City of Folsom

TRAFFIC SAFETY COMMITTEE SPECIAL MEETING AGENDA

4:00 p.m., Thursday, December 2nd, 2021

Pursuant to Assembly Bill 361 and the Governor's proclamation of a State of Emergency due to the coronavirus (COVID-19) public health emergency, the Folsom City Council, staff, and members of the public may participate in this meeting via teleconference.

Members of the public wishing to participate in this meeting via teleconference may email CityClerkDept@folsom.ca.us no later than thirty minutes before the meeting to obtain call-in information. Each meeting may have different call-in information. Verbal comments via teleconference must adhere to the principles of the three-minute speaking time permitted for inperson public comment at City Council meetings

Microsoft Teams Meeting Link

Or call in (audio only)

<u>+1 559-512-2217,,543426166#</u> United States, Fresno Phone Conference ID: 543 426 166#

1. MEETING CALLED TO ORDER

2. ROLL CALL:

Baade, Bailey, Bosch, Delp, McGee, Soulsby, Washburn

3. BUSINESS FROM FLOOR/GOOD OF THE ORDER

Discuss any items not on the agenda that a member of the public wishes to bring to the Committee's attention. The Committee cannot take formal action on the item but can request that it be placed on a future agenda for further discussion if necessary.

4. ACTION/DISCUSSION ITEMS

Old Business

a. E Natoma and Blue Ravine Safety Assessment

5. ADJOURNMENT

TRAFFIC SAFETY COMMITTEE STAFF REPORT

DATE: November 22, 2021

TO: Traffic Safety Committee

FROM: Public Works Department

SUBJECT: UPDATE ON THE BLUE RAVINE ROAD AND EAST NATOMA

STREET SAFETY ASSESSMENT

BACKGROUND/ANALYSIS

At the March 28th 2019 meeting the Committee voted unanimously to develop a scope of work for a traffic safety assessment of Blue Ravine Road between Prairie City Road and East Natoma Street and East Natoma Street between Blue Ravine Road and Folsom Lake Crossing. Kimley-Horn was selected as the consultant to perform the assessment and has prepared the report for the Traffic Safety Committee to review at the February 27th, 2020 meeting.

After the February 27th, 2020, meeting residents summarized the issues discussed and outlined the items that required follow-up, the included questions and comments related to fiscal considerations, left turn restrictions, collision data, road configuration, signal timing, traffic volumes, traffic speed, high friction pavement treatment, and pedestrian signage at Folsom Lake Crossing. Appendix A of this report shows communication between the residents and the Public Works Department. Traffic signal design, construction, and operations and maintenance costs were provided in a separate spreadsheet on October 28th, 2020. A more comprehensive background and analysis of the costs is provided further below in this report.

At the October 22nd, 2020, meeting of the Traffic Safety Committee, the Committee unanimously supported the recommendations by consultant identified in the final report. The attached summary lists the near term, medium term and long-term improvements along the East Natoma corridor. East Natoma Street Corridor's near term recommendations include warning signing modifications and additions, restriping to extend east bound left-turn pocket at Gionata Way, Installation of green colored pavement markings withing vehicle/bicycle conflict areas, addition of flexible posts near westbound curve approaching Folsom Lake Crossing, installation of marked crosswalk at

unsignalized intersections, implementation of leading pedestrian intervals at signalized intersections, police enforcement, and installation of wayfinding signage at end of Class I shared-use path.

In March 2021, The City was awarded Highway Safety Improvement, Cycle 10 Funds through a competitive grant process for East Natoma. The scope and project were developed using a Cost-Benefit Ratio and was comprised of various locations around the City including Folsom Lake Xing - Folsom Dam Rd and Johnny Cash Trail Entrance; E. Natoma St - Folsom Lake Xing and Gionata Wy; E Natoma St - Cimmaron Cir and Fargo Wy; Folsom Auburn Rd - Pinebrook Rd and Folsom Dam Rd. The City is in the process of selecting a consultant to analyze and design safety improvements on East Natoma Street between Folsom Lake Crossing and Gionata Way. We will likely present the design phase for contract award to the City Council on December 14th. The Local Road Safety Plan has identified three potential countermeasures for East Natoma near Gionata Way:

- Installing Segment Lighting This will help with nighttime visibility
- Installing Median Barrier This would eliminate the potential for cross traffic accidents
- Installing Dynamic Speed Signs These would provide speed guidance and active speed readings to vehicles to deter speeding

In addition to an analysis of the above countermeasures, a traffic study will be performed at the East Natoma/Gionata Way intersection to determine whether a traffic signal would be warranted. This study will consider traffic counts and modified sight distances resulting from the installation of a median barrier. Anticipated timeline for the completion of this portion of the project is Spring 2022, in which time, the consultant will present their findings to the Traffic Safety Committee.

SPEED AND VOLUME DATA

The City has collected traffic volume data along East Natoma Street between Briggs Ranch and Blue Ravine periodically since March 2009 when Folsom Lake Crossing opened for traffic. Chronologically vehicle volume data was 21,134 in 2009, 24,629 in May 2010, 29,810 in October 2015, and 34,101 in 2009 as represented in the chart below.

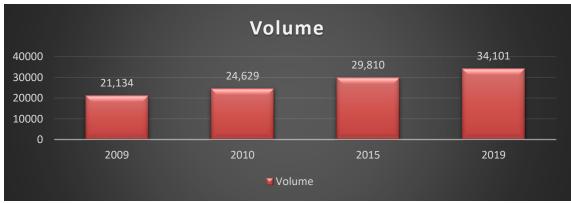


Chart 1 - Vehicle Volume Over Time

The vehicle volume over the past 10 years shows an increase of 4.9 % per year annually which is consistent with regional growth forecast models from the Sacramento Area Council of Governments (SACOG) which produces regional growth forecasts as part of their Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) every four years. Going back to before the Folsom Lake Crossing was constructed, vehicle volume were collected just before the new bridge was completed in March of 2009 and ADT volume were 16,411 for an average weekday. If those volumes are used instead of the post-bridge opening volumes, the annual growth rate becomes 7.5 %.

Traffic speeds have been collected less frequently along East Natoma Street. However in June 2021 City Staff deployed its Stealth radar speed collection device for one week between June 16th and June 23rd. This particular device uses radar technology to collect speed data on approaching and departing vehicles, and while there may be anomalies in the data as a function of the limitations of the collection device, it provided data points on 147,610 vehicles over the course of the week. For the purposes of this staff report the data presented show an 85th percentile speed of 55MPH Eastbound, and 54MPH Westbound – speeds that are 9 to 10 MPH over the posted speed limit, with 24% of vehicles traveling above 55 MPH, and 2% of vehicles traveling in excess of 65 MPH (1504 total vehicles over the course of the survey traveling above 65MPH). The distribution of those vehicles occurred nearly equally each hour between 05:00AM and 9:00PM (between 10 to 20 vehicles per hour). At 65 MPH, a vehicle is travelling at approximately 95 FPS, and will cover 712' in the 7.5 seconds that the Highway Capacity Manual indicates is the Critical Gap for Two-Way Stop Controlled Intersections. Visually this distance is shown below.



Figure 1 – Approximate location of 712' from Gionata Way looking West.

Table 1. Critical Gaps tg for Two-Way Stop Controlled Intersections

(Source: 2000 Highway Capacity Manual)

	Critical Gap t _g					
Vehicle Maneuver	Two -Lane Major Road (sec.)	Four-Lane Major Road (sec.)				
Left turn, major street	4.1	4.1				
Right turn, minor street	6.2	6.9				
Through traffic, minor street	6.5	6.5				
Left turn, minor street	7.1	7.5				

Attached to this report as Appendix B are the reports produced by the Stealth Radar Unit and as Appendix G provided by resident Becky Bolin.

COST ESTIMATE

At the October 22nd, 2020, meeting of the Traffic Safety Committee, Public Works staff presented a staff-created estimate for the design, construction, and ongoing operation and maintenance of a new traffic signal at the intersection of East Natoma and Gionata Way. These costs were shared with residents via email on October 28th, 2020 and are attached as Appendix C in this report. To provide a peer review of these costs Kimley Horn was retained as an engineering consultant to formulate a cost estimate for the design, construction, and ongoing operation and maintenance of a new traffic signal at the intersection of East Natoma and Gionata Way as well as a retrofit of the existing Fire Station 35 emergency signal at Glenn Drive & Walmart/Fire Station intersection. That draft memorandum with the detailed cost estimates is attached as Appendix D. Staff's estimate for a new traffic signal at East Natoma and Gionata was \$1,174,333 for design, construction, and operation/maintenance. Kimley Horn's estimate was \$1,003,100 for the design, construction, and operation/maintenance.

RESIDENT PROVIDED DOCUMENTS

Attached to this staff report as Appendix E through Appendix G are documents provided by Becky Bolin to share with Traffic Safety Committee members and to be added as part of this report.

STAFF RECOMMENDATION/TRAFFIC SAFETY COMMITTEE ACTION

Staff recommends that the Committee discuss appropriate further actions, if necessary.

ATTACHEMENTS

Appendix A – City Response To Resident's Questions Following The February 27^{th} TSC Appendix B – Stealth Radar Unit Reports Of Speed And Volume Between June 16^{th} And June 23^{rd} , 2021

Appendix C – City Staff Produced Traffic Signal And Median Improvement Costs

Appendix D – Kimley Horn Produced Draft Memorandum For East Natoma At Gionata And Glenn Drive And Fire Station 35 Cost Estimates.

Appendix E – Engineering And Traffic Survey "Exhibit A", Selected Sheets From East Natoma Street & Blue Ravine Road Safety Assessment, & Traffic Volume Spreadsheet Provided By Becky Bolin

Appendix F – Google Earth Images and Spot Speed Surveys Provided By Becky Bolin Appendix G – Stealth Radar Unit Traffic Speed Volume Sheets provided by resident Becky Bolin

Appendix H – Meeting Minutes for October 22nd, 2020, TSC

Appendix A

Fiscal Consideration:

- Need to compare both the costs and long-term effectiveness of the consultant's 16 recommended measures to the traffic signal at Gionata. The TSC agreed that this made sense.
- The comparison needs to include the cost for continual police traffic/speed enforcement that would be required if a traffic light was not installed. Fiscal analysis still on-going. Awaiting costs from Police Department.

Signal Re-Timing:

• In the near term, could existing traffic signals be re-timed to enable a better traffic break to exit our neighborhood? This would need to be in conjunction with elimination of the free flow right turn lane at Folsom Lake Crossing.

This would be very difficult to achieve without some sort of detection at the exit from the neighborhood. The signals are timed to respond to demand at the intersections there are installed, not adjacent intersections without equipment or detection. In the current state, this request is not possible.

Traffic Volume Question - Clarification Needed:

• Does the consultant have updated traffic volume as a result of the peak volume study conducted in October 2019? Page 3 of the study states that 72 hour directional tube counts were collected in Oct. 2019.

Consultant does not have daily volumes for Oct 2019. Data was collected for turning movement counts during only peak AM and peak PM times. In 2010, the City collected data on East Natoma between Briggs Ranch Drive and Green Valley/Blue Ravine and saw a total volume of 24,629 vehicles. Correlating to a 4.27% increase per year.

• The traffic volume of 34,101 on E Natoma the consultant mentioned in the meeting is from data dated February 2019.

High Friction Surface Treatment Recommendation:

• Will the road noise level increase with this recommendation? The homes that were built in La Collina complied with a noise sound study that did not include high friction surface road treatments.

Due to the nature of the material used in HFST, the assumption should be that there would be a nominal (1-3 decibels) increase in road noise through the treated area.

 Additional road surface noise would also negatively impact the Briggs Ranch neighborhood.

Pedestrian Signage at Folsom Lake Crossing:

• Can a "Yield to Pedestrian" sign be erected immediately at Folsom Lake Crossing/E Natoma Intersection?

Request has been completed.

It is our understanding that the consultant's report is a draft and therefore is not ready to be finalized and forwarded to the City Council. Please confirm that the report is a draft. The report, as presented to the TSC at the time of the meeting was in draft form.

Also, Mark Rackovan mentioned that staff is undertaking a city-wide traffic light study. Can you please provide me with any information/reports, now and going forward, that are released to the public on this effort?

The consultant hired to prepare the city-wide intersection control evaluation (ICE) continues to work on the document and is currently in draft form. City Staff will provide updates going forward, and when document is released publicly.

Appendix B

Place Currently Not Set Daily Traffic Flow - 15 minute interval

Location: East Natoma-OPPOSING Zone: Other Travel Direction: W

Т	hursday, 6/17/202	1			
Time AM	Vehicle Count	Hour Total	Time PM	Vehicle Count	Hour Total
00:00 to 00:15	16		12:00 to 12:15	152	
00:15 to 00:30	23		12:15 to 12:30	125	
00:30 to 00:45	16		12:30 to 12:45	126	
00:45 to 01:00	14	69	12:45 to 13:00	113	516
01:00 to 01:15	12		13:00 to 13:15	131	
01:15 to 01:30	12		13:15 to 13:30	112	
01:30 to 01:45	7		13:30 to 13:45	106	
01:45 to 02:00	12	43	13:45 to 14:00	111	460
02:00 to 02:15	5		14:00 to 14:15	126	
02:15 to 02:30	9		14:15 to 14:30	133	
02:30 to 02:45	11		14:30 to 14:45	108	
02:45 to 03:00	13	38	14:45 to 15:00	169	536
03:00 to 03:15	4		15:00 to 15:15	136	
03:15 to 03:30	6		15:15 to 15:30	154	
03:30 to 03:45	12		15:30 to 15:45	133	
03:45 to 04:00	11	33	15:45 to 16:00	139	562
04:00 to 04:15	9		16:00 to 16:15	119	
04:15 to 04:30	13		16:15 to 16:30	118	
04:30 to 04:45	13		16:30 to 16:45	103	
04:45 to 05:00	18	53	16:45 to 17:00	137	477
05:00 to 05:15	25		17:00 to 17:15	161	
05:15 to 05:30	46		17:15 to 17:30	109	
05:30 to 05:45	56		17:30 to 17:45	128	
05:45 to 06:00	56	183	17:45 to 18:00	125	523
06:00 to 06:15	68	100	18:00 to 18:15	144	020
06:15 to 06:30	93		18:15 to 18:30	144	
06:30 to 06:45	114		18:30 to 18:45	118	
06:45 to 07:00	86	361	18:45 to 19:00	141	547
07:00 to 07:15	77	001	19:00 to 19:15	114	011
07:15 to 07:30	87		19:15 to 19:30	117	
07:30 to 07:45	84		19:30 to 19:45	135	
07:45 to 08:00	107	355	19:45 to 20:00	115	481
08:00 to 08:15	117	333	20:00 to 20:15	96	401
08:15 to 08:30	106		20:15 to 20:30	145	
08:30 to 08:45	104		20:30 to 20:45	135	
08:45 to 09:00	123	450	20:45 to 21:00	123	499
09:00 to 09:15	106	430	21:00 to 21:15	117	+33
09:15 to 09:30	113		21:15 to 21:30	99	
09:30 to 09:45	100		21:30 to 21:45	99	
09:45 to 10:00	123	442	21:45 to 22:00	93	400
10:00 to 10:15	105	444		78	400
10:15 to 10:30	118		22:00 to 22:15 22:15 to 22:30	62	
10:30 to 10:45	105		22:30 to 22:45	55	
	-	467			252
10:45 to 11:00	139	467	22:45 to 23:00	57	252
11:00 to 11:15	140		23:00 to 23:15	42	
11:15 to 11:30	125		23:15 to 23:30	37	
11:30 to 11:45	127	F04	23:30 to 23:45	49	454
11:45 to 12:00	129	521	23:45 to 24:00	26	154

