



TECHNICAL MEMORANDUM

Date: February 15, 2023
To: Ryan Chance
Senior Civil Engineer
City of Folsom
From: Sayed Fakhry, QA/QC Manager
Utsav Domadia, Project Engineer
Subject: **Traffic Signal Warrant Analysis and Sight Distance Analysis at E. Natoma Street and Gionata Way**

The purpose of this technical memorandum is to perform traffic signal control warrants and sight distance analysis at the intersections of E. Natoma Street and Gionata Way in the City of Folsom.

Introduction

This study analyzes one-way stop-controlled at the three-legged intersection located in a residential area of the City of Folsom for the installation of traffic signal control and available existing sight distance and possible sight distance improvements (if needed). The study intersection and respective control is listed below:

1. E. Natoma Street/Gionata Way (one-way stop)

At the intersection of E. Natoma Street and Gionata Way (Intersection #1), the stop control is located at the southbound approach of the minor street, Gionata Way. **Figure 1** shows the study area.

Figure 1 - Study Area



Data Collection

TJKM collected peak period vehicle, pedestrian, and bicycle turning movement counts from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. on March 2-3, 2022, at the study intersection. TJKM identified peak hours as 7:45 a.m.-8:45 a.m. and 4:15 p.m.-5:15 p.m. In addition, TJKM collected 7-day 24-hour bi-directional tube counts from March 3-8, 2022, at all three approaches of the study intersection namely

- E Natoma Street (Between E Natoma Street & Gionata Way)
- E Natoma Street (Between Gionata Way & Elvie Lane)
- Gionata Way (Between E Natoma Street & Lorena Lane)

TJKM compiled collision history for a 5-year period (January 1 2017 to December 31, 2021) for study area in the City of Folsom using the Statewide Integrated Traffic Records System (SWITRS) dataset. **Appendix A** includes all the datasheets for the collected turning movement counts and road tube data.

Traffic Signal Warrant Analysis Methodology

Traffic signal warrants were developed by the Federal Highway Administration (FHWA) and are described in the California Manual on Uniform Traffic Control Devices (CA MUTCD, Revision 6, March 30, 2021, Chapter 4C). These warrants correlate the need for a traffic signal at an intersection with

pedestrian and vehicle volumes. Satisfying one or more of these warrants could justify the installation of a traffic signal at the intersection. The nine signal warrants are briefly summarized below:

1. Warrant 1, Eight-Hour Vehicular Volume
2. Warrant 2, Four-Hour Vehicular Volume
3. Warrant 3, Peak Hour
4. Warrant 4, Pedestrian Volume
5. Warrant 5, School Crossing
6. Warrant 6, Coordinated Signal System
7. Warrant 7, Crash Experience
8. Warrant 8, Roadway Network
9. Warrant 9, Intersection near a Grade Crossing

The description of each warrant mentioned below is cited from CA MUTCD, Revision 6, March 30, 2021, Chapter 4C, Section 4C.02 – 4C.10.

WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

The Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street. It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.

WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

WARRANT 3, PEAK HOUR VEHICULAR VOLUME

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

WARRANT 4, PEDESTRIAN VOLUME

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience an excessive delay in crossing the major street.

WARRANT 5, SCHOOL CROSSING

The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For the purposes of this warrant, the word "schoolchildren" includes elementary through high school students.

WARRANT 6, COORDINATED SIGNAL SYSTEM

The progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain the proper platooning of vehicles.

WARRANT 7, CRASH EXPERIENCE

The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

WARRANT 8, ROADWAY NETWORK

Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.

Traffic Signal Warrant Results

The Signal Warrants Worksheet (Sheet 1 to 5) as shown on CA-MUTCD Figure 4C-101 (CA) are completed and shown in the Appendix B. The results of the traffic signal warrant analysis are summarized in **Table 1**.

Table 1 - Traffic Signal Warrant Analysis Results for E. Natoma Street/Gionata Way

Warrant #	Warrant Description	Results
1	Eight- Hour Vehicular Volume	Not Satisfied
2	Four-hour Vehicular volume	Not Satisfied
3	Peak Hour	Not Satisfied
4	Pedestrian Volume	Not Satisfied
5	School Crossing	Not Applicable
6	Coordinated Signal System	Not Satisfied

Warrant #	Warrant Description	Results
7	Crash Experience	Not Satisfied
8	Roadway Network	Not Applicable
9	Intersection Near a Grade Crossing	Not Applicable

The results of the traffic signal warrant analysis are briefly discussed below:

WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME: The study intersections have relatively low volumes, especially on minor road (Gionata Way) approaches. The hourly volumes on both E. Natoma Street and Gionata Way is included in **Table 2**. Hence, either Condition A or Condition B of Warrant 1 is not satisfied.

WARRANT 2, FOUR-HOUR VEHICULAR VOLUME: The vehicular volumes at the intersection of E. Natoma Street and Gionata Way do not satisfy the warrant of any four hours of an average day which fall above the appropriate curve. The condition of 2 or more lanes on a major street and one lane on a minor street is used for this analysis as shown in **Figure 2**. Note that 70% Factor chart (Figure 4C-2 of CA MUTCD, Revision 6 (3/30/2021)) is used to evaluate this warrant as the speed limit on a major road (E Natoma Street) is 45 mph (above 40 mph). **Table 2** represents hourly volumes used in the analysis of Warrant 2.

Table 2 – Traffic Volume on Major Street and Minor Street

Time Interval		E. Natoma Street Eastbound	E. Natoma Street Westbound	E. Natoma Street (both Approach)	E. Natoma Street (both Approach)	Gionata Way Southbound	Gionata Way
Begin At	End Of	15-min Volume	15-min Volume	15-min Volume	VPH	15-min Volume	VPH
12:00 AM	12:14 AM	16	4	20	71	0	0
12:15 AM	12:29 AM	15	8	23		0	
12:30 AM	12:44 AM	10	6	16		0	
12:45 AM	12:59 AM	8	4	12		0	
1:00 AM	1:14 AM	12	5	17	52	0	0
1:15 AM	1:29 AM	7	6	13		0	
1:30 AM	1:44 AM	6	4	10		0	
1:45 AM	1:59 AM	9	3	12		0	
2:00 AM	2:14 AM	8	6	14	47	0	0
2:15 AM	2:29 AM	7	5	12		0	

