beneficiaries. This Agreement is for the sole benefit of the parties, their respective successors and permitted transferees and assignees, and no other person or entity shall be entitled to rely upon or receive any benefit from this Agreement or any of its terms.

[signatures on following page]

CITY

Robert L. Poythress, Mayor

ATTEST:

Sonia Alvarez, City Clerk

APPROVED AS TO FORM:

Brent Richardson, City Attorney

COUNTY

Rick Farinelli, Chairman of the Board of Supervisors

BOARD OF SUPERVISORS OF THE COUNTY OF MADERA SITTING AS THE BOARD OF DIRECTORS OF COUNTY MAINTENANCE DISTRICTS 19 A AND B

Rick Farlnelli, Chairman of the Board of Directors

ATTEST:

APPROVED AS TO FORM:

Regina Garza, County Counsel

COUNTY OF MADERA

Public Works
Ahmad M. Alkhayyat
Interim Director

Community & Economic Development
Norman L. Allinder, AICP
Director

- 200 W. 4TH Street, 3rd Floor
- Madera, CA 93637
- (559) 675-7811 Public Works
- (559) 675-7821 Planning
- (559) 661-5190 Fire
- (559) 675-7823 Env. Health

January 6, 2016

Dave Merchen
Community Development Director
City of Madera
205 W. 4th Street
Madera, CA 93637

RE: County Maintenance Districts No. 19 A&B, Parkwood Intertie with City of Madera

Mr. Merchen,

Thank you for taking the time to meet with County staff to discuss the situation with the Parkwood water system. Since repair of well #3 and the termination of the intertie with the City of Madera, Madera County has continued to pursue a storage tank, a new well and upgrades to the distribution system which includes metering. The first project to come online will be the 250,000 gallon storage tank this summer, which will greatly increase the ability for the system to have adequate fire flow.

The District has continued to experience issues since the rehab of well #3. The main issue is low production. Although the new pump is capable of producing 800 gpm, due to excessive turbidity and increased corrosion, the pump was turned down to approximately 250 gpm, well below the fire flow standards. Additionally, the system violates secondary standards and exceeds Maximum Contamination Levels (MCLs) for iron and manganese.

Because of these ongoing issues and time it will take to complete these multiple projects Madera County is formally requesting to reestablish the intertie connection to the City of Madera water system. The 250,000 gallon storage tank project is scheduled to be completed in June this year and we would then revisit the need to continue with this intertie.

The County will continue to restrict outdoor watering in Parkwood. The intent of this request is to provide water service for domestic uses and fire flow. In addition, the County has increased patrolling and enforcement of water violations in Parkwood to ensure compliance.

Water and Sewer rates were last adjusted on September 10, 2013 by Resolution 2013-141. The total monthly utility charge for an improved unit is $75. The $75 breakdown includes $26.50 for water service, $40.50 for sewer service, $1.00 for street lights and $7.00 for ACO. Currently the monthly revenue for water is approximately $15,953, which is greater than the average monthly charge of $8,345 for the previous intertie. All rates include an annual Consumer Price Index adjustment beginning July 1, 2016.

The State credited Parkwood's consumption to the City during the previous intertie. As a result, the water used by Parkwood did not go against the City's 28% Conservation Mandate. We have confirmed that will be the case going forward as well.

Attached is a more detailed report regarding this water system along with the letter from the State Water Resources Control Board regarding the system status.

Please call either of us at (559) 675-7821, if you have any questions.

Sincerely,

Ahmad M. Alkhayyat, P.E.
Interim Director
Public Works

Norman L. Allinder, AICP
Director
Community and Economic Development

Attachments: MD-19 System Status Report
MD-19 Timeline of Actions
Letter from State Water Resources Control Board Staff

cc: Eric Fleming, Madera County CAO
Dexter Mar, Madera County Environmental Health
Kassy Chauhan, Division of Drinking Water
Dave Braun, Executive Director (LAFCO)

COUNTY OF MADERA
PUBLIC WORKS DEPARTMENT
AHMAD M. ALKHAYYAT
INTERIM DIRECTOR

200 West 4th Street
Madera, CA 93637
Main Line - (559) 675-7811
Special Districts - (559) 675-7820
Fairmead Landfill - (559) 665-1310

DATE: January 8, 2016

TO: Norman Allinder, Director

FROM: Philip Toler, Special Districts

RE: MD-19 System Status

KEY POINTS TO MEMO

- Current Service Fee (water only): $26.50 / month
- Estimated monthly revenue (water only): $15,953
- Average monthly cost to City for intertie: $8,345
- The State credited Parkwood's consumption to the City during the intertie. As a result, the water used by Parkwood did not go against the City's 28% Conservation Mandate.