Total AM	3015
Peak Hour AM	11:00 to 12:00
Peak Flow AM	521
Peak % of AM	17.28%
Peak AM % of 24 H	6.18%

Total PM	5407
Peak Hour PM	15:00 to 16:00
Peak Flow PM	562
Peak % of PM	10.39%
Peak PM % of 24	6.67%

Place Currently Not Set Selective Time Survey

Location: East Natoma-OPPOSING

6/17/2021 to 6/23/2021 Travel Direction: W

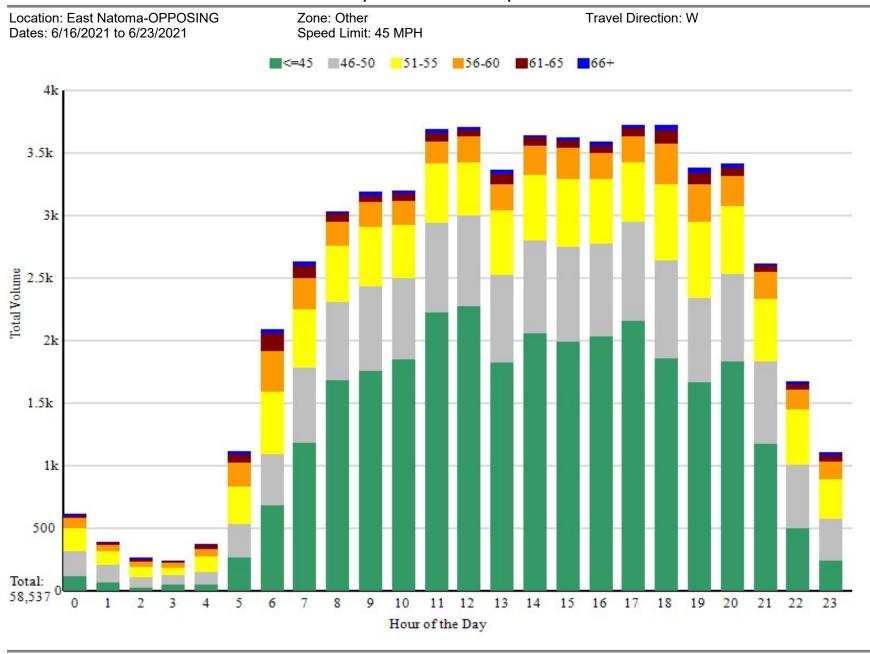
	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Weekday Average	Weekend Average
0:00	69	76	129	137	60	71	76	70	133
1:00	43	44	84	89	42	41	53	44	86
2:00	38	33	55	45	23	30	45	33	50
3:00	33	24	53	43	34	33	22	29	48
4:00	53	54	39	37	64	74	62	61	38
5:00	183	177	111	99	178	171	201	182	105
6:00	361	329	273	158	297	350	329	333	215
7:00	355	394	382	291	378	393	443	392	336
8:00	450	454	462	412	419	399	445	433	437
9:00	442	443	529	490	362	456	477	436	509
10:00	467	513	492	471	443	420	394	447	481
11:00	521	602	545	613	478	456	477	506	579
12:00	516	552	527	574	461	526	524	515	550
13:00	460	487	536	528	438	553	39	395	532
14:00	536	488	528	531	497	521	0	408	529
15:00	562	519	530	503	460	508	0	409	516
16:00	477	479	579	516	509	508	0	394	547
17:00	523	586	543	475	517	511	0	427	509
18:00	547	566	462	473	518	546	0	435	467
19:00	481	511	463	456	449	491	0	386	459
20:00	499	478	454	431	445	520	0	388	442
21:00	400	443	385	352	307	365	0	303	368
22:00	252	291	300	224	188	200	0	186	262
23:00	154	227	209	139	112	132	0	125	174
Totals	8422	8770	8670	8087	7679	8275	3587	7346	8378

Combined Totals: 15724

Zone: Other

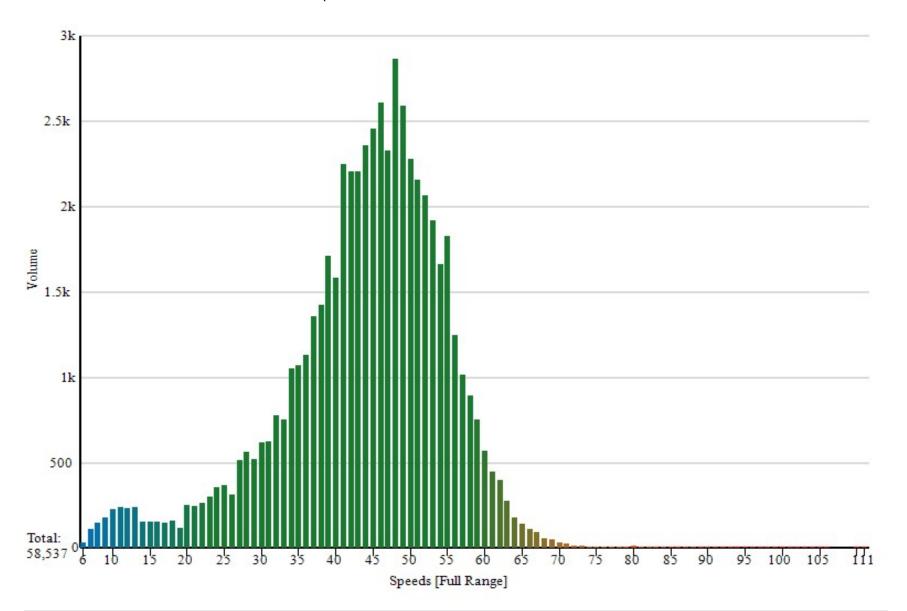
Selective Time Survey Mask
All data from the survey is masked to show only that 'time frame' of interest. Daily totals represent the visible unmasked data.

Place Currently Not Set Speed/Time/Volume Graph



Place Currently Not Set Speed/Volume Graph

Location: East Natoma-OPPOSING Zone: Other Travel Direction: W
Dates: 6/16/2021 to 6/23/2021 Speed Limit: 45 MPH



Place Currently Not Set Traffic Survey Summary

Location: East Natoma-OPPOSING Zone: Other

 Start Date: 6/16/2021
 Start Time: 12:54:02

 End Date: 6/23/2021
 End Time: 13:45:39

 Travel Direction: W

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	2321	501	569	728	833	1085	1252	1536	2127	2493	3137	41955
% of Total	3.96%	0.85%	0.97%	1.24%	1.42%	1.85%	2.13%	2.62%	3.63%	4.25%	5.35%	71.67%
										al Vehicle	es: 58537	,

Speed Statistics		10 MPH Pa	Number Exceeding Limit					
Posted	45	Pace Speed	41 to 50	Speed	45+	55+	65+	Total
#At/Under Limit	29666	# in Pace	24183	Number	22327	5937	607	28871
# Over Limit	28871	% in Pace	41.31%	Percent	38.14%	10.14%	1.03%	49.32%
Average Speed	43.86	85% Percentile	54					

Place Currently Not Set Time vs Speed

Zone: Other Travel Direction: W

Location: East Natoma-OPPOSING

Date: 6/17/2021 Posted Speed Limit: 45 MPH

								-	Spe	ed Raı	nges	-						
Time Span	Total	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85
00:00-00:59	69	0	0	0	0	0	0	1	1	9	27	21	6	2	2	0	0	0
01:00-01:59	43	0	0	0	0	0	0	0	0	8	13	13	8	0	0	0	0	1
02:00-02:59	38	0	0	0	0	0	0	0	1	2	9	15	5	5	1	0	0	0
03:00-03:59	33	0	3	0	0	1	0	1	0	6	10	7	4	1	0	0	0	0
04:00-04:59	53	0	0	1	1	0	1	1	0	5	15	15	8	4	0	0	2	0
05:00-05:59	183	0	0	2	1	2	1	2	11	20	50	45	36	11	1	0	1	0
06:00-06:59	361	0	6	6	5	2	6	21	29	64	79	80	40	17	5	0	1	0
07:00-07:59	354	0	4	0	4	2	9	17	43	74	86	62	33	13	4	0	1	2
08:00-08:59	449	0	2	7	2	18	22	41	65	98	94	64	31	4	0	0	0	1
09:00-09:59	439	0	0	3	3	7	19	33	72	95	110	62	23	6	5	0	0	1
10:00-10:59	466	0	7	2	9	17	33	40	61	89	90	75	30	9	3	1	0	0
11:00-11:59	521	0	3	5	10	12	28	71	83	111	97	60	27	14	0	0	0	0
12:00-12:59	515	0	0	8	11	14	29	47	69	103	110	67	43	10	2	2	0	0
13:00-13:59	460	0	3	7	6	11	19	31	58	99	106	75	29	16	0	0	0	0
14:00-14:59	536	0	4	9	10	17	39	64	67	121	99	57	33	13	2	1	0	0
15:00-15:59	562	0	14	10	3	12	24	56	91	131	101	80	27	8	4	0	1	0
16:00-16:59	477	0	2	8	7	15	18	39	78	115	98	62	22	11	0	2	0	0
17:00-17:59	519	0	4	11	5	11	25	59	79	122	118	55	21	5	4	0	0	0
18:00-18:59	546	0	12	10	9	19	20	26	55	109	124	96	49	14	1	2	0	0
19:00-19:59	481	0	10	15	9	16	25	26	48	84	90	92	49	11	4	2	0	0
20:00-20:59	499	0	9	5	5	20	26	39	67	107	93	71	37	13	5	2	0	0
21:00-21:59	400	0	3	4	4	9	22	21	39	73	103	82	34	6	0	0	0	0
22:00-22:59	252	0	1	4	5	4	5	5	21	46	73	58	19	4	2	1	2	2
23:00-23:59	154	0	0	2	1	1	1	1	7	16	50	45	20	7	1	0	0	2
Totals	8410	0	87	119	110	210	372	642	1045	1707	1845	1359	634	204	46	13	8	9

Place Currently Not Set Traffic Summary Week

Location: East Natoma-OPPOSING

Zone: Other 6/17/2021 to 6/23/2021 Travel Direction: W

	Thu 17 Jun	Fri 18 Jun	Sat 19 Jun	Sun 20 Jun	Mon 21 Jun	Tue 22 Jun	Wed 23 Jun	Weekday Average	Weekend Average
Midnight	69	76	129	137	60	71	76	70	133
1:00	43	44	84	89	42	41	53	44	86
2:00	38	33	55	45	23	30	45	33	50
3:00	33	24	53	43	34	33	22	29	48
4:00	53	54	39	37	64	74	62	61	38
5:00	183	177	111	99	178	171	201	182	105
6:00	361	329	273	158	297	350	329	333	215
7:00	355	394	382	291	378	393	443	392	336
8:00	450	454	462	412	419	399	445	433	437
9:00	442	443	529	490	362	456	477	436	509
10:00	467	513	492	471	443	420	394	447	481
11:00	521	602	545	613	478	456	477	506	579
12:00	516	552	527	574	461	526	524	515	550
13:00	460	487	536	528	438	553	39	395	532
14:00	536	488	528	531	497	521	0	408	529
15:00	562	519	530	503	460	508	0	409	516
16:00	477	479	579	516	509	508	0	394	547
17:00	523	586	543	475	517	511	0	427	509
18:00	547	566	462	473	518	546	0	435	467
19:00	481	511	463	456	449	491	00	386	459
20:00	499	478	454	431	445	520	0	388	442
21:00	400	443	385	352	307	365	0	303	368
22:00	252	291	300	224	188	200	0	186	262
23:00	154	227	209	139	112	132	0	125	174
Totals	8422	8770	8670	8087	7679	8275	3587	7346	8378

Place Currently Not Set Daily Traffic Flow - 15 minute interval

Location: East Natoma Zone: Other Travel Direction: W

Т	hursday, 6/17/202	1			
Time AM	Vehicle Count	Hour Total	Time PM	Vehicle Count	Hour Total
00:00 to 00:15	10		12:00 to 12:15	220	
00:15 to 00:30	12		12:15 to 12:30	227	
00:30 to 00:45	13		12:30 to 12:45	207	
00:45 to 01:00	7	42	12:45 to 13:00	178	832
01:00 to 01:15	19		13:00 to 13:15	207	
01:15 to 01:30	10		13:15 to 13:30	178	
01:30 to 01:45	10		13:30 to 13:45	187	
01:45 to 02:00	8	47	13:45 to 14:00	211	783
02:00 to 02:15	4		14:00 to 14:15	234	
02:15 to 02:30	6		14:15 to 14:30	206	
02:30 to 02:45	3		14:30 to 14:45	232	
02:45 to 03:00	2	15	14:45 to 15:00	241	913
03:00 to 03:15	9		15:00 to 15:15	250	
03:15 to 03:30	9		15:15 to 15:30	215	
03:30 to 03:45	18		15:30 to 15:45	216	
03:45 to 04:00	10	46	15:45 to 16:00	219	900
04:00 to 04:15	14		16:00 to 16:15	185	
04:15 to 04:30	31		16:15 to 16:30	250	
04:30 to 04:45	31		16:30 to 16:45	176	
04:45 to 05:00	40	116	16:45 to 17:00	214	825
05:00 to 05:15	51	110	17:00 to 17:15	212	020
05:15 to 05:30	81		17:15 to 17:30	205	
05:30 to 05:45	108		17:30 to 17:45	205	
05:45 to 06:00	95	335	17:45 to 18:00	182	804
06:00 to 06:15	93	000	18:00 to 18:15	178	004
06:15 to 06:30	202		18:15 to 18:30	192	
06:30 to 06:45	207		18:30 to 18:45	190	
06:45 to 07:00	204	706	18:45 to 19:00	194	754
07:00 to 07:15	223	700	19:00 to 19:15	147	704
07:00 to 07:13	188		19:00 to 19:13	129	
07:30 to 07:45	196		19:30 to 19:45	174	
07:45 to 08:00	217	824	19:45 to 20:00	129	579
08:00 to 08:15	231	024	20:00 to 20:15	118	319
08:15 to 08:30	265		20:15 to 20:30	166	
08:30 to 08:45	201		20:30 to 20:45	169	
08:45 to 09:00	192	889	20:45 to 21:00	167	620
09:00 to 09:15	198	009	21:00 to 21:15	148	020
09:15 to 09:30	181		21:15 to 21:30	121	
			21:30 to 21:45		
09:30 to 09:45	170 228	777	21:45 to 22:00	95 107	471
09:45 to 10:00 10:00 to 10:15	232	111	22:00 to 22:15	73	4/ 1
10:15 to 10:30	232		22:15 to 22:30	55	
10:15 to 10:30	176		22:30 to 22:45	43	
	ł	902			200
10:45 to 11:00	182	803	22:45 to 23:00	38	209
11:00 to 11:15	220		23:00 to 23:15	46	
11:15 to 11:30	235		23:15 to 23:30	23	
11:30 to 11:45	241	040	23:30 to 23:45	24	440
11:45 to 12:00	220	916	23:45 to 24:00	26	119