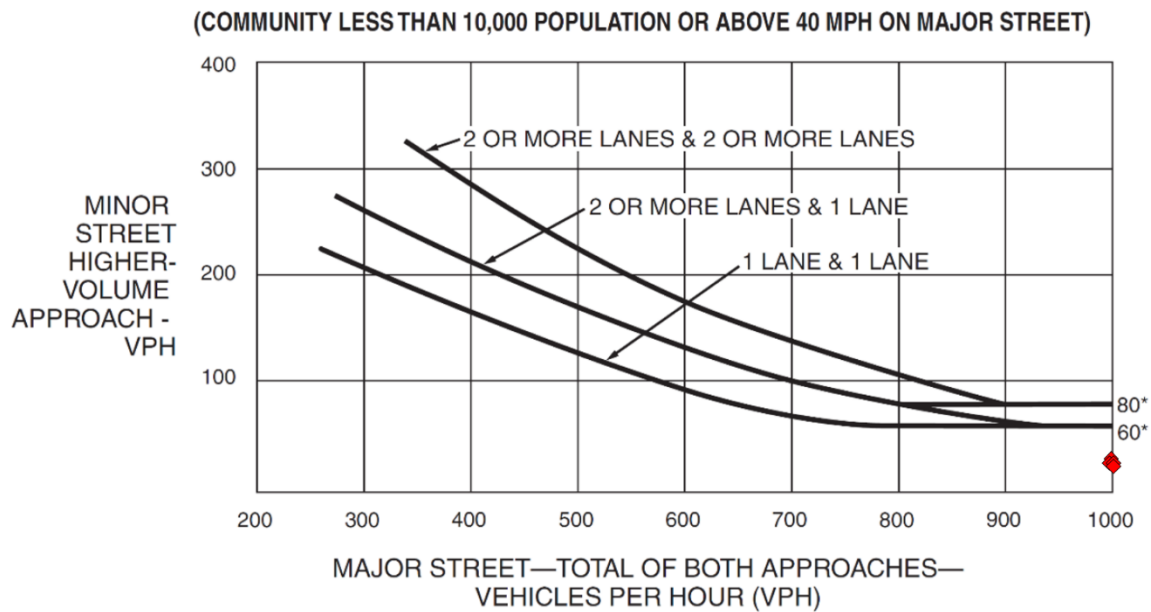
Time Interval		E. Natoma Street	E. Natoma Street	E. Natoma Street (both Approach)	E. Natoma Street (both Approach)	Gionata Way	Gionata Way
		Eastbound	Westbound	15-min Volume	VPH	Southbound	VPH
Begin At	End Of	15-min Volume	15-min Volume	15-min Volume	VPH	15-min Volume	VPH
2:30 AM	2:44 AM	5	6	11		0	
2:45 AM	2:59 AM	4	6	10		0	
3:00 AM	3:14 AM	2	8	10		0	
3:15 AM	3:29 AM	2	6	8	52	0	1
3:30 AM	3:44 AM	5	11	16		0	
3:45 AM	3:59 AM	7	11	18		1	
4:00 AM	4:14 AM	6	13	19		0	
4:15 AM	4:29 AM	11	21	32	136	0	0
4:30 AM	4:44 AM	12	27	39		0	
4:45 AM	4:59 AM	14	32	46		0	
5:00 AM	5:14 AM	14	35	49		0	
5:15 AM	5:29 AM	23	63	86	416	2	5
5:30 AM	5:44 AM	29	91	120		1	
5:45 AM	5:59 AM	54	107	161		2	
6:00 AM	6:14 AM	46	127	173		0	
6:15 AM	6:29 AM	95	163	258	1138	0	4
6:30 AM	6:44 AM	145	210	355		2	
6:45 AM	6:59 AM	152	200	352		2	
7:00 AM	7:14 AM	133	230	363		1	
7:15 AM	7:29 AM	194	292	486	2046	3	16
7:30 AM	7:44 AM	237	325	562		6	
7:45 AM	7:59 AM	313	322	635		6	
8:00 AM	8:14 AM	262	324	586		6	
8:15 AM	8:29 AM	279	343	622	2320	8	27
8:30 AM	8:44 AM	268	304	572		8	
8:45 AM	8:59 AM	272	268	540		5	
9:00 AM	9:14 AM	221	220	441		4	
9:15 AM	9:29 AM	208	226	434	1711	3	16
9:30 AM	9:44 AM	184	238	422		4	
9:45 AM	9:59 AM	189	225	414		5	
10:00 AM	10:14 AM	184	208	392		3	
10:15 AM	10:29 AM	187	221	408	1659	4	21
10:30 AM	10:44 AM	187	222	409		6	
10:45 AM	10:59 AM	238	212	450		8	
11:00 AM	11:14 AM	198	217	415		8	
11:15 AM	11:29 AM	202	226	428	1788	2	20
11:30 AM	11:44 AM	213	253	466		5	

Time Interval		E. Natoma Street	E. Natoma Street	E. Natoma Street (both Approach)	E. Natoma Street (both Approach)	Gionata Way	Gionata Way
		Eastbound	Westbound	15-min Volume	VPH	Southbound	VPH
Begin At	End Of	15-min Volume	15-min Volume	15-min Volume	VPH	15-min Volume	VPH
11:45 AM	11:59 AM	227	252	479		5	
12:00 PM	12:14 PM	209	215	424	1834	10	20
12:15 PM	12:29 PM	223	229	452		3	
12:30 PM	12:44 PM	232	244	476		5	
12:45 PM	12:59 PM	229	253	482		2	
1:00 PM	1:14 PM	256	231	487	1897	3	17
1:15 PM	1:29 PM	244	218	462		5	
1:30 PM	1:44 PM	223	238	461		4	
1:45 PM	1:59 PM	254	233	487		5	
2:00 PM	2:14 PM	264	229	493	2215	4	12
2:15 PM	2:29 PM	273	279	552		2	
2:30 PM	2:44 PM	283	263	546		3	
2:45 PM	2:59 PM	337	287	624		3	
3:00 PM	3:14 PM	344	262	606	2473	1	11
3:15 PM	3:29 PM	283	289	572		3	
3:30 PM	3:44 PM	349	303	652		5	
3:45 PM	3:59 PM	334	309	643		2	
4:00 PM	4:14 PM	336	277	613	2499	3	8
4:15 PM	4:29 PM	335	311	646		3	
4:30 PM	4:44 PM	328	291	619		1	
4:45 PM	4:59 PM	332	289	621		1	
5:00 PM	5:14 PM	360	327	687	2574	5	14
5:15 PM	5:29 PM	330	320	650		3	
5:30 PM	5:44 PM	344	292	636		3	
5:45 PM	5:59 PM	336	265	601		3	
6:00 PM	6:14 PM	291	254	545	1828	1	6
6:15 PM	6:29 PM	252	226	478		1	
6:30 PM	6:44 PM	229	203	432		4	
6:45 PM	6:59 PM	194	179	373		0	
7:00 PM	7:14 PM	185	119	304	1092	2	7
7:15 PM	7:29 PM	163	118	281		2	
7:30 PM	7:44 PM	147	120	267		2	
7:45 PM	7:59 PM	156	84	240		1	
8:00 PM	8:14 PM	132	87	219	887	0	2
8:15 PM	8:29 PM	155	90	245		1	
8:30 PM	8:44 PM	139	97	236		0	
8:45 PM	8:59 PM	111	76	187		1	