SYSTEM BACKGROUND

Maintenance District No. 19 was formed on July 18, 1978 by Resolution No. 78-427. The District provides water, sewer and lighting services. The Parkwood Water System, State Identification Number 2010004, provides service to approximately 602 connections. The system consists of 3 wells (only 1 of which is active), hydro-pneumatic tanks and the distribution lines. The distribution system has no reservoirs and is comprised of 21,085 feet of 6 and 8 inch AC mains.

Water and Sewer rates were last set on September 10, 2013 by Resolution 2013-141. The total monthly utility charge for an improved unit is $75. The $75 breakdown includes $26.50 for water service, $40.50 for sewer service, $1.00 for street lights and $7.00 for ACO. All rates include an annual Consumer Price Index adjustment beginning July 1, 2016.

SYSTEM STATUS

Two of the systems three wells were taken out of operation in 2007 and 2011 due to reduced production and excessive sanding. The District has no storage and currently relies on only one well (well #3), which was breaking suction due to declining water levels. As a result, well #3 was unable to meet the demand of the District and a temporary intertie agreement with the City occurred. Well #3 was rehabilitated and went back online April 2015, where the intertie was subsequently disconnected.

The District has continued to experience issues since the rehab of well #3. The main issue is low production. Although the new pump is capable of producing 800 gpm, due to excessive turbidity and increased corrosion, the pump was turned down to approximately 250 gpm. Additionally, the system violates secondary standards and exceeds Maximum Contamination Levels (MCLs) for iron and manganese.

RECENT EFFORTS

- On 6-4-14, the County Engineer enacted Stage 4 of the Water Conservation Ordinance, which prohibits all outdoor watering.
- In an effort to increase fire flow protection and insure sustainable water pressures for domestic use, the City and County executed a joint intertie agreement.
- The intertie was to be a temporary solution while the County continued to work with CDPH and USDA on obtaining funds to assist with a permanent solution that benefits all parties.
- The County retained Daniel B. Stephens & Associates, Inc. for recommendations of the new well rehab.
- Well #3 was videoed, brushed, airlifted, swabbed, introduced acid/NuWell, re-swabbed and airlifted, disinfected and re-videoed.
- New pump was installed at 319' November 30, 2014.
- The new pump and system was flushed until December 7, 2014.
- Continued to have quality problems, continued disinfection and flushing regimens.
- Reduced gpm of pump
    - Readjust bowls to lower output
    - Installed VFD
    - Installed smaller pump and motor
- Consulted with Hydrologist Chris Johnson February 2015.
- We have approached EH and the State about bottled drinking water programs while we work on solutions for the System's drinking water (iron & manganese). The State found that since MD-19 meets the primary standards, they are not eligible to receive funding to provide bottled water.
- Proposed multiple grant projects with various agencies.

PROPOSED PROJECTS

1. Proposed Meter Project

   The County is under a State mandate to be metered by the year 2025. County and State actions from 2014 – Present:

   - County submitted the project application in June 2014 to the CDPH. CDPH transitioned to the State Water Resources Control Board (SWRCB) and did not review application until May 2015.

   - In May, the State determined that MD-19 was a disadvantage system with a MHI of $39k. Unfortunately, the threshold for severely disadvantaged is $36,656. This would mean the project would have a 20% loan component. Staff contacted the State and requested an income survey of the residents to try to avoid the loan portion and try for 100% funding. The County has been working with the Rural Community Assistance Corporation (RCAC) since July to assist the District with the surveys to secure the additional funding.

   - On 6-2-15, the State requested additional information and financial statements from the County to process the application. We requested 3 years of financial statements from the Auditor's Office.

   - On 7-7-15, we met with the State for clarity on their requirements. This included working on creating debt information, past/recent water rate information, and submitting past USDA financial statements since we do not have audited statements. The State noted the resolution items do not need submitting until they review the District financials to see if they will approve the project.

   - On 8-11-15, we submitted the water rate structure and Prop 218 information to the State.

   - On 10-1-15, we requested a status update from the Auditor's Office who noted they are short staffed and have been working on a list from our Department for these statements (MD-6, 7, 42, 33, 24, 19 and 10A).