Total AM	5516
Peak Hour AM	11:00 to 12:00
Peak Flow AM	916
Peak % of AM	16.6%
Peak AM % of 24 H	6.87%

Total PM	7809
Peak Hour PM	14:00 to 15:00
Peak Flow PM	913
Peak % of PM	11.69%
Peak PM % of 24	6.85%

Place Currently Not Set Selective Time Survey

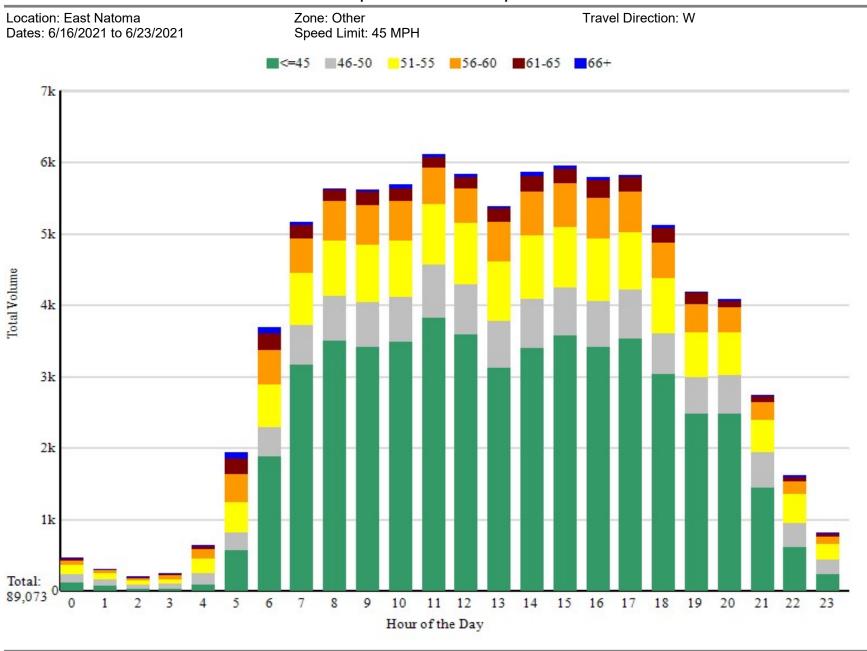
Location: East Natoma Zone: Other 6/17/2021 to 6/23/2021 Travel Direction: W

	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Weekday Average	Weekend Average
0:00	42	68	90	126	50	45	55	52	108
1:00	47	43	46	64	47	35	31	40	55
2:00	15	30	55	43	24	23	18	22	49
3:00	46	36	23	23	46	37	38	40	23
4:00	116	104	58	46	120	107	99	109	52
5:00	335	325	176	149	312	313	340	325	162
6:00	706	582	308	243	515	692	656	630	275
7:00	824	810	601	453	789	844	849	823	527
8:00	889	876	728	627	883	794	846	857	677
9:00	777	834	963	895	601	765	788	753	929
10:00	803	890	951	840	765	758	682	779	895
11:00	916	843	904	952	817	858	823	851	928
12:00	832	914	889	842	722	847	785	820	865
13:00	783	905	860	749	740	869	14	662	804
14:00	913	835	898	860	718	813	0	655	879
15:00	900	843	886	843	822	759	0	664	864
16:00	825	784	914	732	851	804	0	652	823
17:00	804	855	795	766	813	850	0	664	780
18:00	754	868	603	677	708	714	0	608	640
19:00	579	619	643	605	534	618	0	470	624
20:00	620	627	557	584	508	585	0	468	570
21:00	471	452	414	426	310	317	0	310	420
22:00	209	282	285	201	171	219	0	176	243
23:00	119	156	178	72	79	104	0	91	125
Totals	13325	13581	12825	11818	11945	12770	6024	11529	12321

Combined Totals: 23850

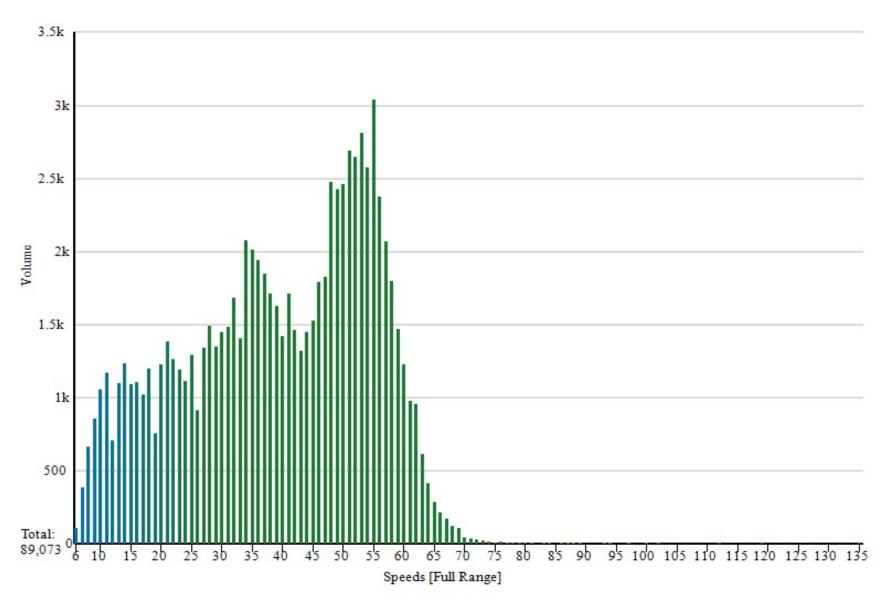
Selective Time Survey Mask
All data from the survey is masked to show only that 'time frame' of interest. Daily totals represent the visible unmasked data.

Place Currently Not Set Speed/Time/Volume Graph



Place Currently Not Set Speed/Volume Graph

Location: East Natoma Zone: Other Travel Direction: W
Dates: 6/16/2021 to 6/23/2021 Speed Limit: 45 MPH



Place Currently Not Set Traffic Survey Summary

Location: East Natoma

Start Date: 6/16/2021

End Date: 6/23/2021

End Time: 12:54:02

End Time: 13:45:39

Travel Direction: W

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	12478	2619	2459	2412	2264	2847	2937	3093	4092	3793	3340	46739
% of Total	14%	2.94%	2.76%	2.7%	2.54%	3.19%	3.29%	3.47%	4.59%	4.25%	3.74%	52.47%
									Tot	al Vehicle	es: 89073	3

Speed Statis	stics	10 MPH Pa	ace	Number Exceeding Limit				
Posted	45	Pace Speed	48 to 57	Speed	45+	55+	65+	Total
#At/Under Limit	51241	# in Pace	25582	Number	24750	12215	867	37832
# Over Limit	37832	% in Pace	28.72%	Percent	27.78%	13.71%	0.97%	42.47%
Average Speed	39.21	85% Percentile	55					

Place Currently Not Set Time vs Speed

Location: East Natoma Zone: Other Travel Direction: W Date: 6/18/2021 Posted Speed Limit: 45 MPH

								_	Spe	ed Rar	nges							
Time Span	Total	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85
00:00-00:59	68	0	3	2	1	1	2	2	4	6	17	15	7	7	1	0	0	0
01:00-01:59	43	0	1	0	0	1	0	0	2	7	15	13	3	0	1	0	0	0
02:00-02:59	29	0	0	0	0	0	0	0	0	2	12	6	5	4	0	0	0	0
03:00-03:59	36	0	0	1	0	0	0	2	0	2	9	8	6	6	1	1	0	0
04:00-04:59	104	0	1	1	2	1	1	0	2	4	22	38	19	8	3	2	0	0
05:00-05:59	325	0	9	12	14	5	16	17	15	14	31	72	60	47	9	4	0	0
06:00-06:59	582	0	11	25	24	32	51	44	40	50	55	100	90	43	15	2	0	0
07:00-07:59	810	0	24	44	43	66	79	86	80	58	82	117	90	33	7	1	0	0
08:00-08:59	875	0	24	59	64	70	79	83	102	70	91	125	84	21	2	1	0	0
09:00-09:59	834	0	27	46	58	69	61	84	73	77	100	121	83	30	5	0	0	0
10:00-10:59	890	0	24	63	58	59	79	91	101	83	98	115	88	27	4	0	0	0
11:00-11:59	843	0	29	40	53	65	67	88	80	66	112	135	87	14	3	3	1	0
12:00-12:59	914	0	33	57	60	69	85	106	89	100	126	131	40	15	1	2	0	0
13:00-13:59	905	0	31	56	62	59	78	87	94	87	100	125	92	28	5	1	0	0
14:00-14:59	835	0	30	47	46	61	52	86	85	66	98	129	89	34	9	2	1	0
15:00-15:59	842	0	27	51	53	68	61	94	95	54	107	107	85	28	9	3	0	0
16:00-16:59	783	0	30	46	41	44	58	69	65	75	93	135	88	32	5	2	0	0
17:00-17:59	855	0	33	59	62	65	79	81	94	66	103	99	83	25	6	0	0	0
18:00-18:59	868	0	29	54	61	76	74	96	104	75	94	120	57	24	2	1	1	0
19:00-19:59	619	0	28	36	42	60	37	56	76	58	76	83	42	21	2	2	0	0
20:00-20:59	627	0	16	48	36	44	52	64	62	65	87	90	48	13	1	1	0	0
21:00-21:59	452	0	23	19	17	29	22	43	45	55	88	68	31	9	3	0	0	0
22:00-22:59	282	0	17	15	8	12	10	20	14	35	50	64	28	6	3	0	0	0
23:00-23:59	156	0	5	7	1	4	3	5	7	16	40	40	22	4	2	0	0	0
Totals	13577	0	455	788	806	960	1046	1304	1329	1191	1706	2056	1327	479	99	28	3	0

Place Currently Not Set Traffic Summary Week

Location: East Natoma Zone: Other 6/17/2021 to 6/23/2021 Travel Direction: W

	Thu 17 Jun	Fri 18 Jun	Sat 19 Jun	Sun 20 Jun	Mon 21 Jun	Tue 22 Jun	Wed 23 Jun	Weekday Average	Weekend Average
Midnight	42	68	90	126	50	45	55	52	108
1:00	47	43	46	64	47	35	31	40	55
2:00	15	30	55	43	24	23	18	22	49
3:00	46	36	23	23	46	37	38	40	23
4:00	116	104	58	46	120	107	99	109	52
5:00	335	325	176	149	312	313	340	325	162
6:00	706	582	308	243	515	692	656	630	275
7:00	824	810	601	453	789	844	849	823	527
8:00	889	876	728	627	883	794	846	857	677
9:00	777	834	963	895	601	765	788	753	929
10:00	803	890	951	840	765	758	682	779	895
11:00	916	843	904	952	817	858	823	851	928
12:00	832	914	889	842	722	847	785	820	865
13:00	783	905	860	749	740	869	14	662	804
14:00	913	835	898	860	718	813	0	655	879
15:00	900	843	886	843	822	759	0	664	864
16:00	825	784	914	732	851	804	0	652	823
17:00	804	855	795	766	813	850	0	664	780
18:00	754	868	603	677	708	714	0	608	640
19:00	579	619	643	605	534	618	00	470	624
20:00	620	627	557	584	508	585	0	468	570
21:00	471	452	414	426	310	317	0	310	420
22:00	209	282	285	201	171	219	0	176	243
23:00	119	156	178	72	79	104	0	91	125
Totals	13325	13581	12825	11818	11945	12770	6024	11529	12321

Appendix C

		Median at E. Natoma/Gionata	Traffic Signal at E. Natoma/Gionata	
E1	\$ 5,500.00	\$ 5,500.00	\$ 5,500.00	Warning signing modifications and additions
E2	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	Restriping to extend eastbound left-turn pocket at Gionata Way
E3	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	Installation of green colored pavement marking within vehicle/bicycle conflict areas
E4	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00	Addition of flexible posts/delineators near westbound curve approaching Folsom Lake Crossing
E5	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	Installation of marked crosswalks at unsignalized intersections
E6	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	Implementation of leading pedestrian interval (LPI) signal phasing
E7	\$ -	\$ -	\$ -	Police enforcement (speed)
E8	\$ 500.00	\$ 500.00		Installation of wayfinding signage at end of Class I shared-use path
E9	\$ 12,000.00	\$ 12,000.00		Installation of radar feedback signs
E10	\$ 15,000.00	\$ 15,000.00	T	Construction of raised median to restrict left-turns out of Gionata Way and traffic signal modifications at the East Natoma Street signalized intersecti
E11	\$ 5,000.00	\$ 5,000.00	-/	Installation of bike ramp for westbound bicyclists to access Class I bike path approaching Folsom Lake Crossing intersection
E12	\$ 1,000.00	\$ 1,000.00	,	Installation of accessible pedestrian signals (APS) and static "Yield to Pedestrians" signs
E13	\$ 20,000.00	\$ 20,000.00		Implementation of bicycle detection system at signalized intersections
E14	\$ 133,333.33	\$ 133,333.33	\$ 133,333.33	Application of HFST along the East Natoma Street horizontal curve
E15	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	Restriping to extend eastbound left-turn pocket into Elvies Lane
E16	\$ 82,000.00	\$ 82,000.00	\$ 82,000.00	Widening of bike lanes to provide appropriately sized bike facilities
Signal PS&E/Construct		\$ -	\$ 460,000.00	
Subtotal before maint.		\$ 338,333.33	\$ 783,333.33	
Est. Maint. Cost		\$ 91,000.00	\$ 391,000.00	
Total cost w/maint.		\$ 429,333.33	\$ 1,174,333.33	

Appendix D



Memorandum

To: Zach Bosch, P.E.