Time Interval		E. Natoma Street	E. Natoma Street	E. Natoma Street (both	E. Natoma Street (both	Gionata Way	Gionata Way
Begin At	End Of	Eastbound	Westbound	Approach)	Approach)	Southbound	VPH
		15-min Volume	15-min Volume	15-min Volume	VPH	15-min Volume	VPH
9:00 PM	9:14 PM	113	87	200	641	1	3
9:15 PM	9:29 PM	118	52	170		1	
9:30 PM	9:44 PM	89	52	141		1	
9:45 PM	9:59 PM	81	49	130		0	
10:00 PM	10:14 PM	58	41	99	337	2	2
10:15 PM	10:29 PM	52	43	95		0	
10:30 PM	10:44 PM	43	36	79		0	
10:45 PM	10:59 PM	38	26	64		0	
11:00 PM	11:14 PM	25	20	45	171	0	1
11:15 PM	11:29 PM	28	15	43		1	
11:30 PM	11:44 PM	31	16	47		0	
11:45 PM	11:59 PM	26	10	36		0	

Note: The volumes included in above table are the average of two days (3/2/2022 and 3/3/2022).

Figure 2 - Four Hour Vehicular Volume (70% Factor) (MUTCD - Figure 4C-2)

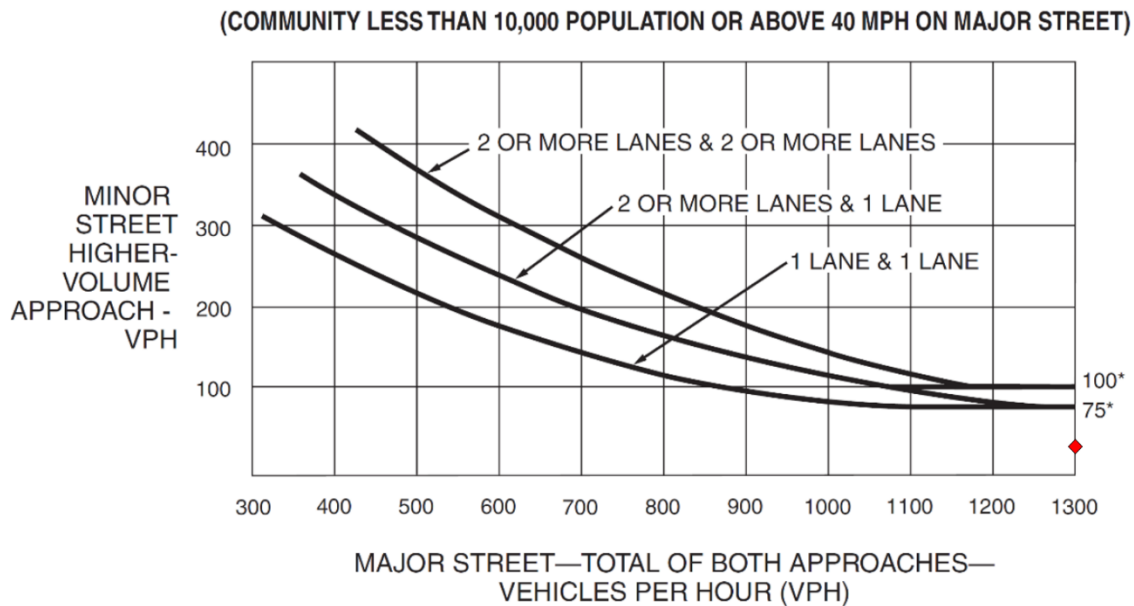


*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

WARRANT 3, PEAK HOUR: The volume threshold for the Peak hour Signal warrant is not met at the intersections of E. Natoma Street and Gionata Way during both a.m. and p.m. peak hours as shown in

Figure 3. Therefore, the study intersection does not satisfy the requirements of this warrant. Note that 70% Factor chart (Figure 4C-4 of CA MUTCD, Revision 4) is used to evaluate this warrant as the speed limit on a major road (E. Natoma Street) is 45 mph (above 40 mph). **Table 2** represents hourly volumes used in the analysis of Warrant 3.

Figure 3 - Peak Hour Vehicular Volume (70% Factor) (MUTCD - Figure 4C-4)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

WARRANT 4, PEDESTRIAN VOLUME: There is no significant pedestrian crossing activity observed across the major road approaches (E. Natoma Street). Hence, the pedestrian volumes do not satisfy conditions at the study intersection.

WARRANT 5, SCHOOL CROSSING: This warrant was deemed not applicable as no school is present within the vicinity of the study intersections. The nearest school is a 1-mile distance from the study intersection on Manseau Drive.

WARRANT 6, COORDINATED SIGNAL SYSTEM: The distance of the study intersections from adjacent signalized intersections is less than or near 1000 ft. Thus, this warrant is not satisfied.

WARRANT 7, CRASH EXPERIENCE: There were no observed collisions within the 5 years (January 1 2017 to December 31, 2021) within the 250 feet radius of the intersection of E. Natoma Street and Gionata Way. Based on the review of the collisions, this warrant is not satisfied.

WARRANT 8, ROADWAY NETWORK: This warrant applies to the intersection of two or more major routes. The study intersection includes one major route (E. Natoma Street) and a residential driveway (Gionata Way). Therefore, this warrant is not applicable to the study intersection.

WARRANT 9, INTERSECTION NEAR A GRADE CROSSING: A rail grade crossing is not present near the study intersection. Hence, this warrant is not applicable.

Sight Distance Analysis

As per the scope, sight distance analysis is conducted for the intersection of E Natoma Street and Gionata Way. Sight distance is evaluated to determine if a driver will have adequate visibility to enter a roadway safely without resulting in a conflict with traffic already on the roadway. The available sight distance on a roadway should be sufficient to enable a vehicle traveling at or a near the design speed to stop before reaching a stationary object in its path. The access driveway/minor street should be free and clear of any obstructions that would materially and adversely affect sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk, bicycles, and other vehicles traveling on adjacent roadways. Landscaping and parking should not conflict with a driver's ability to locate a gap in traffic and see oncoming pedestrians and bicyclists. Adequate corner sight distance (sight distance triangles) should be provided at all site access points in accordance with the City's standards.

The existing access point to the residential property is provided via the intersection of E. Natoma Street and Gionata Way. E. Natoma Street has a posted speed limit of 45 miles per hour (mph) and the 85th percentile speed of 47 mph according to the results of the 2019 Engineering and Traffic Survey. The city collected Radar data using a StealthStat traffic data recorder in June 2021 that showed an 85th percentile speed of 55 mph. Although the StealthStat system does not allow for any data evaluation by a trained technician, it was decided to conservatively proceed with this sight distance calculation using the 55 mph speed. According to the Folsom (2020) Design and Procedures Manual and Improvement Standards, the required minimum design sight distance for a passenger car exiting a side street onto the four-lane road with a design speed of 55 mph is 700 feet on the right side and 620 feet on the left side.