2. Proposed New Well Project

   A planning application was submitted in December 2014 to add a new well to the system. The overall project would include the new well, test well, feasibility study, rate study, environmental assessment, as well as plans & specs. The feasibility study would also evaluate the system for consolidation with the City as an option. NV5 has been chosen as the consultant however, we are still waiting for the State to approve the application and execute a funding agreement. County and State actions from 2014 – Present: Same as meter project above.

On December 8, 2015, the County met with the State to discuss adding a water distribution system improvement(s) to the current scope of work per the City's infrastructure study by Akel Engineering. The scope of work is currently being revised to reflect the addition of the distribution system improvements.

3. Proposed USDA Storage Tank Project

In June 2014, the USDA issued MD-19 $500k in funding for a new well. The project was initially to co-fund the State's new well project. However, when the State met with the USDA, they determined that the State would not need the Federal funding for their project. In December 2014, we submitted a preliminary engineering report to USDA requesting to use the funding to rehab one of the inoperable wells. Subsequently, the USDA contacted the County and requested additional information and costs associated with the proposed rehab. Due to the unknown water quality of the well, and the new well project being funded by the State, the USDA recommended the County submit a proposal for a storage tank. USDA reviewed the proposal and gave the County an approval in early October. We are working with the Planning division to complete the environmental work and will coordinate with CIP division to aim for the 6-25-16 deadline.

- We contacted contractors/consultants for quotes and met with USDA to provide the info.

- Planning has assisted in the preparation of the NOE for the project. Will send final to USDA for them to complete the NEPA. Pre-DRC meeting for the NOE approval scheduled for 11-18-15.

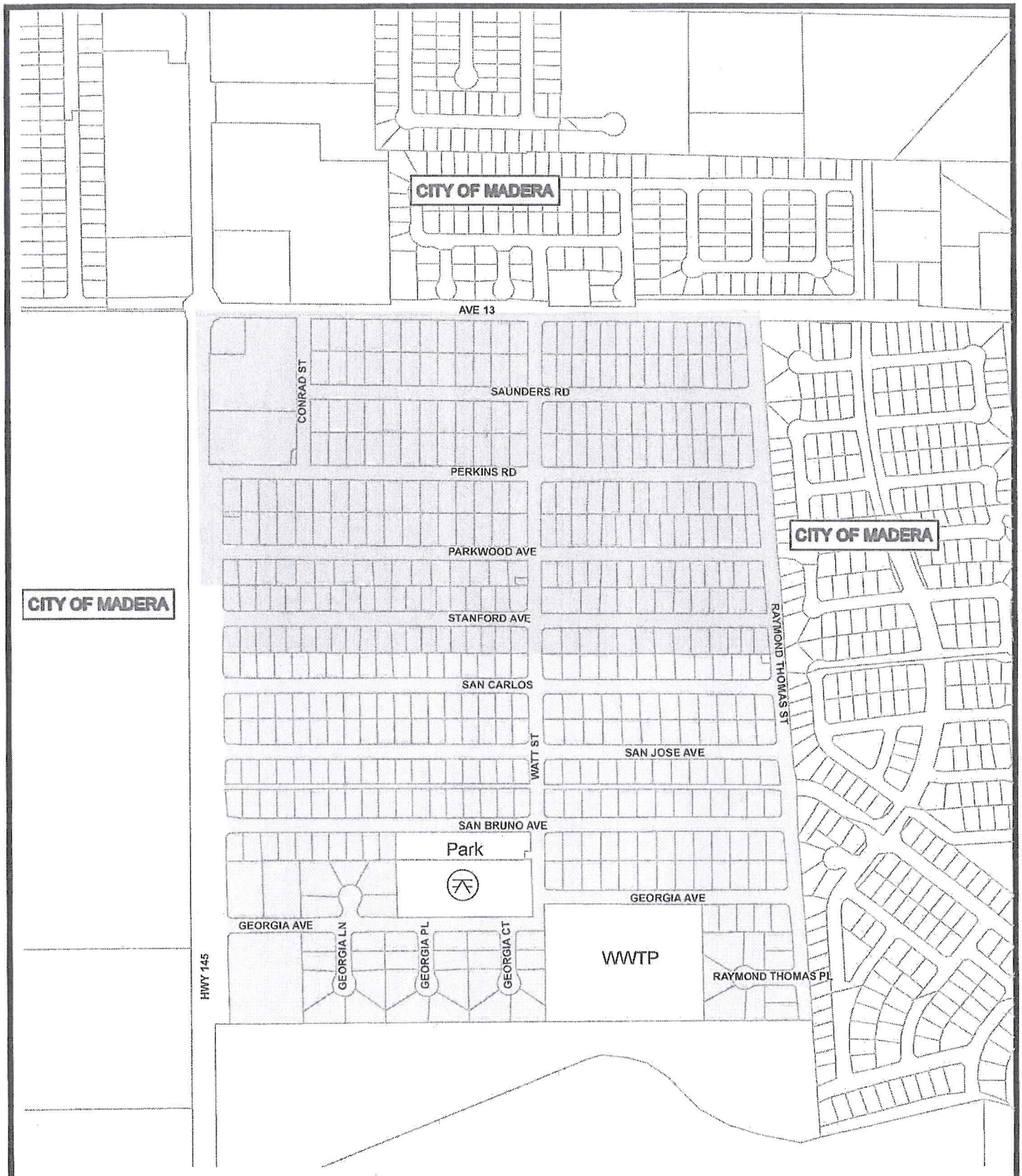
Attachments:

MD-19 Map

2010004-002P Category E – Application for Planning Funds – Project Budget Sheet

Arial Map showing location of proposed tank

Plot Map



COUNTY MAINTENACE DISTRICT No. 19 A&B, PARKWOOD

AREA MAP

Parcel Boundary MD-19A, Parkwood MD-19B, Parkwood

N

S:\Districts\District_Spreads\MD-19A_Parkwood\TECHNICAL\Projects\Project 11-003\14 Exhibits\MD-19 - AreaMap.mxd

PROJECT BUDGET SHEET

Madera County MD 19 - Parkwood

Project No. 2010004-002P

Task No.	Scope of the Project	Cost ($)
1	Administration and Project Management	25,000
2	Preliminary Hydrogeologic Study	7,500
3	Test Well Drilling and Analysis	200,000
4	Consolidation Study	5,000
5	Preliminary Engineering	17,500
6	Water Rate Study	15,000
7	CEQA/NEPA Compliance	20,000
8	TMF Capacity Assessment	10,000
9	Water Treatment Pilot Study	50,000
10	Plans, Specifications, and Cost Estimates	130,000
11	Site Acquisition Documents	20,000
	Total	**500,000**

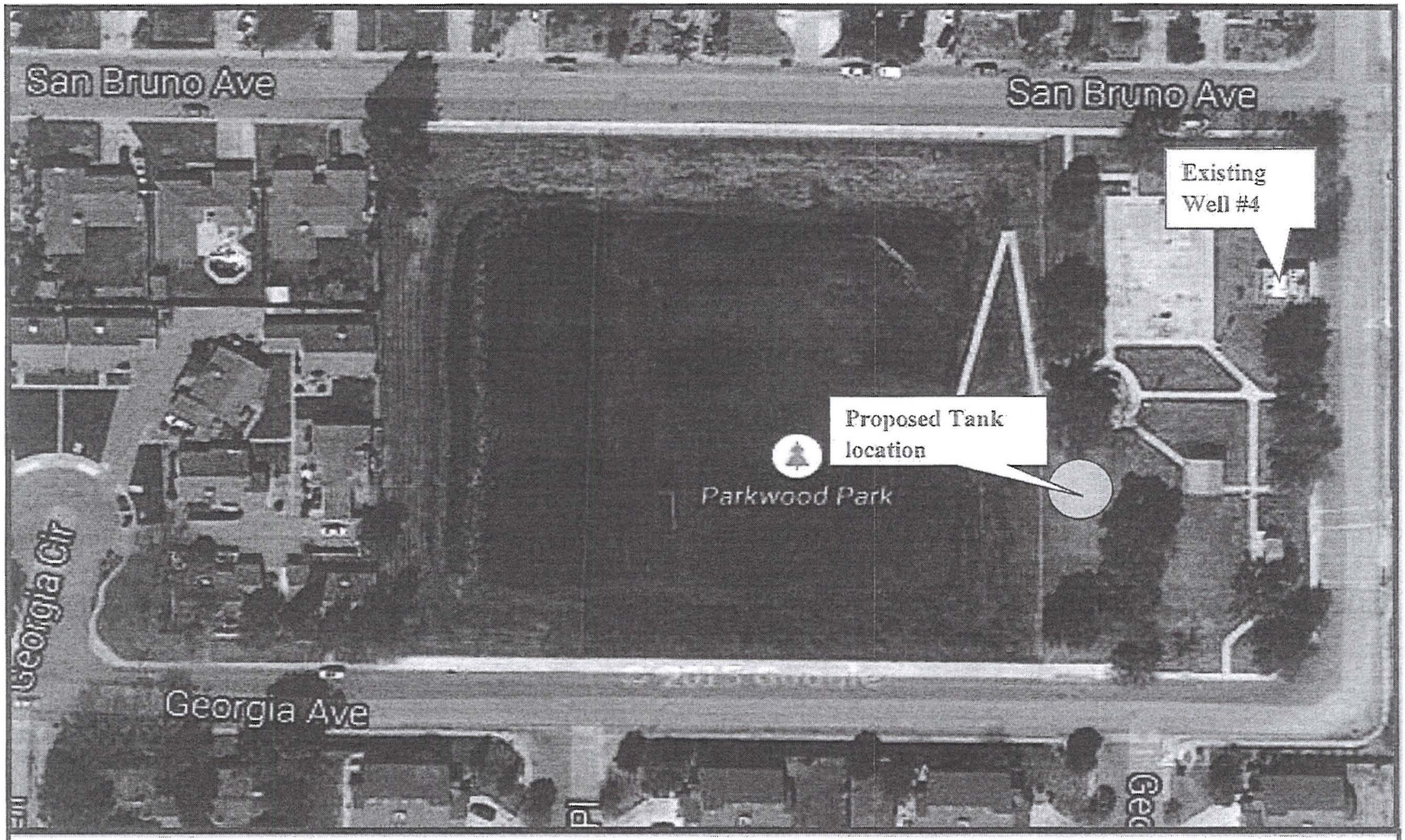


Figure 2: Satellite View Tank Proposal (MD-19, PARKWOOD) N.T.S

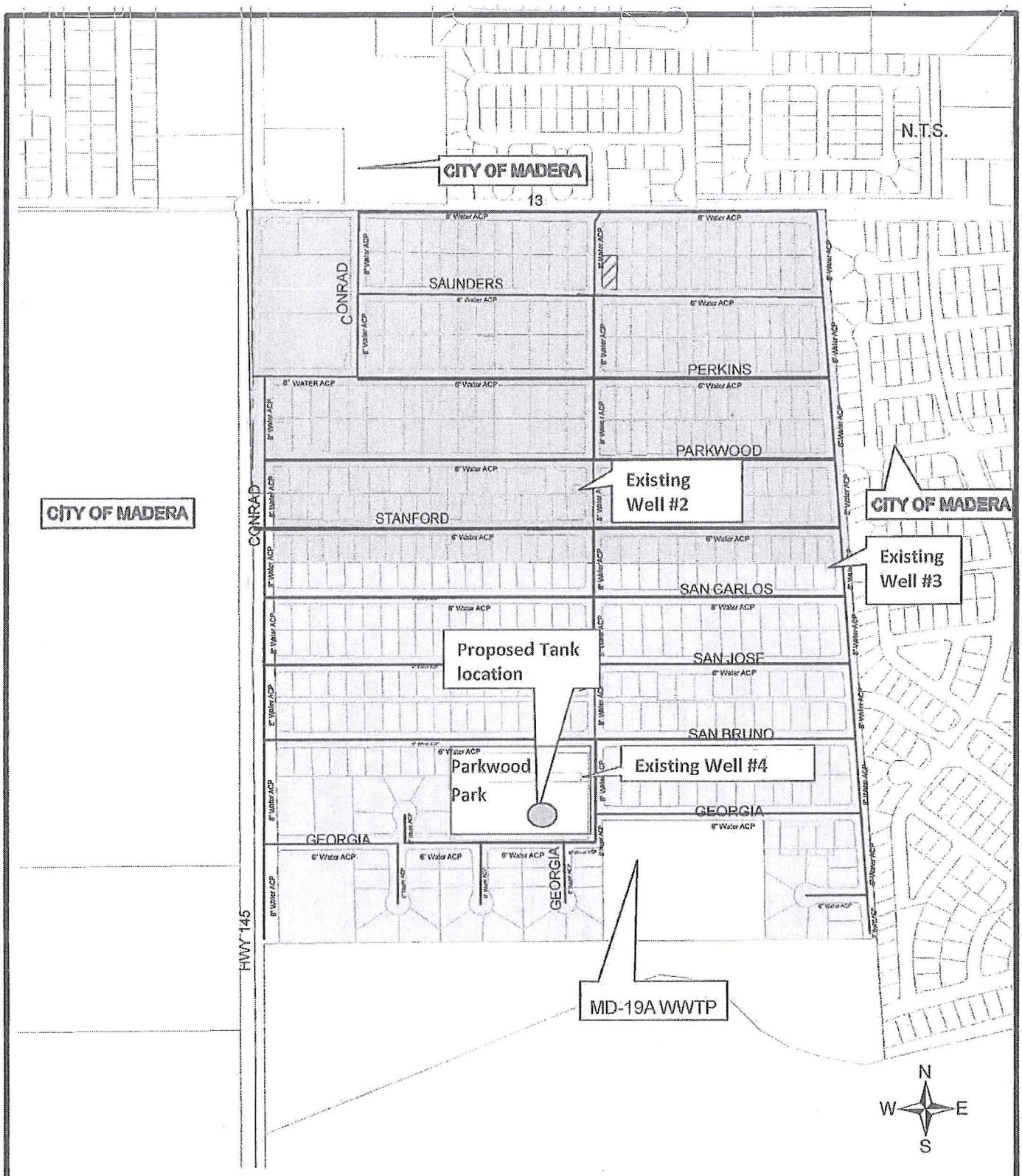


Figure 1:Storage Tank Proposal (MD-19 , PARKWOOD)

Legend PLOT-MAP

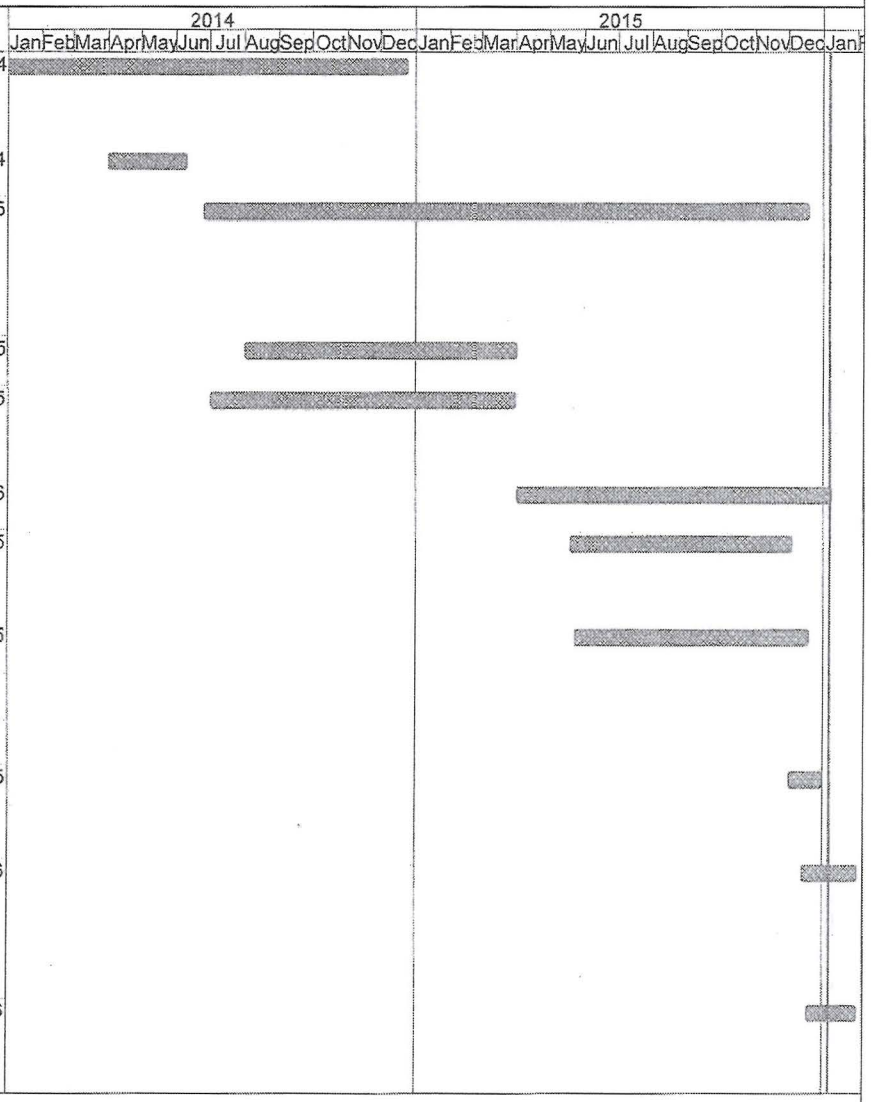
Domestic Water Distribution System — Roads — MD-19A, Parkwood