City of Folsom

From: Robert Paderna, P.E., RSP₁

Matt Weir, P.E., T.E., PTOE, RSP₁

Re: Folsom Signal Cost Estimates

DRAFT Cost Estimate Summary

Date: November 23, 2021

The City of Folsom has identified two intersections for traffic signal consideration: E Natoma Street at Gionata Way and Glenn Drive at Walmart/Fire Station No. 35. As part of the City's consideration for traffic signal improvements at these two locations, the City is assessing the "all-in" costs including design, construction, operations and maintenance. The intent of this technical memorandum is to summarize the two study intersections' existing and proposed conditions, and provide initial cost estimates for the traffic signal improvements.

E Natoma Street at Gionata Way

E Natoma Street at Gionata Way is a three-legged intersection that is currently operating as uncontrolled along E Natoma Street and stop controlled on Gionata Way. As part of the signalization of this intersection, the median striping going through the middle of the intersection will be removed and the stop bar on Gionata would be removed and replaced with standard cross walk striping.

The electrical improvements at the intersection would include installation of a new traffic signal controller cabinet, service cabinet and service connection, signal poles, conduits, pull boxes, luminaires, stop bar detection (main and side streets), and intermediate/advanced detection (main street).

On the south side of the intersection, where there is no vehicle approach and no sidewalk, a retaining curb will need to be added between the shoulder stripe and the proposed signal elements. The existing curb ramps appear to be in ADA compliance and likely do not need to be upgraded.

In addition, according to the City of Folsom Technology Implementation Plan, E Natoma Street is proposed to have fiber optic communications. Therefore, fiber optic conduit, cable, pull boxes, and all connection equipment are proposed from the project intersection to the intersection of E Natoma Street and Folsom Lake Crossing to the west.

Glenn Drive at Walmart/Fire Station No. 35

Glenn Drive at Walmart/Fire Station No. 35 is a four-legged intersection that is currently operating as an emergency vehicle signal that stays dark until an emergency vehicle preempts the signal to enter the intersection. As part of the signalization of this intersection, the median striping going through the middle of the intersection and going both north and south will be removed and replaced with left turn pockets on Glenn Drive. In addition, the striping along the Walmart parking lot approach will be removed and crosswalks will be added across all four legs of the intersection.



The electrical improvements at the intersection would include installation of a new traffic signal controller cabinet, service cabinet and service connection, signal poles, conduits, pull boxes, luminaires, stop bar detection (main and side streets), and intermediate/advanced detection (main street).

On all four corners of the intersection, the curb ramps do not appear to be ADA compliant and thus will need to be upgraded. It is recommended that directional curb ramps be installed at each corner for a total of 8 new curb ramps.

No fiber optic infrastructure is proposed along Glenn Drive.

Summary

In addition to the construction elements mentioned above, soft costs such as design costs (assumed to be 10% of construction costs per industry standard) and maintenance costs for an assumed 20-year signal service life (matching the costs provided in the Folsom Citywide Intersection Control Evaluation Screening Methodology Memorandum¹) need to be added to determine comprehensive, "all-in" signalization costs.

The summary of the associated costs with the required improvements for signalization at both intersection are shown in **Table 1**, and the detailed breakdown of construction elements and costs are provided in **Exhibits 1-4**.

E Natoma Street and Gionata Way ITEM NO. ITEM DESCRIPTION Unit Unit Price Quantity Extended Price Design (10% of Construction) LS \$ 73,800.00 73,800.00 1 1 \$ 2 Construction LS \$ 738,100.00 1 \$ 738,100.00 \$ \$ 3 M&0 LS 1 191,200.00 191,200.00 Total 1,003,100.00

Table 1: All-In Cost Estimate

	Glenn Drive	and Wal	mart	/Fire Station 35						
ITEM NO.	M NO. ITEM DESCRIPTION Unit Unit Price Quantity Extended Price									
1	Design (10% of Construction)	LS	\$	66,000.00	1	\$	66,000.00			
2	Construction	LS	\$	659,900.00	1	\$	659,900.00			
3	0&M	LS	\$	183,200.00	1	\$	183,200.00			
		•	•		Total	\$	909,100.00			

Attachments:

Exhibit 1 – E Natoma Street and Gionata Way Engineer's Estimate of Probable Construction Costs

Exhibit 2 – E Natoma Street and Gionata Way Design Elements

Exhibit 3 – Glenn Drive at Walmart/Fire Station 35 Engineer's Estimate of Probable Construction Costs

Exhibit 4 – Glenn Drive at Walmart/Fire Station 35 Design Elements

¹ Folsom Citywide Intersection Control Evaluation Screening Methodology Memorandum, Kimley-Horn, October 27, 2020.

EXHIBIT 1 - E NATOMA STREET AND GIONATA WAY ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COSTS

BID ITEM	ITEM DESCRIPTION	Unit	Unit Price	Quantity	Extended Price
NO.	TIEW DESCRIPTION	Offic	Offic Price	Quantity	Exterided Frice
1	Mobilization (7%)	LS	\$ 39,100.00	1	\$ 39,100.00
2	Traffic Control and Construction Staking (8%)	LS	\$ 44,600.00	1	\$ 44,600.00
3	Signal Improvements	LS	\$ 369,000.00	1	\$ 369,000.00
4	Interconnect Improvements	LS	\$ 178,400.00	1	\$ 178,400.00
5	Civil Improvements	LS	\$ 7,500.00	1	\$ 7,500.00
6	Striping Improvements	LS	\$ 3,195.00	1	\$ 3,195.00
				Total	\$ 641,800.00

Total \$ 641,800.00
Contingency (30%) \$ 96,300.00
CONSTRUCTION TOTAL \$ 738,100.00

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known.

EXHIBIT 2 - E Natoma Street and Gionata Way Design Elements

					~	• • • • •
Electrical	Unit	Quantity	Un	it Price	Со	st
Type 24-3-100	EA	1	\$	33,000.00	\$	33,000.00
Type 24-4-100	EA	1	\$	35,000.00	\$	35,000.00
Type 19-3-100	EA	1	\$	25,000.00	\$	25,000.00
Type 15TS	EA	1	\$	14,000.00	\$	14,000.00
Type 1B	EA	2	\$	4,500.00	\$	9,000.00
MAS	EA	4	\$	600.00	\$	2,400.00
SV-2-T	EA	2	\$	1,000.00	\$	2,000.00
SV-1-T	EA	1	\$	850.00	\$	850.00
TV-2-T	EA	1	\$	1,000.00	\$	1,000.00
TV-1-T	EA	1	\$	900.00	\$	900.00
SP-1-T	EA	2	\$	900.00	\$	1,800.00
APS Push Button	EA	2	\$	1,750.00	\$	3,500.00
Backplate	EA	12	\$	250.00	\$	3,000.00
Furnish and Install Conduit	LF	990	\$	70.00	\$	69,300.00
Furnish and Install Pull Box	EA	11	\$	2,000.00	\$	22,000.00
Conductors	LF	10000	\$	2.00	\$	20,000.00
Furnish and Install Loop Detectors	EA	22	\$	1,100.00	\$	24,200.00
DLC	LF	3500	\$	4.00	\$	14,000.00
Detector Handhole	EA	7	\$	1,000.00	\$	7,000.00
EVP Detector	EA	2	\$	10,000.00	\$	20,000.00
Luminaire	EA	4	\$	1,000.00	\$	4,000.00
Service Enclosure	EA	1	\$	11,000.00	\$	11,000.00
Service Connection Coordination	LS	1	\$	10,000.00	\$	10,000.00
Furnish and Install Mast Arm Sign	EA	3	\$	350.00	\$	1,050.00
Furnish and Install Controller Cabinet						
and Controller Equipment	EA	1	\$	35,000.00	\$	35,000.00
_	Tot	tal	\$	369,000.00		

Civil Improvements	Unit	Quantity	Unit P	rice	Cos	st
Retaining Curb	LF	150	\$	50.00	\$	7,500.00
			Total		\$	7,500.00

Interconnect Improvements	Unit	Quantity	Un	it Price	Со	Cost		
Conduit	LF	1500	\$	70.00	\$	105,000.00		
Trunk Cable	LF	1950	\$	12.00	\$	23,400.00		
Branch Cable	LF	200	\$	8.00	\$	1,600.00		
Pull Box	EA	5	\$	2,000.00	\$	10,000.00		
Splice Vault	EA	2	\$	3,500.00	\$	7,000.00		
Splice Case	EA	2	\$	1,500.00	\$	3,000.00		
Termination Panel and Switch	EA	2	\$	6,000.00	\$	12,000.00		
Splices and Terminations	EA	32	\$	200.00	\$	6,400.00		
Testing	LS	1	\$	10,000.00	\$	10,000.00		
	·	·	Tot	tal	\$	178,400.00		

Signing and Striping	Unit		Quantity	Unit Price	Cost	
Remove Striping	L	_F/SF	510	\$ 2.00	\$	1,020.00
Traffic Stripes		LF	60	\$ 3.00	\$	180.00
24" White Thermoplastic		LF	285	\$ 7.00	\$	1,995.00
				Total	\$	3.195.00

EXHIBIT 3 - GLENN DRIVE AND WALMART/FIRE STATION 35 ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COSTS

BID ITEM NO.	ITEM DESCRIPTION	Unit	Unit Price	Quantity	Extended Price
1	Mobilization (7%)	LS	\$ 34,900.00	1	\$ 34,900.00
2	Traffic Control and Construction Staking (8%)	LS	\$ 39,900.00	1	\$ 39,900.00
3	Signal Improvements	LS	\$ 435,800.00	1	\$ 435,800.00
4	Interconnect Improvements	LS	\$ -	1	\$ -
5	Civil Improvements	LS	\$ 56,000.00	1	\$ 56,000.00
6	Striping Improvements	LS	\$ 7,209.00	1	\$ 7,209.00
		•	_	Total	\$ 573,800.00
			Continge	ency (30%)	\$ 86.100.00

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known.

CONSTRUCTION TOTAL \$

659,900.00

EXHIBIT 4 - Glenn Drive and Walmart/Fire Station 35 Design Elements

Electrical	Unit	Quantity	Un	it Price	Со	st
Type 26-4-100	EA	2	\$	35,000.00	\$	70,000.00
Type 19-3-100	EA	2	\$	25,000.00	\$	50,000.00
Type 1B	EA	4	\$	4,500.00	\$	18,000.00
MAS	EA	6	\$	600.00	\$	3,600.00
SV-2-T	EA	2	\$	1,000.00	\$	2,000.00
SV-1-T	EA	2	\$	850.00	\$	1,700.00
TV-2-T	EA	2	\$	1,000.00	\$	2,000.00
TV-1-T	EA	2	\$	900.00	\$	1,800.00
SP-1-T	EA	8	\$	900.00	\$	7,200.00
APS Push Button	EA	8	\$	1,750.00	\$	14,000.00
Backplate	EA	18	\$	250.00	\$	4,500.00
Furnish and Install Conduit	LF	740	\$	70.00	\$	51,800.00
Furnish and Install Pull Box	EA	13	\$	2,000.00	\$	26,000.00
Conductors	LF	12000	\$	2.00	\$	24,000.00
Furnish and Install Loop Detectors	EA	28	\$	1,100.00	\$	30,800.00
DLC	LF	3500	\$	4.00	\$	14,000.00
Detector Handhole	EA	8	\$	1,000.00	\$	8,000.00
EVP Detector	EA	3	\$	10,000.00	\$	30,000.00
Luminaire	EA	4	\$	1,000.00	\$	4,000.00
Service Enclosure	EA	1	\$	11,000.00	\$	11,000.00
Service Connection Coordination	LS	1	\$	10,000.00	\$	10,000.00
Furnish and Install Mast Arm Sign	EA	4	\$	350.00	\$	1,400.00
Remove Existing Poles and						
Equipment	LS	1	\$	15,000.00	\$	15,000.00
Furnish and Install Controller Cabinet						
and Controller Equipment	EA	1	\$	35,000.00	\$	35,000.00
			Tot	tal	\$	435,800.00

Civil Improvements	Unit	Quantity	Uni	t Price	Со	st
Curb Ramp	EA		8 \$	7,000.00	\$	56,000.00
			Tota	al	\$	56,000.00

Interconnect Improvements	Unit	Quantity	Uni	it Price	Cost	
Conduit	LF		\$	70.00	\$	-
Trunk Cable	LF		\$	12.00	\$	-
Branch Cable	LF		\$	8.00	\$	-
Pull Box	EA		\$	2,000.00	\$	-
Splice Vault	EA		\$	3,500.00	\$	-
Splice Case	EA		\$	1,500.00	\$	-
Termination Panel and Switch	EA		\$	6,000.00	\$	-
Splices and Terminations	EA		\$	200.00	\$	-
Testing	LS		\$	10,000.00	\$	-
			Tot	al	\$	-

Signing and Striping	Unit		Quantity	Unit Price	Cost	i
Remove Striping		LF/SF	1092	\$ 2.00	\$	2,184.00
Traffic Stripes		LF	800	\$ 3.00	\$	2,400.00
24" White Thermoplastic		LF	375	\$ 7.00	\$	2,625.00
				Total	\$	7 209 00

Appendix E

Exhibit A

Engineering & Traffic Surveys (E&TS)

20	Street	Survey Limits	Width (feet)	Existing	Speed (mph) 85th Percentile	Recommended	Changes to Existing Speed Limit
13a	American River Canyon Drive	Greenback Ln. to Oak Ave. Pkwy.	09	40	33	40	0
14	Black Diamond Drive	Iron Point Rd. to Natoma Station Dr.	50	35	41	35	0
15	Broadstone Parkway	Iron Point Rd. to East Bidwell St.	10	45	250	45	0
16	Broadstone Parkway	East Bidwell St. to Golf Links Dr.	100	45	46	45	0
17	Broadstone Parkway	Golf Links Dr. to Empire Ranch Rd.	80	45	4	45	0
100	Bundrick Drive	Clarksville Rd. to Halidon Way	36	30	31	30	0
19	Carter Street	Grover Rd. to McAdoo Dr.	88	25	35	25	0
20	Cavitt Drive	Scholar Way to Broadstone Pkwy.	52	35	42	35	0
21	Cavitt Drive	Broadstone Pkwy. to Iron Point Rd.	52	35	39	35	0
22	Clarksville Road	East Bidwell St. to Broadstone Pkwy.	78	40	40	40	0
23	Coloma Street	Sutter St. to East Bidwell St.	25-45	25	31	25	0
24	Coolidge Drive	Parkshore Dr. to Glenn Dr.	40	30	34	30	0
23	Creekside Drive	East Bidwell St. to Oak Ave. Pkwy.	48	35	37	35	0
56	Duchow Way	Wales Dr. to Glenn Dr.	48	25	31	25	0
45	Folsom Lake Crossing	East Natoma St. to Folsom-Auburn Rd.	50	55	64	55	0
47	Glenn Drive	Sibley St. to Riley St.	60-65	35	36	35	0
80	Glenn Drive	Riley St. to East Bidwell St.	45-50	35	34	35	0
49	Golf Links Drive	East Natoma St. to Broadstone Pkwy.	35-50	45	51	45	0
55	Grover Road	Iron Point Rd. to Russi Rd.	50	35	38	35	c

TRAFFIC VOLUME

ocation	2003	Pre FLC 2009	Post FLC 2009	2011	2015	2019	% Increase 2009 to 2019
Folsom Dam Rd	18,000						
E Natoma		17,000	22,000	24,500	29,810	34,101	100%
Folsom Lake Crossing				20,200	27,400	31,900	77%*

^{*}increase over Folsom Dam Rd volume

East Natoma Street @ Gionata Way

Intersection Sight Distance (ISD) Evaluation

We completed an evaluation of sight distance for the Gionata Way intersection approach, as well as the East Natoma Street left-turn, based on observed horizontal and vertical geometric conditions. These evaluations were performed in accordance with the guidelines presented in the *Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO), and the *Highway Design Manual*, published by Caltrans. The results of this evaluation are presented in **Table 6**.