For the eastbound left turn onto Gionata Way, a 200 feet storage lane with 50 feet taper is provided. According to the manual, the minimum required sight distance for cars entering driveways by left turn is 550 feet. This requirement is met at the study intersection. Therefore, there is no discrepancy observed in visibility for the vehicles making eastbound left turn and westbound right turn movements at the study intersection. In addition, the vehicles traveling on E. Natoma Street have clear visibility of vehicles stopped on Gionata Way.

Vehicular traffic will exit the residential property from Gionata Way. The exiting vehicles must yield to westbound traffic on E. Natoma Street when turning right, and to both westbound and eastbound traffic on E. Natoma Street when turning left.

Visibility to sight the eastbound traffic from Gionata Way

The line of sight for vehicles exiting Gionata Way is visible for approximately 500 feet on the right side (to sight the eastbound traffic) which does not meet the minimum sight distance requirement of 700 feet. However, there is an existing 50 feet long merging lane for vehicles turning left onto E. Natoma Street from Gionata Way, which provides clear and sufficient visibility for vehicle users to yield to oncoming eastbound traffic on E Natoma Street. Therefore, there is adequate visibility provided to sight the eastbound traffic.

Visibility to sight the westbound traffic from Gionata Way

The line of sight for vehicles exiting Gionata Way is visible for approximately 315 feet on the left side (to sight the westbound traffic) which does not meet the minimum sight distance requirement of 620 feet. The sight distance is limited due to the placement of the stop line from the curb, obstruction created by trees, and horizontal roadway curvature on both east and westbound approaches. Vehicle users at Gionata Way need to cross the stop line to see approaching vehicles that could obstruct pedestrians and bicyclists.

Visibility after installing median barrier on E. Natoma Street

The city is proposing a Double Thrie Beam Barrier (Caltrans Standard Plan A78B) on the median of E. Natoma Street between Folsom Lake Crossing and Gionata Way. As per the Caltrans standard plan, the height of the proposed median barrier is 2 ft. and 8 in. Since the average height of a driver's eyes (sight line) is typically a minimum of 3 ft., the proposed median barrier will not obstruct any sightlines for vehicles entering to or exiting from Gionata Way.

Figure 4 shows the existing horizontal sightline profiles and **Figure 5** shows horizontal sightline profiles based on minimum required sight distances at Gionata Way on E. Natoma Street.

TJKM recommends trimming or removing existing trees between the sidewalk and curb up to 420 feet from Gionata Way on the westbound approach (east leg of the intersection) to provide more visibility to sight oncoming westbound traffic. In case of trimming, all tree branches 7' over the sidewalk shall be removed and no branches shall be visible. If this is not possible, the tree shall be removed. All bushes between the sidewalk and right of way/existing wall shall be trimmed to a maximum of 3' in height. In addition, TJKM also recommends adding a T-intersection symbol (W2-2) in both directions of E. Natoma Street about 1,000 feet from Gionata Way.

Figure 4 – Existing Horizontal sightline profiles at Gionata Way



Figure 5 - Minimum required Sight Distance at Gionata Way



Conclusions

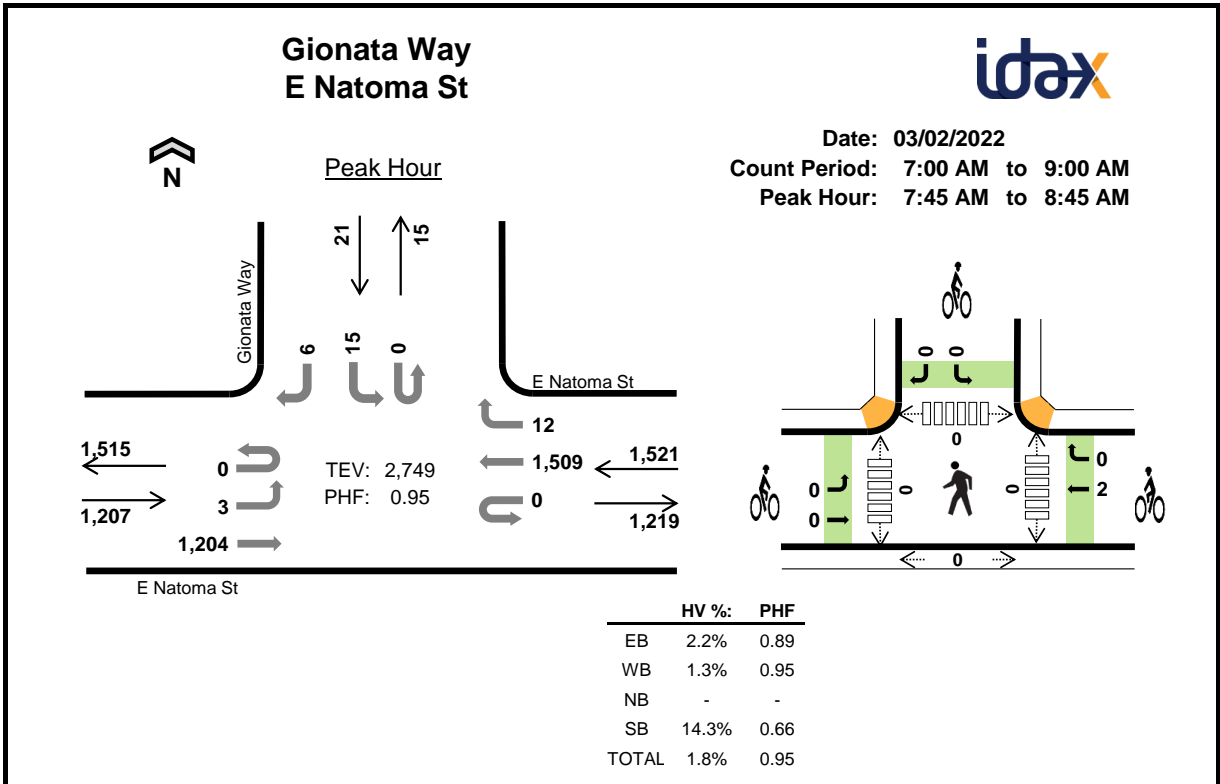
The Traffic Signal Warrant Analysis shows that none of the nine warrants met at the study intersection. Therefore, as per the existing conditions, the installation of a traffic control signal is not recommended at the intersection of E. Natoma Street and Gionata Way.

The existing sight distance at the intersection is not adequate to sight the westbound traffic based on 55 mph speed. Hence, TJKM recommends trimming the lower branches of existing trees to 7' height over the sidewalk, if possible, and/or removing trees to ensure clear visibility of oncoming westbound traffic. All existing bushes between the sidewalk and the existing wall must be trimmed to a maximum of 3' in height. In addition, it is recommended to add T-Intersection warning signs (Sign W2-2 L and R) in both directions of E. Natoma Street about 1,000 feet from Gionata Way.