MD-19B, Parkwood

650 325 0 650 Feet

Madera County
Public Works Department
MD-19 County & State Staff Effort Timeline

ID	Project Tasks	Duration	Start	Finish
1	Work on Obtaining State Funding & Submit Applications for New Well & Meters	357 days	Wed 1/1/14	Tue 12/23/14
2	Apply for USDA funding and sumbit application	70 days	Tue 4/1/14	Mon 6/9/14
3	USDA & County meetings, Submit project proposal inquiries, finishe environmental clearance, receive USDA project approval for Storage tank	542 days	Wed 6/25/14	Fri 12/18/15
4	MD-19 Inter-tie to City of Madera	243 days	Fri 8/1/14	Tue 3/31/15
5	Request for well rehab funding, Well No. 3 rehab project Completion	273 days	Tue 7/1/14	Mon 3/30/15
6	County & State work on Well #3 water quality issues	282 days	Wed 4/1/15	Thu 1/7/16
7	State Water Resources Control Board application review, Inquiries, Meetings, & completion	199 days	Tue 5/19/15	Thu 12/3/15
8	County request for Income Survey, providing information State, Study Completion w/MD-19 obtaing Severely Disadvantage status	210 days	Sat 5/23/15	Fri 12/18/15
9	Madera County finishes Environmental Clearence for the new well project	30 days	Tue 12/1/15	Wed 12/30/15
10	County Public Works Department Reviews City Akel Report & discuss incorporating the improvements to currest State Project	50 days	Sun 12/13/15	Sun 1/31/16
11	Work with County Counsel on USDA vendor/consultant contracts	45 days	Fri 12/18/15	Sun 1/31/16



Project: MD-19 -status
Date: Thu 1/7/16

County & State Effort Timeline

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board
Division of Drinking Water

December 7, 2015

Mr. Ahmad Alkhayyat,
Interim Public Works Director
County of Madera
200 West 4th Street
Madera, CA 93637

Dear Mr. Alkhayyat:

Effective June 24, 2015, Senate Bill 88 (Statutes 2015, Chapter 27) added Sections 116680 – 116684 to California Health & Safety Code, addressing consolidation of public water systems.

Records at the State Water Resources Control Board's – Division of Drinking Water (Division) indicate that the water delivered by the Madera County Maintenance District No. 19 – Parkwood public water system (System) is inadequate to meet the demands of the current customers. In addition, the water contains levels of manganese in excess of the secondary drinking water standard. In 2014, the Parkwood water system was out of water for a period of time due to a failure of the single source of supply for the Parkwood system. As a result, an emergency intertie was constructed with the City of Madera water system and the Parkwood system was supplied water by the City of Madera for approximately nine months. The supply from the City of Madera was shutoff following the rehabilitation of the Parkwood well (Well No. 3) but the emergency intertie remains in place. It is the Division's understanding that the Parkwood service area is outside the boundaries of City of Madera (City) but within the City's sphere of influence. It is also the Division's understanding that Parkwood's service area and distribution system are within about 25 feet of the City's boundary and distribution system.

The State Water Resources Control Board (Board) strongly encourages the Parkwood Water System and the City to work out voluntary consolidation of their public water systems. However, if a voluntary consolidation is not achieved in a timely manner, the Board may make the decision to exercise its authority pursuant to Health & Safety Code section 116682, subdivision (a) to achieve consolidation of the Parkwood System with the City's public water system.

The Board acknowledges that consolidation is a complex process and stands ready to assist you so that you are successful in delivering safe, affordable and accessible drinking water to your community in a cost-effective manner. The Board will provide technical assistance and work with the City and the County to develop an appropriate and necessary financing package. Technical assistance will be available from the State Water Board's Division of Drinking Water (DDW) and Division of Financial Assistance (DFA).

If you have any questions regarding this matter, please contact me at (559) 447-3316. For funding related questions, please contact Mr. George Faggella at (916) 449-5652.

Sincerely,

Kassy D. Chauhan

Kassy D. Chauhan, P.E.
Senior Sanitary Engineer
Merced District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

CC: Mr. David Randall, Public Works Director – City of Madera
Mr. David Braun, Executive Director - Madera County LAFCO

Return to Agenda

REPORT TO CITY COUNCIL

MEETING DATE: March 16, 2016

AGENDA ITEM NUMBER: E-2

Approved By:

for PUBLIC WORKS DIRECTOR

CITY ADMINISTRATOR

SUBJECT:

Solid Waste Division Progress Report for the 2nd Half of Calendar Year 2015.

RECOMMENDATION:

Informational item only.

SUMMARY/ DISCUSSION:

Annually Cal Recycle audits how the City's staff is implementing the City's adopted solid waste programs and policies and how newly passed State mandated programs/regulations such as SB 341 commercial recycling and AB 1826 organic (food waste) recycling are being implemented by the City.