Table 6 – Summary of Sight Distance Observations (Gionata Way)

Annuach	Condition	CSD (D Avg. Time	esired) Gap (sec)	SSD (Minimum) Distance (ft)		
Approach	Condition	Looking Left	Looking Right	Looking Left	Looking Right	
Southbound	Observed	8.92	8.68 ³	600 ¹	615 ¹	
(Gionata Way)	Required ²	7.	50	43	30	

Notes: CSD = Corner Sight Distance, SSD = Stopping Sight Distance, Acceptable, Unacceptable

The observed sight distances were determined to meet minimum Stopping Sight Distance (SSD) and Corner Sight Distance (CSD) requirements, including the East Natoma Street median left-turn into Gionata Way. It is important to note that this evaluation conservatively assumes a single outbound left-turn movement. However, two-stage left-turn movements are accommodated using the median refuge area.

Traffic Signal Warrants

As previously discussed, a planning level assessment of the need for traffic signalization was performed at the East Natoma Street intersection with Gionata Way. This evaluation was performed consistently with the peak-hour and four-hour warrant methodologies noted in Section 4C of the *California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition.* As documented in **Appendix C**, this intersection does not satisfy either of these warrants due to insufficient side-street (Gionata Way) volumes.

East Natoma Street @ Elvies Lane

Intersection Sight Distance (ISD) Evaluation

Similarly, we completed an evaluation of sight distance for the Elvies Lane intersection approach, as well as the East Natoma Street left-turn, based on observed horizontal and vertical geometric conditions. These evaluations were performed in accordance with the guidelines presented in the *Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO), and the *Highway Design Manual*, published by Caltrans. The results of this evaluation are presented in **Table 7**.

The observed sight distances were determined to meet minimum SSD and CSD requirements, including the East Natoma Street median left-turn into Elvies Lane.



 $^{^{1}}$ Passenger Vehicles, prevailing speed of 47 mph per speed survey data, January 30, 2019.

² Per Caltrans' *Highway Design Manual*, Table 405.1A (CSD) and Table 201.1 (SSD, assumes 50 mph design speed).

³Conservatively assumes single outbound left-turn movements.

Conclusions and Recommendations

Based on the assessment completed for the East Natoma Street corridor, the following conclusions and recommendations are offered to assist the City with enhancing safety.

Warning Signing

As noted, a total of eleven (11) actions including the installation of six (6) new warning signs are recommended stemming from the Roadway Safety Sign Audit (RSSA) completed for the study corridor. Applying these signing changes will bring the corridor's signing into compliance with current CA MUTCD requirements to create a consistent and predictable environment for vehicles.

2. East Natoma Street @ Gionata Way

As documented, this intersection was observed to have adequate Stopping Sight Distance (SSD) and Corner Sight Distance (CSD). It is acknowledged that, although there is ample SSD and CSD, during periods of heavy traffic the time gap between instances of adequate SSD and CSD may be long, and the use of the median refuge area may create discomfort for drivers due to the relatively high volumes and speeds along this segment of East Natoma Street. Furthermore, the collision analysis completed as part of this evaluation did not reveal any documented collisions at this intersection over the approximately five-year study period, and the traffic signal warrants were not satisfied. Nevertheless, the following improvements should be considered by the City to improve the comfort level for left-turning vehicles into and out of Gionata Way.

Left-turns into Gionata Way

Field observations determined that there is approximately 315-feet of deceleration distance (including the bay taper) within the existing eastbound East Natoma Street left-turn pocket into Gionata Way. According to the Caltrans Highway Design Manual², between 235 and 435-feet (assumed 50-mph design speed) are suggested for this median left-turn deceleration lane (including the bay taper). Because it appears that there is ample additional space in the existing striped median island, the City should consider modifying the striping through this area to extend the length of this left-turn lane by approximately 120-feet to achieve the approximately 435-feet suggested for a design speed of 50-mph with no speed reduction in the through lanes. By extending this pocket and reducing the amount of speed reduction required in the through lanes, it is anticipated that driver comfort will improve.

Left-turns out of Gionata Way

The most direct strategy to address driver discomfort would be to restrict the outbound (Gionata Way) left-turn. This modification would require these vehicles to turn right and then make a u-turn at the downstream traffic signal with Folsom Lake Crossing. To assist with this discussion, **Table 8** summarizes the Level of Service (LOS) anticipated to be realized with the addition of the subject u-turn which would necessitate removal of the northbound East Natoma Street right-turn overlap signal phase. Removal of the subject overlap phase is anticipated to result in a minimal amount of additional average delay at the intersection.

Table 8 – Summary of Intersection Operations (E Natoma/Folsom Lake Crossing)

East Natoma St @	Traffic	AM Peak-H	lour	PM Peak-H	lour
Folsom Lake Crossing	Control	Delay (seconds)	LOS	Delay (seconds)	LOS
Existing Conditions	Signal	12.8	В	21.3	С
Modified Conditions ¹	Signal	14.1	В	26.0	С

² Index 405.2, *Highway Design Manual*, Caltrans, December 30, 2015.



In conjunction with the potential signal phasing changes at the East Natoma Street intersection with Folsom Lake Crossing, we completed an evaluation of signal timing parameters. This evaluation included review of the existing pedestrian clearance times. The existing pedestrian clearance times were determined to be insufficient based on the crosswalk lengths and the pedestrian walking speed guidance provided in the *California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition.* The recommended timing modifications, as well as the changes needed to facilitate the removal of the northbound right-turn overlap to allow the westbound u-turn movement, are provided in **Appendix D**. The effect of these modifications is included in the "Modified Conditions" results presented in **Table 8**.

3. East Natoma Street @ Elvies Lane

As documented, this intersection was observed to have adequate Stopping Sight Distance (SSD) and Corner Sight Distance (CSD). It is acknowledged that, although there is ample SSD and CSD, during periods of heavy traffic, the time gap between instances of adequate SSD and CSD may be long. Furthermore, the collision analysis completed as part of this evaluation did not reveal any documented collisions at this intersection over the approximately five-year study period, and the traffic signal warrants were not satisfied. Nevertheless, the following improvements could be considered by the City to improve the comfort level for left-turning vehicles into and out of Elvies Lane.

Left-turns into Elvies Lane

Field observations determined that there is only approximately 140-feet of deceleration distance (including the bay taper) within the existing eastbound East Natoma Street left-turn pocket into Elvies Lane. According to the Caltrans *Highway Design Manual*³, between 235 and 435-feet (assumed 50-mph design speed) are suggested for this median left-turn deceleration lane (including the bay taper). To the extent possible due to the lack of readily apparent additional roadway width, the City should consider modifying the striping through this area to extend the length of this left-turn lane by approximately 100-300-feet to achieve the approximately between 235 to 435-feet suggested for a design speed of 50-mph. By extending this pocket and reducing the amount of speed reduction required in the through lanes, it is anticipated that driver comfort will improve. Alternatively, the City may consider restricting lefts-in to Elvies Lane. By restricting the inbound (E Natoma St) left-turn, these vehicles would be required to continue traveling eastbound to the next downstream signal at Briggs Ranch Drive. Therefore, permitting eastbound u-turns at the Briggs Ranch Drive would be recommended. Based on the existing lane geometry, there appears to be sufficient roadway width to accommodate this u-turn movement.

Left-turns out of Elvies Lane

The most direct strategy to address driver discomfort would be to restrict the outbound (Elvies Lane) left-turn. This modification would require these vehicles to turn right and then make a u-turn at the downstream traffic signal with Folsom Lake Crossing. The operations effect of this modification was previously documented in **Table 8**.

4. Bicycle and Pedestrian Facilities

As documented, Class II bike lanes are provided on both sides of the street along East Natoma Street. However, the bike lanes vary with some sections providing inadequate pavement to achieve desired widths. Widening of the pavement width to accommodate appropriately sized bike lanes is recommended. Additionally, installation of green colored pavement within vehicle/bicycle conflict areas (i.e., transition areas between curbside bike lane to bike slot at intersection, across driveways

³ Index 405.2, *Highway Design Manual*, Caltrans, December 30, 2015.

SUMMARY OF RECOMMENDATIONS

Utilizing the data collected and observations gathered during the team field observations, and results of the traffic safety assessment for each corridor, recommended traffic safety improvements have been identified along both project corridors. The improvements have been categorized as near-term, mid-term, or long-term based on scale of improvements, associated construction costs, and implementation considerations. The following is an overview of the timeframes used to characterize each of the recommended safety and operations enhancements:

- Near-Term: Lower-cost, less intrusive facilities such as minor signing and striping improvements that can be implemented within 90 days. Examples of near-term improvements are signage installations/replacements, buffered bike lanes, Class III bike route pavement markings and signage, and high-visibility crosswalks.
- Mid-Term: More substantial improvements with higher costs are more intrusive and/or require additional time for implementation. Potential Mid-term improvements are segment-long striping and/ or paving projects, constructing sidewalks to close existing gaps, minor traffic signal modifications, bulbouts, or other small capital improvements that can either be funded out of existing budget sources or can be proposed in future Capital Improvement Program (CIP) budgets within the next two fiscal years.
- Long-Term: Major improvements which have the highest cost, are more intrusive, may require acquisition of right-of-way, and/or need to be implemented long-term. Potential long-term improvements are constructing segment-long center medians, constructing a new roundabout or traffic signal, changes to horizontal and vertical roadway alignments, and roadway widening in constrained areas to provide enhanced bike and/or pedestrian facilities. Such capital improvements may qualify for external grant funding and/or need to be proposed in future CIP budgets within the next 2-5 fiscal years.

The improvements identified in the proceeding sections are summarized below and graphically represented in **Figure 9**:

East Natoma Street Corridor

Near-Term Recommendations

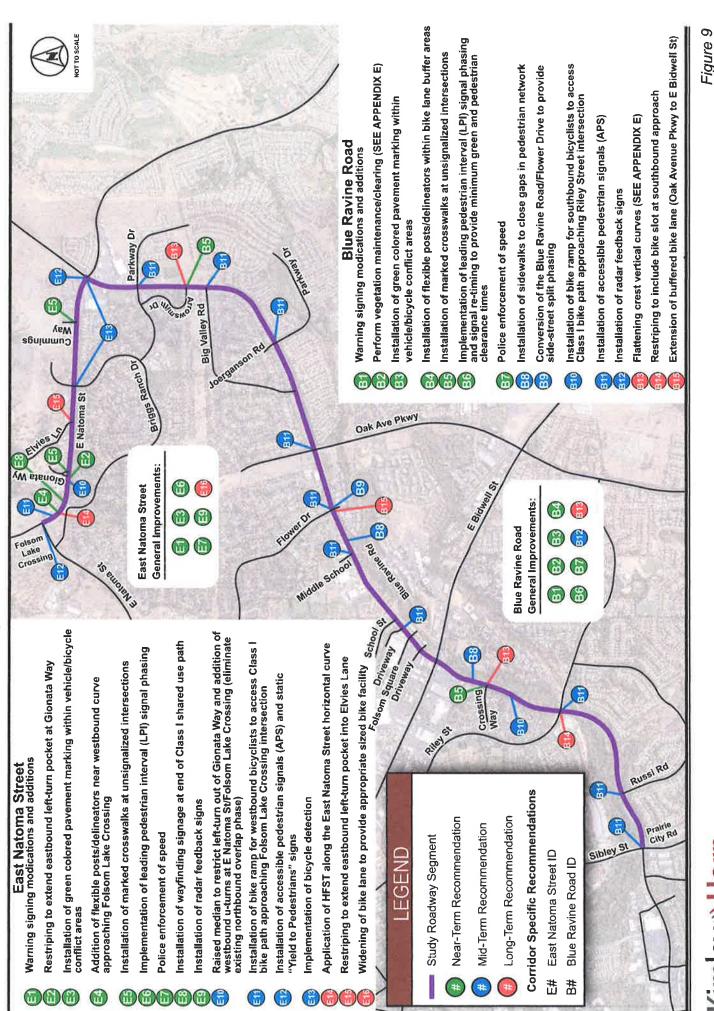
- E1. Warning signing modifications and additions
- E2. Restriping to extend eastbound left-turn pocket at Gionata Way
- E3. Installation of green colored pavement marking within vehicle/bicycle conflict areas
- E4. Addition of flexible posts/delineators near westbound curve approaching Folsom Lake Crossing
- E5. Installation of marked crosswalks at unsignalized intersections
- E6. Implementation of leading pedestrian interval (LPI) signal phasing
- E7. Police enforcement (speed)
- E8. Installation of wayfinding signage at end of Class I shared-use path
- E9. Installation of radar feedback signs

Mid-Term Recommendations

- E10. Construction of raised median to restrict left-turns out of Gionata Way and traffic signal modifications at the East Natoma Street signalized intersection with Folsom Lake Crossing (addition of westbound u-turns and elimination of northbound right turn overlap phase)
- E11. Installation of bike ramp for westbound bicyclists to access Class I bike path approaching Folsom Lake Crossing intersection
- E12. Installation of accessible pedestrian signals (APS) and static "Yield to Pedestrians" signs
- E13. Implementation of bicycle detection system at signalized intersections