APPENDIX A

24-Hour Intersection Turning Movement Counts

24-Hour Tube Data



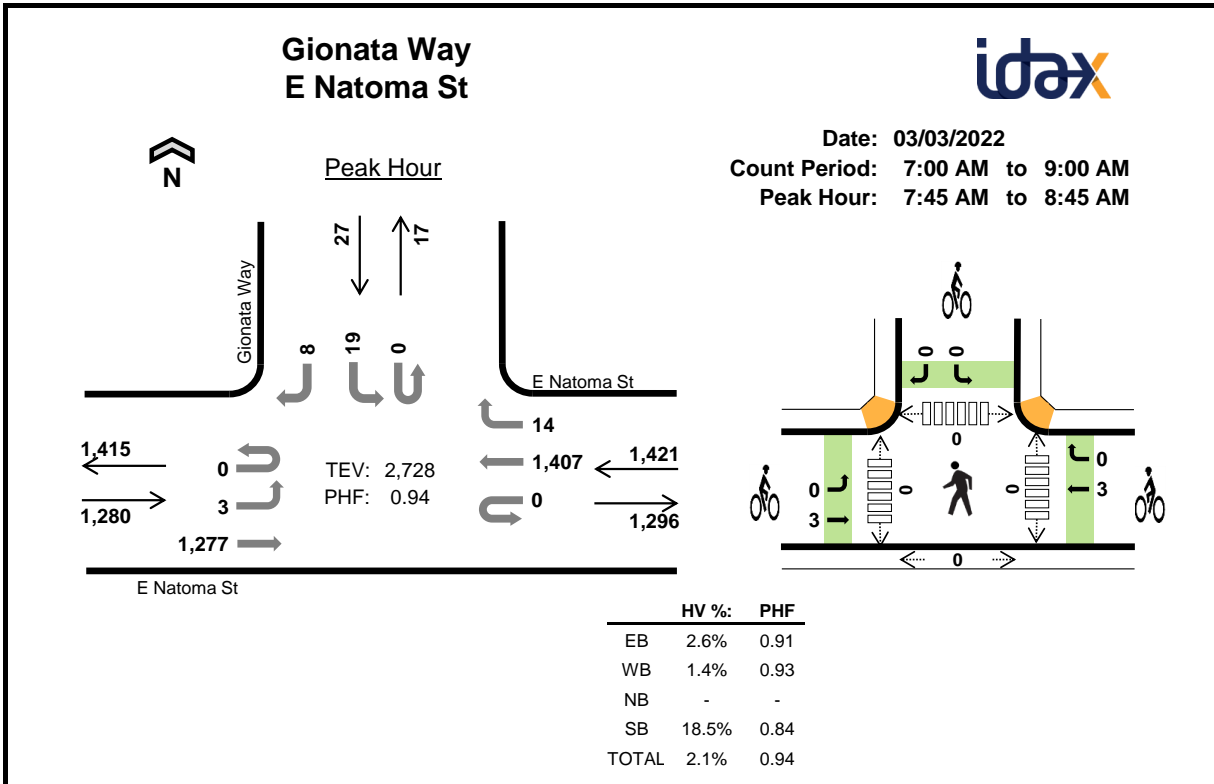
Two-Hour Count Summaries

Interval Start	E Natoma St Eastbound				E Natoma St Westbound				N/A Northbound				Gionata Way Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	2	161	0	0	0	260	2	0	0	0	0	0	1	0	0	426	0	
7:15 AM	0	2	219	0	0	0	329	0	0	0	0	0	0	1	0	2	553	0	
7:30 AM	0	1	258	0	0	0	367	1	0	0	0	0	0	2	0	3	632	0	
7:45 AM	0	0	340	0	0	0	372	4	0	0	0	0	0	4	0	1	721	2,332	
8:00 AM	0	1	282	0	0	0	386	0	0	0	0	0	0	3	0	2	674	2,580	
8:15 AM	0	1	303	0	0	0	399	1	0	0	0	0	0	3	0	0	707	2,734	
8:30 AM	0	1	279	0	0	0	352	7	0	0	0	0	0	5	0	3	647	2,749	
8:45 AM	0	1	283	0	0	0	262	1	0	0	0	0	0	4	0	2	553	2,581	
Count Total	0	9	2,125	0	0	0	2,727	16	0	0	0	0	0	23	0	13	4,913	0	
Peak Hour	All	0	3	1,204	0	0	0	1,509	12	0	0	0	0	0	15	0	6	2,749	0
	HV	0	1	25	0	0	0	16	4	0	0	0	0	0	2	0	1	49	0
	HV%	-	33%	2%	-	-	-	1%	33%	-	-	-	-	-	13%	-	17%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	4	0	0	8	0	1	0	0	1	0	0	5	0	5
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	4	0	4
7:30 AM	3	5	0	1	9	0	0	0	0	0	0	0	2	0	2
7:45 AM	5	4	0	0	9	0	0	0	0	0	0	0	0	0	0
8:00 AM	7	3	0	1	11	0	1	0	0	1	0	0	0	0	0
8:15 AM	6	7	0	0	13	0	1	0	0	1	0	0	0	0	0
8:30 AM	8	6	0	2	16	0	0	0	0	0	0	0	0	0	0
8:45 AM	10	5	0	1	16	0	1	0	0	1	0	0	0	0	0
Count Total	43	35	0	5	83	0	4	0	0	4	0	0	11	0	11
Peak Hr	26	20	0	3	49	0	2	0	0	2	0	0	0	0	0

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	E Natoma St				E Natoma St				N/A				Gionata Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	2	0	0	0	4	0	0	0	0	0	0	0	0	8	0	
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	
7:30 AM	0	0	3	0	0	0	5	0	0	0	0	0	0	0	1	9	0	
7:45 AM	0	0	5	0	0	0	3	1	0	0	0	0	0	0	0	9	27	
8:00 AM	0	0	7	0	0	0	3	0	0	0	0	0	0	0	1	11	30	
8:15 AM	0	1	5	0	0	0	6	1	0	0	0	0	0	0	0	13	42	
8:30 AM	0	0	8	0	0	0	4	2	0	0	0	0	0	0	1	16	49	
8:45 AM	0	0	10	0	0	0	4	1	0	0	0	0	0	0	1	16	56	
Count Total	0	3	40	0	0	0	30	5	0	0	0	0	0	0	4	83	0	
Peak Hour	0	1	25	0	0	0	16	4	0	0	0	0	0	0	2	49	0	
Two-Hour Count Summaries - Bikes																		
Interval Start	E Natoma St			E Natoma St			N/A			Gionata Way			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	1	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	0	0	0			
7:30 AM	0	0	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	0	1			
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1			
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2			
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2			
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	3			
Count Total	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0			
Peak Hour	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0			
Note: U-Turn volumes for bikes are included in Left-Turn, if any.																		