In 2007, the City was placed on probation by the State for not meeting solid waste diversion goals. Subsequently, the City increased its staffing and developed a series of 38 programs and policies that it continues to implement today. The City quickly came into compliance and has remained in compliance since that time. Since 2010 the City has continued to improve on its waste diversion performance each year. Currently the City has exceeded the State Goal by 45%.

FINANCIAL IMPACT:

Significant saving to the Solid Waste fund have been made over the past three years due to lower costs obtained in a 10 year contract with a new solid waste hauler and reduced staffing. Two years ago customer fee rates for services were reduced by 13% and are projected to be stable for the next five years.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

The policies and programs implemented by the Solid Waste Division are consistent with the Madera Vision Plan, specifically Action 437: Recycling Programs: Promote recycling through multiple programs.

GREEN LIVING

Quarter 3

WWW.MIDVALLEYDISPOSAL.COM 15300 W JENSEN AVE. KERMAN, CA 93630 1.800.706.5779

FARMER'S MARKET

On August 21st, Mid Valley Disposal's Recycling Coordinator attended the farmer's market and set up an informational booth. There were over 75 residents in attendance and the adults and young children enjoyed learning about the importance of recycling as well as spinning the trivia wheel for prizes. There was also coloring books and pencils for the children. This event was very successful, we got to teach about recycling while listening to live music and enjoying all of the fresh produce.

KIDS CAMP PRESENTATION

Mid Valley Disposal's Recycling Coordinator, Annette Kwock, visited the Youth Center for Kids Camp! There were two recycling presentations that were organized for this event. The first presentation was geared towards Kindergarten through 3rd grade, the children did a coloring project as well as played a recycling game. The second group of children were in the 4th through 6th grade and they did a coloring project that centered around their theme this year, heroes. They also played a recycling game and learned about the recycling facility and the landfills. With over 33 children in attendance they all enjoyed learning about recycling and how to help keep our environment clean. They all pledged to be recycling heroes!



Farmer's Market



Kids Camp Presentation



Site Visits

3RD QUARTER COMMERCIAL SITE VISITS

Mid Valley Disposal's Recycling Coordinator, Annette Kwock conducted 3rd quarter site visits during September in Madera's commercial areas as well as multi-family sites. The majority of the 65 businesses that were targeted are showing increased efforts in diverting waste. Our recycling coordinator had the opportunity to increase recycling by adding three 30 yd. roll-offs! All the businesses that were visited were reminded of what materials are accepted in their recycling containers as well as a proposal to conduct a recycling presentation for staff. Of the multi-family businesses that were visited, four of them signed up for recycling services. The new businesses were left with contact information as well as AB 341 education materials.

Quarter 3 Tonnage Report

	Residential	Commercial
Recycling	755	295
Green Waste	1,489	7
Refuse	3,577	3,349
Total Diversion	39%	8%

GREEN LIVING

Quarter 4

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CANDLELIGHT PARADE

On December 3, 2015, Mid Valley Disposal had Santa Claus and his helper as guest on our wonderfully decorated sleigh. Even though forecast stated rain we had a great turnout. The Candlelight Parade was a huge success delivering Santa to his destination to greet kids and give out candy canes. Thank you to everyone that came out and celebrated with us!

PRE-SCHOOL PRESENTATIONS

Mid Valley Disposal's Recycling Coordinator, Annette Kwock, conducted presentations at Pershing Elementary School, Sierra Vista Elementary School and Nishimoto Elementary School! Students were taught the "Recycling Song"; this song explains reduce, reuse, recycle and rethink. Games were also played during the presentations; "What goes into the recycling cart/bin?" was a favorite! Teaching preschooler's how to reduce waste helps the environment by saving room in the landfill and our precious air. A total of 126 enthusiastic students and 6 teachers enjoyed learning the importance of recycling.



Candlelight Parade



Pre-School Presentation



Site Visits

4TH QUARTER COMMERCIAL SITE VISITS

This quarter, Annette's focus was the industrial part of Madera. Altogether businesses are doing an excellent job with recycling. There were two customers that had little contamination, mostly food waste. Flyers were left at these businesses and presentations were offered to staff. Sealed Air, Evapco and Carris Reels are doing a great job. Way to go Madera!

Quarter 4 Tonnage Report

	Residential	Commercial
Recycling	794	334
Green Waste	1754	6
Refuse	3590	3682
Total Diversion	41%	8%