Folsom East Natoma Street and Blue Ravine Road Safety Assessment





Long-Term Recommendations

- E14. Application of HFST along the East Natoma Street horizontal curve
- E15. Restriping to extend eastbound left-turn pocket into Elvies Lane
- E16. Widening of bike lanes to provide appropriately sized bike facility

Blue Ravine Road Corridor

Near-Term Recommendations

- B1. Warning signing modifications
- Perform vegetation maintenance/clearing to achieve acceptable ISD
- Installation of green colored pavement marking within vehicle/bicycle conflict areas B3.
- Installation of flexible posts/delineators within bike lane buffer areas
- Installation of marked crosswalks at unsignalized intersections
- Implementation of leading pedestrian interval (LPI) signal phasing and signal re-timing to B6. provide minimum green and minimum pedestrian clearance times
- B7. Police enforcement (speed)

Mid-Term Recommendations

- Installation of sidewalks to close gaps in pedestrian network
- Conversion of the Blue Ravine Road signalized intersection with Flower drive to provide split signal phasing on the side-streets.
- B10. Installation of bike ramp for southbound bicyclists to access Class I bike path approaching Riley Street intersection
- B11. Installation of accessible pedestrian signals (APS)
- B12. Installation of radar feedback signs

Long-Term Recommendations

- B13. Flattening crest vertical curves to achieve acceptable ISD
- B14. Restriping to include bike slot at southbound approach to Riley Street
- B15. Extension of buffered bike lanes from Oak Avenue Parkway farther south to East Bidwell Street

Warning signing modifications and additions Restriping to extend eastbound left-turn pocket at Gionata Way Installation of green colored pavement marking within vehicle/bicycle conflict areas Addition of flexible posts/delineators near westbound curve approaching Folsom Lake Crossing Installation of marked crosswalks at unsignalized intersections Implementation of leading pedestrian interval (LPI) signal phasing Police enforcement (speed) Installation of wayfinding signage at end of Class I shared-use path Installation of raised median to restrict left-turns out of Gionata Way and traffic signal modifications at the East Natoma Street signalized intersection with Folsom Lake Crossing (addition of westbound u-turns and elimination of northbound right turn overlap phase) Installation of bike ramp for westbound bicyclists to access Class I bike path approaching Folsom Lake Crossing intersection Installation of accessible pedestrian signals (APS) and static "Yield to Pedestrians" signs Implementation of bicycle detection system at signalized intersections Application of HST alone the Fast Naturna Street horizontal curve	Traffic Signal at E. Natoma/Gionata \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Median at E. Natoma/Gionata \$ 5,500.00 \$ \$ 15,000.00 \$ \$ 10,000.00 \$ \$ 5,000.00 \$ \$ 5,000.00 \$ \$ 5,000.00 \$ \$ 5,000.00 \$ \$ 1,000.00 \$ \$ 5,000.00 \$ \$ 13,333.33 \$ \$ 20,000.00 \$	\$ 5,500.00 \$ 15,000.00 \$ 10,000.00 \$ 10,000.00 \$ 5,000.00 \$ 5,000.00 \$ 12,000.00 \$ 1,000.00 \$ 1,000.00 \$ 20,000.00 \$ 5,000.00
Restriping to extend eastbound left-turn pocket into Elvies Lane		\$ 20,000.00 \$	\$ 20,000.00
Application of HFST along the East Natoma Street horizontal curve			20,000.00
Application of HEST along the East National Stront Application of HEST along the East National Application		716	
Implementation of bicycle detection system at signalized intersections		20,000.00	
Installation of accessible pedestrian signals (APS) and static "Yield to Pedestrians" signs		1,000.00	
approaching Folsom Lake Crossing intersection Installation of acrossible nedestrian circust (ADS) and continuous acrossible nedestrian circus (ADS) acrossible nedestr		000	
rclists to access Class I bike	40	5,000.00	
Folsom Lake Crossing (addition of westbound u-turns and elimination of northbound right turn overlap phase)			
Construction of raised median to restrict left-turns out of Gionata Way and traffic signal modifications at the East Natoma Street signalized intersection with		15,000.00	
Installation of radar feedback signs	٠,٨	12,000.00	
Installation of wayfinding signage at end of Class I shared-use path	40	200.00	
- Police enforcement (speed)	\$	•	
Implementation of leading pedestrian interval (IPI) signal phasing	\$	5,000.00	
Installation of marked crosswalks at unsignalized intersections	\$	10,000.00	
Ssing Saing	•	7,000.00	- 1
Addition of flexible posts/delineators near westbound curve approaching Folsom Lake Cro	S	4.000.00	
Installation of green colored pavement marking within vehicle/bicycle conflict areas	⋄	10,000.00	
Restriping to extend eastbound left-turn pocket at Gionata Way	S	15,000.00	
Warning signing modifications and additions	\$	5,500.00	. 1
	Natoma/Gionata	Natoma/Gionata	- 1
	Traffic Signal at E.	Median at E.	



Rebecca Bolin <goofyovergoldens@gmail.com>

RE: Empire Ranch Road traffic signals

1 message

Zach Bosch <zbosch@folsom.ca.us>

To: Rebecca Bolin <goofyovergoldens@gmail.com>

Wed, Jul 3, 2019 at 7:28 AM

	7	
Empire Ranch/East Natoma Signal	\$	185,284.00
Empire Ranch/Ritchie Signal	\$	322,021.00
Empire Ranch/Fehr Signal	\$	248,688.00
Empire Ranch/Broadstone Signal	\$	239,598.00
Empire Ranch/Owl Meadow Signal	\$	207,088.00
Empire Ranch/Iron Point Signal	\$	237,132.00

Volumes were collected earlier this year and were 8,584 Vehicles per day (both directions combined).

Let me know if you have any other questions, I'd be happy to help.

Zach Bosch, PE

Associate Civil Engineer/Traffic

Public Works Department

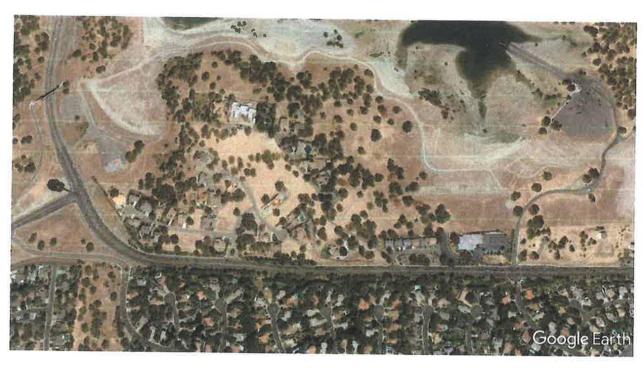
50 Natoma Street, Folsom, CA 95630 O: 916.461.6710

M: 916.500.3896



Appendix F









Spot Speed Study

Prepared by: National Data & Surveying Services

City of Folsom

Mfr: Astro Products

Model: Phantom

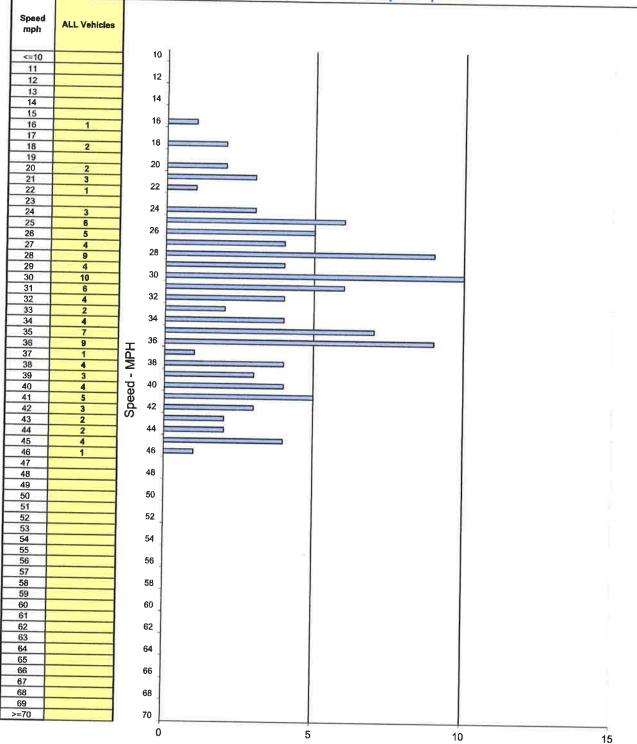
Serial #: 65948

DATE: 1/30/2019 TIME: 09:30 - 10:35

Location: 34 - E Natoma St 410' W/O Gionata Way Posted Speed: 45 MPH Clear/Dry

Project #: 19-7026-030

Eastbound & Westbound Spot Speeds



Number of Vehicles

Class Count	Paner	50th	85th	10 MPH		Percent in		
	Range	Percentile	Percentile	Page	# In Pace			720 20000 720
ALL 111	16 - 46		41 mph	27 - 36	59	Pace 53%	% / # Below Pace 20% / 23	% / # Above Pace 27% / 29

Spot Speed Study

Prepared by: National Data & Surveying Services

City of Folsom

Mfr: Astro Products **DATE:** 1/30/2019

Model: Phantom

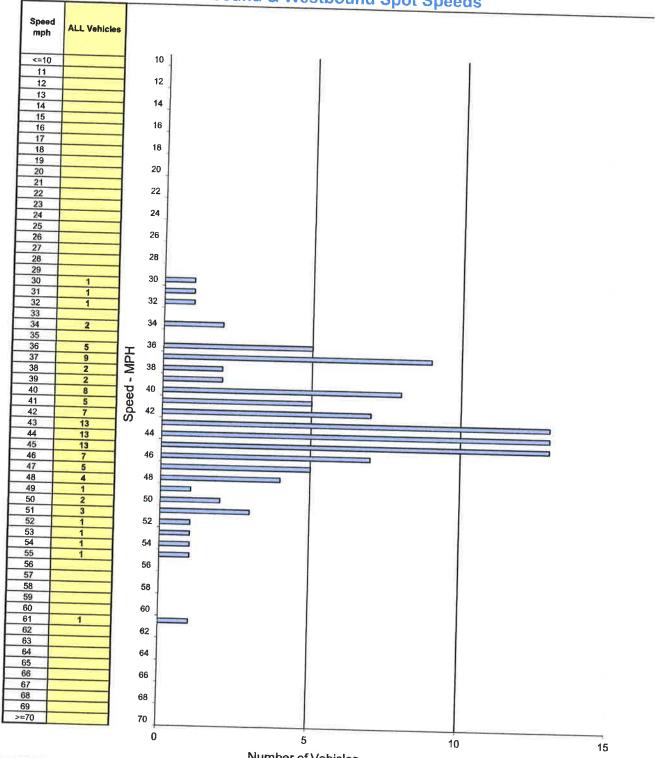
Serial #: 65948

TIME: 11:10 - 12:30

Location: 35 - 900 E Natoma St Posted Speed: 45 MPH

Project #: 19-7026-032

Eastbound & Westbound Spot Speeds



Number of Vehicles

				SI	PEED PAI	RAMETER	S		
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in	% / # Below Pace	Sapilaran W. 196
ALL	109	30 - 61	43 mph	47 mph	37 - 46	79	72%	9% / 10	% / # Above Pace 19% / 20

Appendix G

Place Currently Not Set Daily Traffic Flow - 15 minute interval

Location: East Natoma-OPPOSING

Time AM	hursday, 6/17/202 Vehicle Count		T' 544		
00:00 to 00:15	16	Hour Total	Time PM	Vehicle Count	Hour Total
00:15 to 00:30	23		12:00 to 12:15	152	
00:30 to 00:45	16		12:15 to 12:30	125	
00:45 to 01:00	14	20	12:30 to 12:45	126	
01:00 to 01:15	12	69	12:45 to 13:00	113	516
01:15 to 01:30	12		13:00 to 13:15	131	
01:30 to 01:45	7		13:15 to 13:30	112	
01:45 to 02:00			13:30 to 13:45	106	
02:00 to 02:15	12	43	13:45 to 14:00	111	460
02:15 to 02:30	5		14:00 to 14:15	126	
02:30 to 02:45	9		14:15 to 14:30	133	
02:45 to 03:00	11		14:30 to 14:45	108	
03:00 to 03:15	13	38	14:45 to 15:00	169	536
	4		15:00 to 15:15	136	
03:15 to 03:30	6		15:15 to 15:30	154	
03:30 to 03:45	12		15:30 to 15:45	133	
03:45 to 04:00	11	33	15:45 to 16:00	139	562
04:00 to 04:15	9		16:00 to 16:15	119	
04:15 to 04:30	13		16:15 to 16:30	118	
04:30 to 04:45	13		16:30 to 16:45	103	
04:45 to 05:00	18	53	16:45 to 17:00	137	477
05:00 to 05:15	25		17:00 to 17:15	161	
05:15 to 05:30	46		17:15 to 17:30	109	
05:30 to 05:45	56		17:30 to 17:45	128	
05:45 to 06:00	56	183	17:45 to 18:00	125	523
06:00 to 06:15	68		18:00 to 18:15	144	020
06:15 to 06:30	93		18:15 to 18:30	144	
06:30 to 06:45	114		18:30 to 18:45	118	
06:45 to 07:00	86	361	18:45 to 19:00	141	547
07:00 to 07:15	77		19:00 to 19:15	114	347
07:15 to 07:30	87		19:15 to 19:30	117	
07:30 to 07:45	84		19:30 to 19:45	135	
07:45 to 08:00	107	355	19:45 to 20:00	115	101
08:00 to 08:15	117		20:00 to 20:15	96	481
08:15 to 08:30	106		20:15 to 20:30		
08:30 to 08:45	104		20:30 to 20:45	145	
08:45 to 09:00	123	450	20:45 to 21:00	135	
09:00 to 09:15	106	400		123	499
09:15 to 09:30	113		21:00 to 21:15	117	
09:30 to 09:45	100		21:15 to 21:30	99	
09:45 to 10:00	123	442	21:30 to 21:45	93	
10:00 to 10:15	105	442	21:45 to 22:00	91	400
10:15 to 10:30	118		22:00 to 22:15	78	
10:30 to 10:45	105		22:15 to 22:30	62	
10:45 to 11:00	139	407	22:30 to 22:45	55	
11:00 to 11:15	140	467	22:45 to 23:00	57	252
1:15 to 11:30	125		23:00 to 23:15	42	
1:30 to 11:45			23:15 to 23:30	37	
1:45 to 12:00	127		23:30 to 23:45	49	
1.70 10 12.00	129	521	23:45 to 24:00	26	154