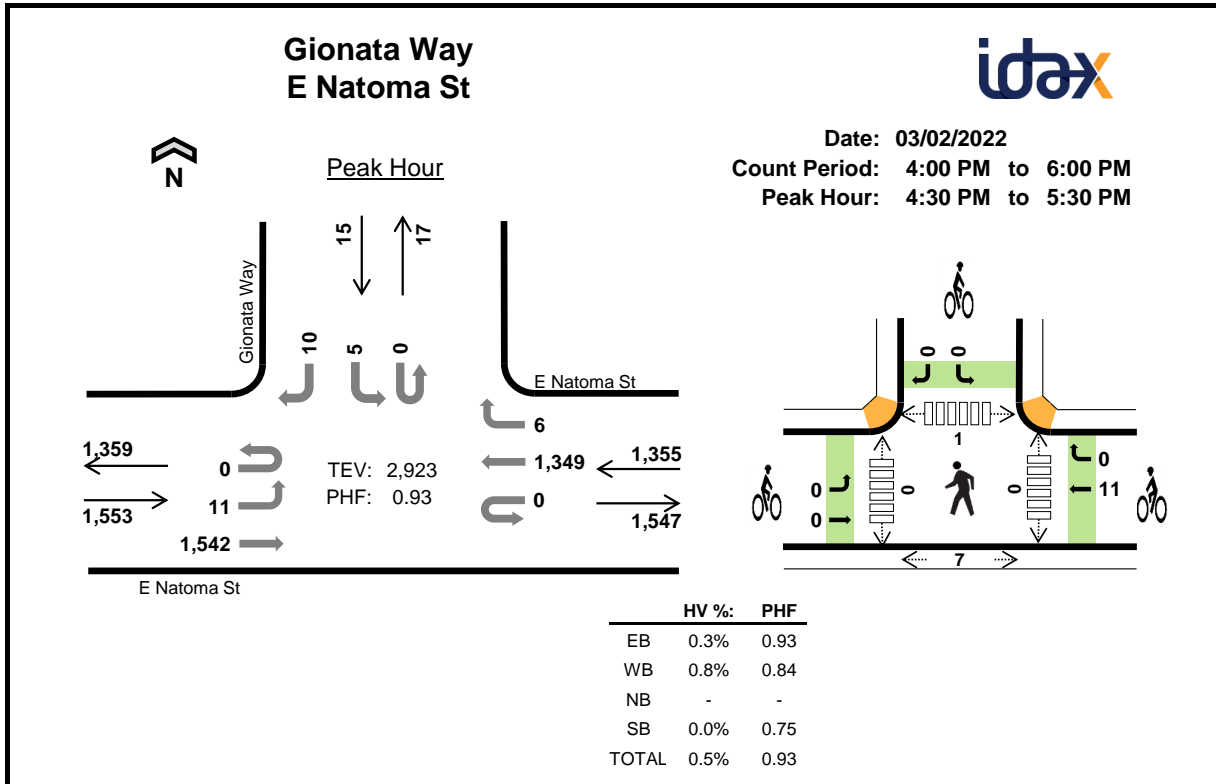
Two-Hour Count Summaries

Interval Start	E Natoma St Eastbound				E Natoma St Westbound				N/A Northbound				Gionata Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	134	0	0	0	268	1	0	0	0	0	0	1	0	0	406	0
7:15 AM	0	2	194	0	0	0	336	0	0	0	0	0	0	2	0	2	536	0
7:30 AM	0	1	259	0	0	0	356	2	0	0	0	0	0	2	0	3	623	0
7:45 AM	0	1	349	0	0	0	338	0	0	0	0	0	0	4	0	1	693	2,258
8:00 AM	0	0	286	0	0	0	363	8	0	0	0	0	0	5	0	2	664	2,516
8:15 AM	0	1	331	0	0	0	382	2	0	0	0	0	0	6	0	1	723	2,703
8:30 AM	0	1	311	0	0	0	324	4	0	0	0	0	0	4	0	4	648	2,728
8:45 AM	0	5	289	0	0	0	305	1	0	0	0	0	0	1	0	2	603	2,638
Count Total	0	13	2,153	0	0	0	2,672	18	0	0	0	0	0	25	0	15	4,896	0
Peak Hour	All	0	3	1,277	0	0	1,407	14	0	0	0	0	0	19	0	8	2,728	0
	HV	0	0	33	0	0	17	3	0	0	0	0	0	5	0	0	58	0
	HV%	-	0%	3%	-	-	-	1%	21%	-	-	-	-	-	26%	-	0%	2%

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	11	5	0	0	16	0	0	0	0	0	0	0	0	0	0
7:15 AM	7	7	0	0	14	0	0	0	0	0	0	0	0	0	0
7:30 AM	10	3	0	1	14	0	1	0	0	1	0	0	0	0	0
7:45 AM	14	6	0	1	21	1	2	0	0	3	0	0	0	0	0
8:00 AM	11	7	0	1	19	2	0	0	0	2	0	0	0	0	0
8:15 AM	3	6	0	1	10	0	1	0	0	1	0	0	0	0	0
8:30 AM	5	1	0	2	8	0	0	0	0	0	0	0	0	0	0
8:45 AM	7	4	0	0	11	1	1	0	0	2	0	0	0	0	0
Count Total	68	39	0	6	113	4	5	0	0	9	0	0	0	0	0
Peak Hr	33	20	0	5	58	3	3	0	0	6	0	0	0	0	0

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	E Natoma St				E Natoma St				N/A				Gionata Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	10	0	0	0	5	0	0	0	0	0	0	0	0	0	16	0
7:15 AM	0	2	5	0	0	0	7	0	0	0	0	0	0	0	0	0	14	0
7:30 AM	0	0	10	0	0	0	2	1	0	0	0	0	0	0	1	0	14	0
7:45 AM	0	0	14	0	0	0	6	0	0	0	0	0	0	1	0	0	21	65
8:00 AM	0	0	11	0	0	0	6	1	0	0	0	0	0	1	0	0	19	68
8:15 AM	0	0	3	0	0	0	4	2	0	0	0	0	0	1	0	0	10	64
8:30 AM	0	0	5	0	0	0	1	0	0	0	0	0	0	2	0	0	8	58
8:45 AM	0	1	6	0	0	0	3	1	0	0	0	0	0	0	0	0	11	48
Count Total	0	4	64	0	0	0	34	5	0	0	0	0	0	6	0	0	113	0
Peak Hour	0	0	33	0	0	0	17	3	0	0	0	0	0	5	0	0	58	0
Two-Hour Count Summaries - Bikes																		
Interval Start	E Natoma St			E Natoma St			N/A			Gionata Way			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	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	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3	4	4
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	6
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	7	7
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	5	5
Count Total	0	4	0	0	5	0	0	0	0	0	0	0	0	0	0	9	0	0
Peak Hour	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	0
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		



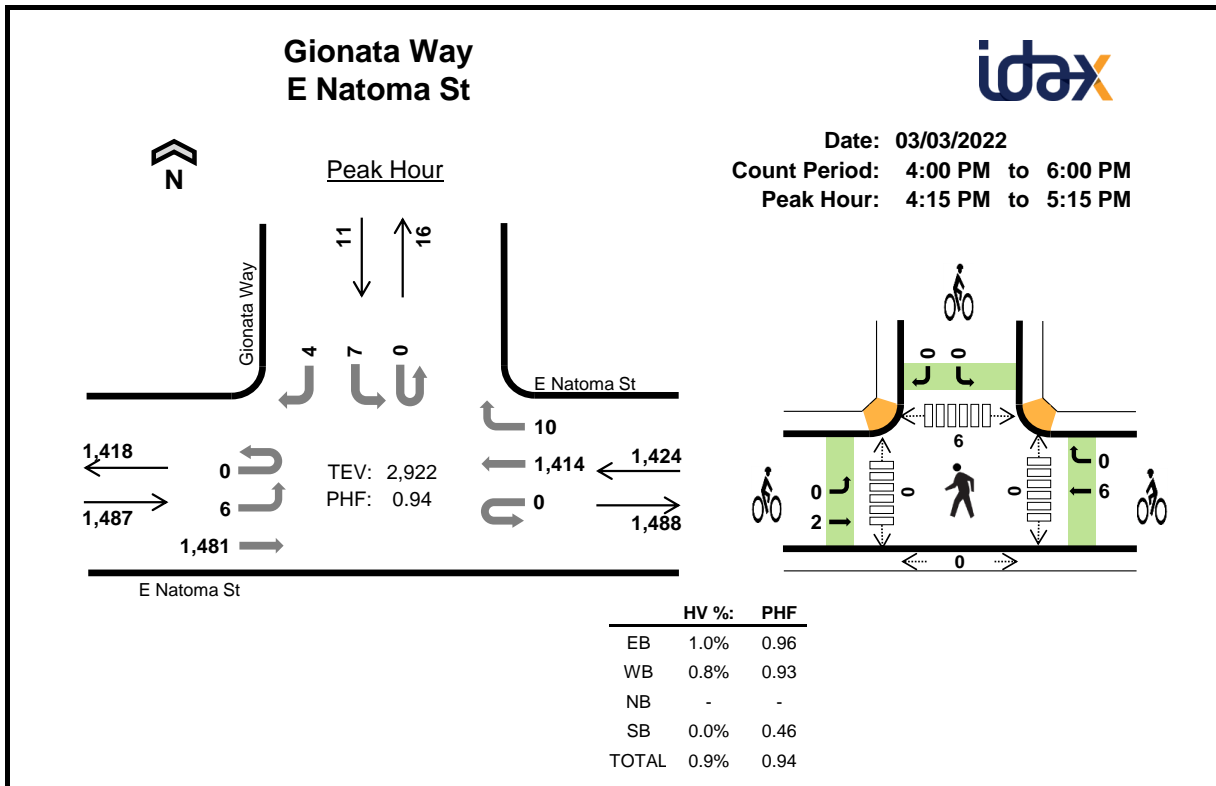
Two-Hour Count Summaries

Interval Start	E Natoma St Eastbound				E Natoma St Westbound				N/A Northbound				Gionata Way Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	1	404	0	0	0	288	0	0	0	0	0	2	0	2	697	0		
4:15 PM	0	3	354	0	0	0	332	2	0	0	0	0	0	2	0	1	694	0	
4:30 PM	0	4	383	0	0	0	316	2	0	0	0	0	0	2	0	3	710	0	
4:45 PM	0	4	368	0	0	0	299	3	0	0	0	0	0	0	0	1	675	2,776	
5:00 PM	0	2	415	0	0	0	333	0	0	0	0	0	0	3	0	2	755	2,834	
5:15 PM	0	1	376	0	0	0	401	1	0	0	0	0	0	0	0	4	783	2,923	
5:30 PM	0	1	377	0	0	0	319	2	0	0	0	0	0	1	0	1	701	2,914	
5:45 PM	0	3	365	0	0	0	277	3	0	0	0	0	0	1	0	0	649	2,888	
Count Total	0	19	3,042	0	0	0	2,565	13	0	0	0	0	0	11	0	14	5,664	0	
Peak Hour	All	0	11	1,542	0	0	0	1,349	6	0	0	0	0	0	5	0	10	2,923	0
	HV	0	0	5	0	0	0	11	0	0	0	0	0	0	0	0	0	16	0
	HV%	-	0%	0%	-	-	-	1%	0%	-	-	-	-	-	0%	-	0%	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	7	0	1	13	0	1	0	0	1	0	0	1	0	1
4:15 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0
4:30 PM	3	3	0	0	6	0	1	0	0	1	0	0	0	1	1
4:45 PM	1	6	0	0	7	0	5	0	0	5	0	0	1	1	2
5:00 PM	0	2	0	0	2	0	5	0	0	5	0	0	0	1	1
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	4	4
5:30 PM	1	6	0	0	7	0	0	0	0	0	0	0	0	1	1
5:45 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Count Total	15	25	0	1	41	0	13	0	0	13	0	0	2	8	10
Peak Hr	5	11	0	0	16	0	11	0	0	11	0	0	1	7	8

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	E Natoma St				E Natoma St				N/A				Gionata Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	0	0	0	7	0	0	0	0	0	0	0	1	13	0	
4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	
4:30 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	6	0	
4:45 PM	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	7	28	
5:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	17	
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	16	
5:30 PM	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	7	17	
5:45 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	13	
Count Total	0	0	15	0	0	0	25	0	0	0	0	0	0	0	1	41	0	
Peak Hour	0	0	5	0	0	0	11	0	0	0	0	0	0	0	0	16	0	
Two-Hour Count Summaries - Bikes																		
Interval Start	E Natoma St			E Natoma St			N/A			Gionata Way			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0			
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0			
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0			
4:45 PM	0	0	0	0	5	0	0	0	0	0	0	0	0	5	8			
5:00 PM	0	0	0	0	5	0	0	0	0	0	0	0	0	5	12			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11			
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5			
Count Total	0	0	0	0	13	0	0	0	0	0	0	0	0	13	0			
Peak Hour	0	0	0	0	11	0	0	0	0	0	0	0	0	11	0			
Note: U-Turn volumes for bikes are included in Left-Turn, if any.																		