Total AM	3015
Peak Hour AM	11:00 to 12:00
Peak Flow AM	521
Peak % of AM	17.28%
Peak AM % of 24 H	6.18%

Total PM	5407
Peak Hour PM	15:00 to 16:00
Peak Flow PM	562
Peak % of PM	10.39%
Peak PM % of 24	6.67%

Place Currently Not Set Selective Time Survey

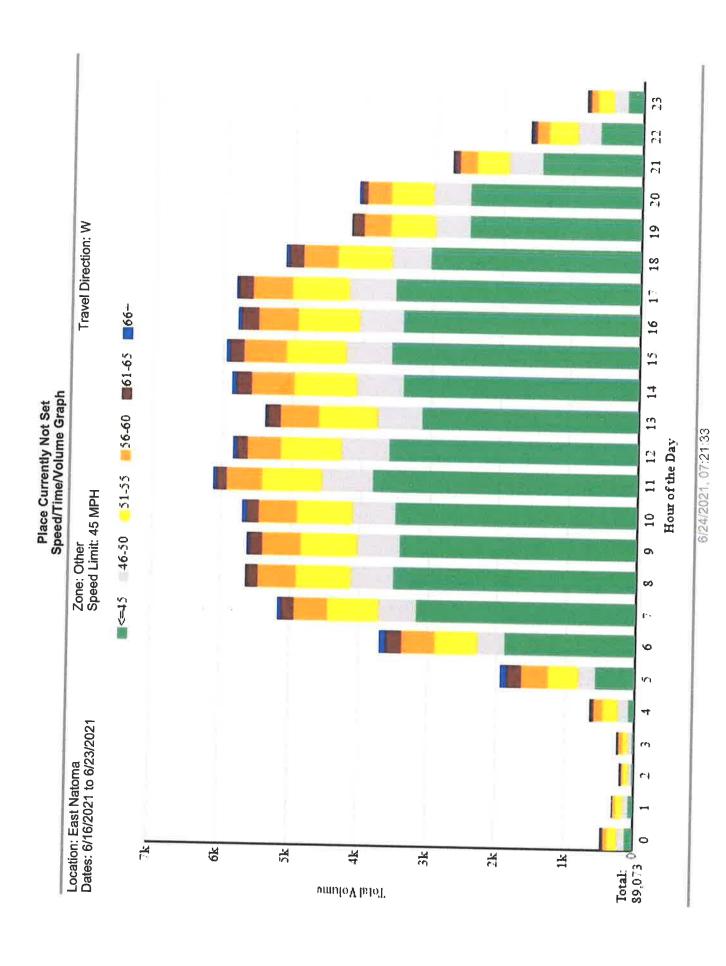
Location: East Natoma-OPPOSING 6/17/2021 to 6/23/2021

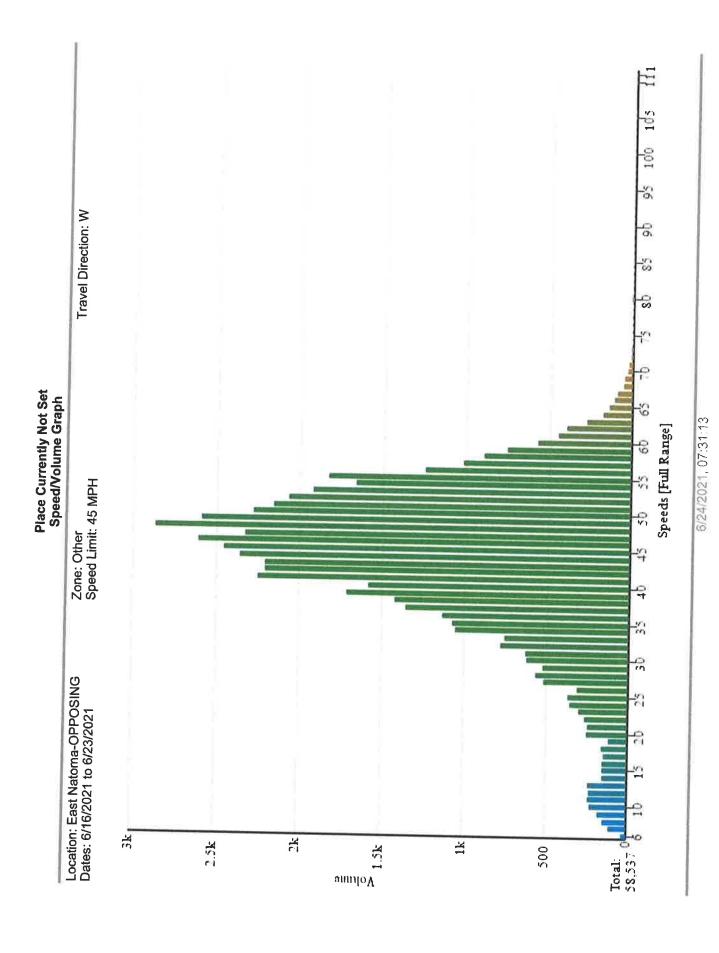
Zone: Other Travel Direction: W

	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Weekday Average	Weekend Average
0:00	69	76	129	137	60	71	76	70	133
1:00	43	44	84	89	42	41	53	44	86
2:00	38	33	55	45	23	30	45	33	50
3:00	33	24	53	43	34	33	22	29	48
4:00	53	54	39	37	64	74	62	61	38
5:00	183	177	111	99	178	171	201	182	105
6:00	361	329	273	158	297	350	329	333	215
7:00	355	394	382	291	378	393	443	392	336
8:00	450	454	462	412	419	399	445	433	437
9:00	442	443	529	490	362	456	477	436	509
10:00	467	513	492	471	443	420	394	447	481
11:00	521	602	545	613	478	456	477	506	579
12:00	516	552	527	574	461	526	524	515	550
13:00	460	487	536	528	438	553	39	395	532
14:00	536	488	528	531	497	521	0	408	529
15:00	562	519	530	503	460	508	0	409	516
16:00	477	479	579	516	509	508	0	394	547
17:00	523	586	543	475	517	511	0	427	509
18:00	547	566	462	473	518	546	0	435	467
19:00	481	511	463	456	449	491	0	386	459
20:00	499	478	454	431	445	520	0	388	442
21:00	400	443	385	352	307	365	Ō	303	368
22:00	252	291	300	224	188	200	Ō	186	262
23:00	154	227	209	139	112	132	Ö	125	174
Totals	8422	8770	8670	8087	7679	8275	3587	7346	8378

Combined Totals: 15724

Selective Time Survey Mask All data from the survey is masked to show only that 'time frame' of interest. Daily totals represent the visible unmasked data.





Place Currently Not Set Traffic Survey Summary

Location: East Natoma-OPPOSING EAST Start Date: 6/16/2021

End Date: 6/23/2021

Zone: Other Start Time: 12:54:02 End Time: 13:45:39 Travel Direction: W

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 3	34 - 35	36 - 37	38 - 39	40 - 999
Volume	2321	501	569	728	833	1085	1252	1536	2127	2493	3137	41955
% of Total	3.96%	0.85%	0.97%	1.24%	1.42%	1.85%	2.13%	2.62%	3.63%	4.25%	5.35%	71.67%
									Tota	al Vehicle	s: 58537	

Speed Sta	tistics	10 MPH	Pace		Number	Exceed	ding Lin	nit
Posted	45	Pace Speed	41 to 50	Speed	45+	55+	65+	Total
#At/Under Limit	29666	# in Pace	24183	Number	22327	5937	607	28871
# Over Limit	28871	% in Pace	41.31%	Percent	38.14%	10.14%	1.03%	49.32%
Average Speed	43.86	85% Percentile	54					

Place Currently Not Set Time vs Speed

Location: East Natoma-OPPOSING

Date: 6/17/2021

Posted Speed Limit: 45 MPH

Time Span	Total	4.5	1		-		_	-	- Spe	ed Ra	anges	_					_	_
00:00-00:59	69	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	5 46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85
01:00-01:59	43	0	0	0	0	0	0	1	1	9	27	21	6	2	2	0	0	0
02:00-02:59	38	0	0	0	0	0	0	0	0	8	13	13	8	0	0	0	0	1
03:00-02:59	33	0	0	0	0	0	0	0	1	2	9	15	5	5	1	0	0	0
04:00-04:59	53	0	3	0	0	1	0	1	0	6	10	7	4	1	0	0	0	0
05:00-05:59		0	0	1	1	0	1	1	0	5	15	15	8	4	0	0	2	0
06:00-06:59	183	0	0	2	1	2	1	2	11	20	50	45	36	11	1	0	1	0
07:00-07:59	361	0	6	6	5	2	6	21	29	64	79	80	40	17	5	0	1	0
08:00-08:59	354	0	4	0	4	2	9	17	43	74	86	62	33	13	4	0	+	2
09:00-09:59	449	0	2	7	2	18	22	41	65	98	94	64	31	4	0	0	0	1
	439	0	0	3	3	7	19	33	72	95	110	62	23	6	5	0	0	1
10:00-10:59	466	0	7	2	9	17	33	40	61	89	90	75	30	9	3	1	0	0
11:00-11:59	521	0	3	5	10	12	28	71	83	111	97	60	27	14	0	0	0	0
12:00-12:59	515	0	0	8	11	14	29	47	69	103	110	67	43	10	2	2	0	
13:00-13:59	460	0	3	7	6	11	19	31	58	99	106	75	29	16	0	0	0	0
14:00-14:59	536	0	4	9	10	17	39	64	67	121	99	57	33	13	2	1		0
15:00-15:59	562	0	14	10	3	12	24	56	91	131	101	80	27	8	4	0	0	0
16:00-16:59	477	0	2	8	7	15	18	39	78	115	98	62	22	11	0	2	1	0
17:00-17:59	519	0	4	11	5	11	25	59	79	122	118	55	21	5	4	_	0	0
18:00-18:59	546	0	12	10	9	19	20	26	55	109	124	96	49	14		0	0	0
9:00-19:59	481	0	10	15	9	16	25	26	48	84	90	92	49	11	1	2	0	0
20:00-20:59	499	0	9	5	5	20	26	39	67	107	93	71	37	13	4	2	0	0
21:00-21:59	400	0	3	4	4	9	22	21	39	73	103	82	34	_	5	2	0	0
22:00-22:59	252	0	1	4	5	4	5	5	21	46	73	58	_	6	0	0	0	0
23:00-23:59	154	0	0	2	1	1	1	1	7	16	50	45	19	4	2	1	2	2
Totals	8410	0	87	119	110	210	_	_		_	_	$\overline{}$	634	7 204	46	0	0 8	2

Place Currently Not Set Traffic Summary Week

Location: East Natoma-OPPOSING 6/17/2021 to 6/23/2021

	Thu 17 Jun	Fri 18 Jun	Sat 19 Jun	Sun 20 Jun	Mon 21 Jun	Tue 22 Jun	Wed 23 Jun	Weekday Average	Weekend Average
Midnight	69	76	129	137	60	71	76	70	133
1:00	43	44	84	89	42	41	53	44	86
2:00	38	33	55	45	23	30	45	33	50
3:00	33	24	53	43	34	33	22	29	48
4:00	53	54	39	37	64	74	62	61	38
5:00	183	177	111	99	178	171	201	182	105
6:00	361	329	273	158	297	350	329	333	215
7:00	355	394	382	291	378	393	443	392	336
8:00	450	454	462	412	419	399	445	433	437
9:00	442	443	529	490	362	456	477	436	509
10:00	467	513	492	471	443	420	394	447	481
11:00	521	602	545	613	478	456	477	506	579
12:00	516	552	527	574	461	526	524	515	550
13:00	460	487	536	528	438	553	39	395	532
14:00	536	488	528	531	497	521	0	408	529
15:00	562	519	530	503	460	508	0	409	516
16:00	477	479	579	516	509	508	0	394	547
17:00	523	586	543	475	517	511	0	427	509
18:00	547	566	462	473	518	546	0	435	467
19:00	481	511	463	456	449	491	0	386	459
20:00	499	478	454	431	445	520	0	388	442
21:00	400	443	385	352	307	365	0	303	368
22:00	252	291	300	224	188	200	0	186	262
23:00	154	227	209	139	112	132	0	125	174
Totals	8422	8770	8670	8087	7679	8275	3587	7346	8378

Place Currently Not Set Daily Traffic Flow - 15 minute interval

Location: East Natoma

Time AM	hursday, 6/17/202 Vehicle Count				
00:00 to 00:15		Hour Total	Time PM	Vehicle Count	Hour Total
00:00 to 00:13	10		12:00 to 12:15	220	
00:30 to 00:45	12		12:15 to 12:30	227	
	13		12:30 to 12:45	207	
00:45 to 01:00	7	42	12:45 to 13:00	178	832
01:00 to 01:15	19		13:00 to 13:15	207	
01:15 to 01:30	10		13:15 to 13:30	178	
01:30 to 01:45	10		13:30 to 13:45	187	
01:45 to 02:00	8	47	13:45 to 14:00	211	783
02:00 to 02:15	4		14:00 to 14:15	234	
02:15 to 02:30	6		14:15 to 14:30	206	
02:30 to 02:45	3		14:30 to 14:45	232	
02:45 to 03:00	2	15	14:45 to 15:00	241	913
03:00 to 03:15	9		15:00 to 15:15	250	
03:15 to 03:30	9		15:15 to 15:30	215	
03:30 to 03:45	18		15:30 to 15:45	216	
03:45 to 04:00	10	46	15:45 to 16:00	219	900
04:00 to 04:15	14		16:00 to 16:15	185	- 000
04:15 to 04:30	31		16:15 to 16:30	250	
04:30 to 04:45	31		16:30 to 16:45	176	
04:45 to 05:00	40	116	16:45 to 17:00	214	825
05:00 to 05:15	- 51		17:00 to 17:15	212	023
05:15 to 05:30	81		17:15 to 17:30	205	
05:30 to 05:45	108		17:30 to 17:45	205	
05:45 to 06:00	95	335	17:45 to 18:00	182	804
06:00 to 06:15	93		18:00 to 18:15	178	004
06:15 to 06:30	202		18:15 to 18:30	192	
06:30 to 06:45	207		18:30 to 18:45	190	
06:45 to 07:00	204	706	18:45 to 19:00	194	754
07:00 to 07:15	223		19:00 to 19:15	147	754
7:15 to 07:30	188		19:15 to 19:30	129	
07:30 to 07:45	196		19:30 to 19:45	174	
7:45 to 08:00	217	824	19:45 to 20:00		
08:00 to 08:15	231	O <u>E</u> -T	20:00 to 20:15	129	579
98:15 to 08:30	265		20:15 to 20:30	118	
08:30 to 08:45	201		20:30 to 20:45	166	
08:45 to 09:00	192	889	20:45 to 21:00	169	
9:00 to 09:15	198	009		167	620
9:15 to 09:30	181	12.00	21:00 to 21:15	148	
9:30 to 09:45	170		21:15 to 21:30	121	
9:45 to 10:00	228	777	21:30 to 21:45	95	
0:00 to 10:15	232	777	21:45 to 22:00	107	471
0:15 to 10:30	213		22:00 to 22:15	73	
0:30 to 10:45	176		22:15 to 22:30	55	
0:45 to 11:00	182	000	22:30 to 22:45	43	
1:00 to 11:15		803	22:45 to 23:00	38	209
1:15 to 11:30	220		23:00 to 23:15	46	
1:30 to 11:45	235		23:15 to 23:30	23	
1:45 to 12:00	241	0.15	23:30 to 23:45	24	
1.40 (0 12.00	220	916	23:45 to 24:00	26	119

Total AM	5516
Peak Hour AM	11:00 to 12:00
Peak Flow AM	916
Peak % of AM	16.6%
Peak AM % of 24 H	6.87%

Total PM	7809
Peak Hour PM	14:00 to 15:00
Peak Flow PM	913
Peak % of PM	11.69%
Peak PM % of 24	6.85%

Place Currently Not Set Selective Time Survey

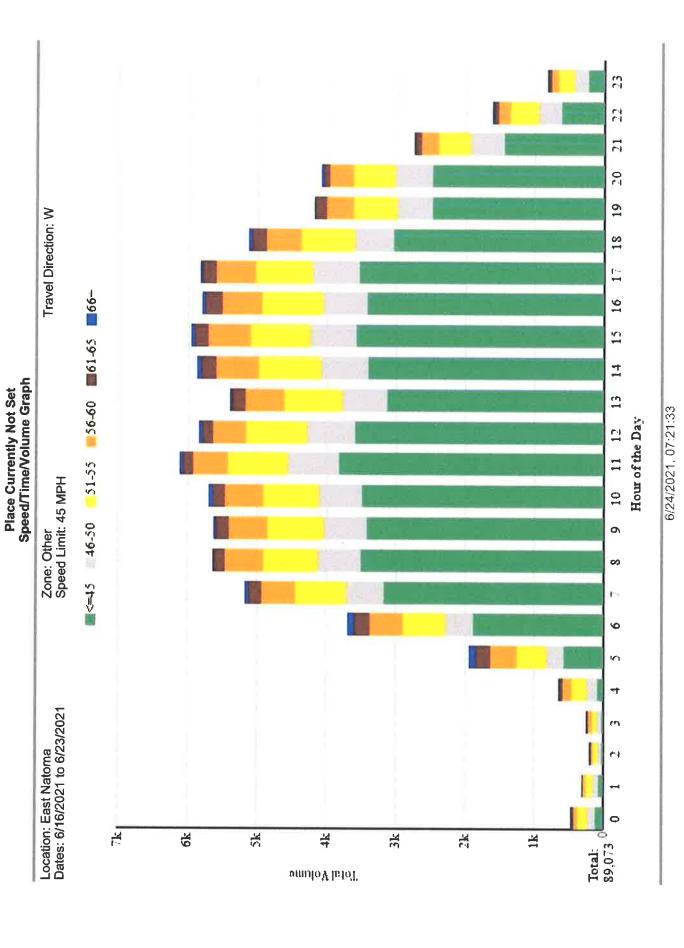
Location: East Natoma 6/17/2021 to 6/23/2021

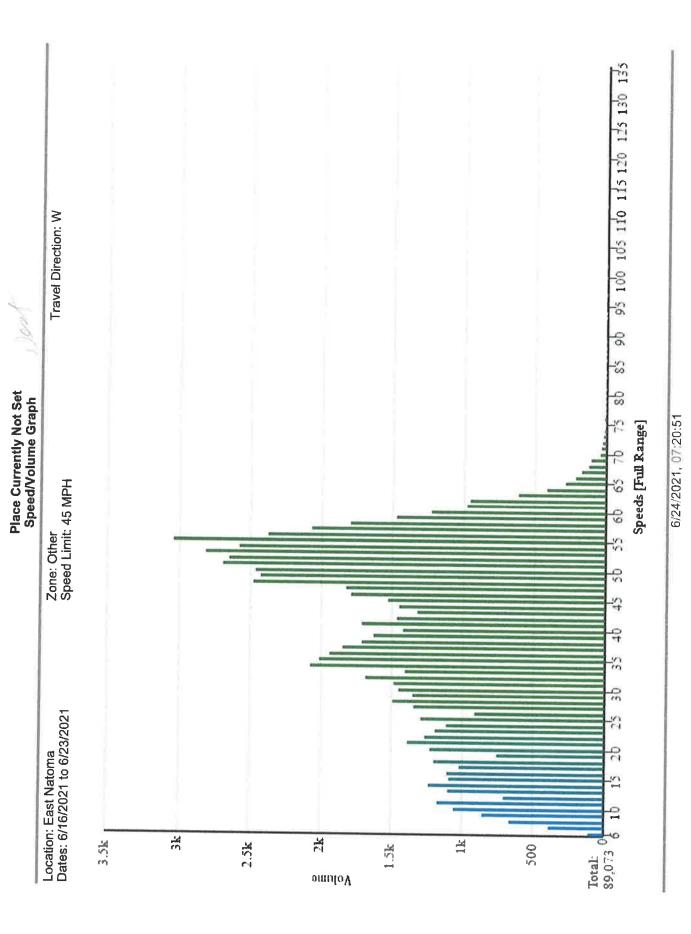
Zone: Other Travel Direction: W

	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Weekday Average	Weekend Average
0:00	42	68	90	126	50	45	55	52	108
1:00	47	43	46	64	47	35	31	40	55
2:00	15	30	55	43	24	23	18	22	49
3:00	46	36	23	23	46	37	38	40	23
4:00	116	104	58	46	120	107	99	109	52
5:00	335	325	176	149	312	313	340	325	162
6:00	706	582	308	243	515	692	656	630	275
7:00	824	810	601	453	789	844	849	823	527
8:00	889	876	728	627	883	794	846	857	677
9:00	7 77	834	963	895	601	765	788	753	929
10:00	803	890	951	840	765	758	682	779	895
11:00	916	843	904	952	817	858	823	851	928
12:00	832	914	889	842	722	847	785	820	865
13:00	783	905	860	749	740	869	14	662	804
14:00	913	835	898	860	718	813	0	655	879
15:00	900	843	886	843	822	759	0	664	864
16:00	825	784	914	732	851	804	0	652	823
17:00	804	855	795	766	813	850	0	664	780
18:00	754	868	603	677	708	714	0	608	640
19:00	579	619	643	605	534	618	0	470	624
20:00	620	627	557	584	508	585	0	468	570
21:00	471	452	414	426	310	317	0	310	420
22:00	209	282	285	201	171	219	0	176	243
23:00	119	156	178	72	79	104	0	91	125
Totals	13325	13581	12825	11818	11945	12770	6024	11529	12321

Combined Totals: 23850

Selective Time Survey Mask All data from the survey is masked to show only that 'time frame' of interest. Daily totals represent the visible unmasked data.





Place Currently Not Set Traffic Survey Summary

Location: East Natoma Start Date: 6/16/2021 End Date: 6/23/2021 Zone: Other Start Time: 12:54:02 End Time: 13:45:39 Travel Direction: W

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	12478	2619	2459	2412	2264	2847	2937	3093	4092	3793	3340	46739
% of Total	14%	2.94%	2.76%	2.7%	2.54%	3.19%	3.29%	3.47%	4.59%	4.25%	3.74%	52.47%
					Tot	al Vehicle	es: 89073	3				

Speed Statis	stics	10 MPH Pa	ace	Number Exceeding Limit							
Posted	45	Pace Speed	48 to 57	Speed	45+	55+	65+	Total			
#At/Under Limit	51241	# in Pace	25582	Number	24750	12215	867	37832			
# Over Limit	37832	% in Pace	28.72%	Percent	27.78%	13.71%	0.97%	42.47%			
Average Speed 39.21		85% Percentile	55								

Place Currently Not Set Time vs Speed

Location: East Natoma

Date: 6/18/2021 Posted Speed Limit: 45 MPH

								-	- Spe	ed Rai	nges -							
Time Span	Total	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85
00:00-00:59	68	0	3	2	1	1	2	2	4	6	17	15	7	7	1	0	0	0
01:00-01:59	43	0	1	0	0	1	0	0	2	7	15	13	3	0	1	0	0	0
02:00-02:59	29	0	0	0	0	0	0	0	0	2	12	6	5	4	0	0	0	0
03:00-03:59	36	0	0	1	0	0	0	2	0	2	9	8	6	6	1	1	0	0
04:00-04:59	104	0	1	1	2	1	1	0	2	4	22	38	19	8	3	2	0	0
05:00-05:59	325	0	9	12	14	5	16	17	15	14	31	72	60	47	9	4	0	0
06:00-06:59	582	0	11	25	24	32	51	44	40	50	55	100	90	43	15	2	0	0
07:00-07:59	810	0	24	44	43	66	79	86	80	58	82	117	90	33	7	1	0	0
08:00-08:59	875	0	24	59	64	70	79	83	102	70	91	125	84	21	2	1	0	0
09:00-09:59	834	0	27	46	58	69	61	84	73	77	100	121	83	30	5	0	0	0
10:00-10:59	890	0	24	63	58	59	79	91	101	83	98	115	88	27	4	0	0	0
11:00-11:59	843	0	29	40	53	65	67	88	80	66	112	135	87	14	3	3	1	0
12:00-12:59	914	0	33	57	60	69	85	106	89	100	126	131	40	15	1	2	0	0
13:00-13:59	905	0	31	56	62	59	78	87	94	87	100	125	92	28	5	1	0	0
14:00-14:59	835	0	30	47	46	61	52	86	85	66	98	129	89	34	9	2	1	0
15:00-15:59	842	0	27	51	53	68	61	94	95	54	107	107	85	28	9	3	0	0
16:00-16:59	783	0	30	46	41	44	58	69	65	75	93	135	88	32	5	2	0	0
17:00-17:59	855	0	33	59	62	65	79	81	94	66	103	99	83	25	6	0	0	0
18:00-18:59	868	0	29	54	61	76	74	96	104	75	94	120	57	24	2	1	1	0
19:00-19:59	619	0	28	36	42	60	37	56	76	58	76	83	42	21	2	2	0	0
20:00-20:59	627	0	16	48	36	44	52	64	62	65	87	90	48	13	1	1	0	0
21:00-21:59	452	0	23	19	17	29	22	43	45	55	88	68	31	9	3	0	0	0
22:00-22:59	282	0	17	15	8	12	10	20	14	35	50	64	28	6	3	0	0	0
23:00-23:59	156	0	5	7	1	4	3	5	7	16	40	40	22	4	2	0	0	0
Totals	13577	0	455	788	806	960	1046	1304	1329	1191	1706	2056	1327	479	99	28	3	0

Place Currently Not Set Traffic Summary Week

Location: East Natoma 6/17/2021 to 6/23/2021

	Thu 17 Jun	Fri 18 Jun	Sat 19 Jun	Sun 20 Jun	Mon 21 Jun	Tue 22 Jun	Wed 23 Jun	Weekday Average	Weekend Average
Midnight	42	68	90	126	50	45	55	52	108
1:00	47	43	46	64	47	35	31	40	55
2:00	15	30	55	43	24	23	18	22	49
3:00	46	36	23	23	46	37	38	40	23
4:00	116	104	58	46	120	107	99	109	52
5:00	335	325	176	149	312	313	340	325	162
6:00	706	582	308	243	515	692	656	630	275
7:00	824	810	601	453	789	844	849	823	527
8:00	889	876	728	627	883	794	846	857	677
9:00	777	834	963	895	601	765	788	753	929
10:00	803	890	951	840	765	758	682	779	895
11:00	916	843	904	952	817	858	823	851	928
12:00	832	914	889	842	722	847	785	820	865
13:00	783	905	860	749	740	869	14	662	804
14:00	913	835	898	860	718	813	0	655	879
15:00	900	843	886	843	822	759	0	664	864
16:00	825	784	914	732	851	804	0	652	823
17:00	804	855	795	766	813	850	0	664	780
18:00	754	868	603	677	708	714	0	608	640
19:00	579	619	643	605	534	618	0	470	624
20:00	620	627	557	584	508	585	0	468	570
21:00	471	452	414	426	310	317	0	310	420
22:00	209	282	285	201	171	219	0	176	243
23:00	119	156	178	72	79	104	0	91	125
Totals	13325	13581	12825	11818	11945	12770	6024	11529	12321

Appendix H

City of Folsom

TRAFFIC SAFETY COMMITTEE ACTION SUMMARY

4:00 p.m., Thursday, October 22, 2020 Public Works Conference Room

1. MEETING CALLED TO ORDER at 4:00 p.m. by Chair Pew

2. ROLL CALL:

Present: Baade, Bosch, Pew, Soulsby, Wilson

Absent: Washburn

3. APPROVE ACTION SUMMARY

Action Summary of the February 27, 2020 meeting was approved without revision.

4. BUSINESS FROM FLOOR/GOOD OF THE ORDER

None.

5. ACTION/DISCUSSION ITEMS

Neighborhood Issues

- a. E Natoma and Blue Ravine Safety Assessment
 - 1. Committee supported the recommendations by consultant identified in the final report.
- b. Dry Creek and Iron Point Road Stop Sign Request
 - 1. Committee supported the recommendation by to work with ERCA for removal of landscaping to improve line of sight at corner.

Other Business

- c. Speed Limit Adoption: Various Road Segments
 - 1. Committee supported the recommendation to establish the speed limit on Iron Point, Empire Ranch Road to City Limits at 45 MPH
 - 2. Committee supported the recommendation to establish the speed limit on Green Valley, East Natoma to City Limits (Establishing 55 MPH speed limit)
 - 3. Committee supported the recommendation to establish the speed limit on Mangini Parkway, Placerville Road and East Bidwell Street (Establishing 40 MPH speed limit)
 - 4. Committee supported the recommendation to establish the speed limit on Alder Creek Parkway, East Bidwell Street to Placerville Road (Establishing 45 MPH speed limit)
 - 5. Committee supported the recommendation to establish the speed limit on Alder Creek Parkway, East Bidwell Street to Rustic Ridge Drive (Establishing 30 MPH speed limit)

- **6. INFORMATIONAL ITEMS** no action.
- **7. ADJOURNMENT** at 5:14 p.m.