Two-Hour Count Summaries

Interval Start	E Natoma St Eastbound				E Natoma St Westbound				N/A Northbound				Gionata Way Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	4	343	0	0	0	339	2	0	0	0	0	0	1	0	4	693	0	
4:15 PM	0	3	384	0	0	0	356	2	0	0	0	0	0	2	0	1	748	0	
4:30 PM	0	1	340	0	0	0	341	2	0	0	0	0	0	0	0	0	684	0	
4:45 PM	0	1	370	0	0	0	337	2	0	0	0	0	0	2	0	0	712	2,837	
5:00 PM	0	1	387	0	0	0	380	4	0	0	0	0	0	3	0	3	778	2,922	
5:15 PM	0	3	361	0	0	0	327	0	0	0	0	0	0	1	0	0	692	2,866	
5:30 PM	0	6	363	0	0	0	311	3	0	0	0	0	0	3	0	2	688	2,870	
5:45 PM	0	1	370	0	0	0	291	1	0	0	0	0	0	3	0	2	668	2,826	
Count Total	0	20	2,918	0	0	0	2,682	16	0	0	0	0	0	15	0	12	5,663	0	
Peak Hour	All	0	6	1,481	0	0	0	1,414	10	0	0	0	0	0	7	0	4	2,922	0
	HV	0	0	15	0	0	0	11	0	0	0	0	0	0	0	0	0	26	0
	HV%	-	0%	1%	-	-	-	1%	0%	-	-	-	-	-	0%	-	0%	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	11	5	0	1	17	0	2	0	0	2	0	0	0	0	0
4:15 PM	3	4	0	0	7	1	0	0	0	1	0	0	0	0	0
4:30 PM	4	1	0	0	5	0	2	0	0	2	0	0	3	0	3
4:45 PM	3	3	0	0	6	1	3	0	0	4	0	0	3	0	3
5:00 PM	5	3	0	0	8	0	1	0	0	1	0	0	0	0	0
5:15 PM	2	2	0	0	4	1	0	0	0	1	0	0	0	0	0
5:30 PM	4	1	0	0	5	0	0	0	0	0	0	0	1	0	1
5:45 PM	2	4	0	0	6	1	0	0	0	1	0	0	0	0	0
Count Total	34	23	0	1	58	4	8	0	0	12	0	0	7	0	7
Peak Hr	15	11	0	0	26	2	6	0	0	8	0	0	6	0	6

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	E Natoma St				E Natoma St				N/A				Gionata Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	11	0	0	0	5	0	0	0	0	0	0	0	0	1	17	0
4:15 PM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7	0
4:30 PM	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0
4:45 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	6	35
5:00 PM	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	8	26
5:15 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	23
5:30 PM	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	5	23
5:45 PM	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	6	23
Count Total	0	0	34	0	0	0	23	0	0	0	0	0	0	0	0	1	58	0
Peak Hour	0	0	15	0	0	0	11	0	0	0	0	0	0	0	0	0	26	0
Two-Hour Count Summaries - Bikes																		
Interval Start	E Natoma St			E Natoma St			N/A			Gionata Way			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0		
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0		
4:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0		
4:45 PM	0	1	0	0	3	0	0	0	0	0	0	0	0	0	4	9		
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	8		
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	8		
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6		
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3		
Count Total	0	4	0	0	8	0	0	0	0	0	0	0	0	0	12	0		
Peak Hour	0	2	0	0	6	0	0	0	0	0	0	0	0	0	8	0		
Note: U-Turn volumes for bikes are included in Left-Turn, if any.																		

Location: E Natoma St, Between E Natoma St & Gionata Way
 Date Range: 3/2/2022 - 3/8/2022
 Site Code: 01

Time	Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Tuesday			Mid-Week Average				
	3/2/2022			3/3/2022			3/4/2022			3/5/2022			3/6/2022			3/7/2022			3/8/2022							
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB
12:00 AM	40	26	66	61	23	84	72	27	99	102	73	175	114	86	200	59	38	97	50	27	77	50	25	76		
1:00 AM	29	17	46	40	21	61	41	24	65	66	38	104	71	39	110	30	15	45	28	17	45	32	18	51		
2:00 AM	21	27	48	30	23	53	25	21	46	41	24	65	46	38	84	14	11	25	10	14	24	20	21	42		
3:00 AM	20	33	53	14	39	53	20	34	54	30	17	47	21	22	43	23	31	54	20	38	58	18	37	55		
4:00 AM	42	97	139	44	88	132	39	74	113	22	40	62	34	25	59	49	105	154	48	100	148	45	95	140		
5:00 AM	113	304	417	127	299	426	120	304	424	65	104	169	64	92	156	135	330	465	136	320	456	125	308	433		
6:00 AM	449	741	1,190	430	694	1,124	429	638	1,067	183	257	440	122	216	338	398	716	1,114	466	678	1,144	448	704	1,153		
7:00 AM	909	1,212	2,121	848	1,188	2,036	783	1,126	1,909	360	526	886	243	376	619	848	1,173	2,021	862	1,212	2,074	873	1,204	2,077		
8:00 AM	1,056	1,290	2,346	1,107	1,262	2,369	1,023	1,168	2,191	580	706	1,286	445	565	1,010	1,060	1,209	2,269	1,032	1,232	2,264	1,065	1,261	2,326		
9:00 AM	809	961	1,770	798	892	1,690	743	897	1,640	659	950	1,609	572	747	1,319	800	858	1,658	797	857	1,654	801	903	1,705		
10:00 AM	805	884	1,689	788	872	1,660	771	845	1,616	924	1,060	1,984	757	917	1,674	740	793	1,533	763	827	1,590	785	861	1,646		
11:00 AM	831	951	1,782	850	962	1,812	910	1,015	1,925	938	1,081	2,019	871	1,025	1,896	837	846	1,683	786	869	1,655	822	927	1,750		
12:00 PM	908	930	1,838	879	974	1,853	946	1,020	1,966	983	1,161	2,144	966	975	1,941	848	838	1,686	827	889	1,716	871	931	1,802		
1:00 PM	950	948	1,898	1,008	927	1,935	1,062	1,069	2,131	1,057	1,060	2,117	1,118	1,009	2,127	866	815	1,681	945	909	1,854	968	928	1,896		
2:00 PM	1,146	1,032	2,178	1,169	1,079	2,248	1,143	1,057	2,200	1,089	1,040	2,129	979	928	1,907	1,010	987	1,997	1,066	1,031	2,097	1,127	1,047	2,174		
3:00 PM	1,329	1,207	2,536	1,293	1,156	2,449	1,276	1,214	2,490	1,115	1,043	2,158	1,041	868	1,909	1,289	1,099	2,388	1,241	1,172	2,413	1,288	1,178	2,466		
4:00 PM	1,376	1,179	2,555	1,288	1,279	2,567	1,327	1,255	2,582	1,047	1,052	2,099	933	870	1,803	1,278	1,221	2,499	1,320	1,233	2,553	1,328	1,230	2,558		
5:00 PM	1,401	1,221	2,622	1,340	1,230	2,570	1,318	1,157	2,475	1,017	921	1,938	845	785	1,630	1,295	1,028	2,323	1,462	1,210	2,672	1,401	1,220	2,621		
6:00 PM	954	886	1,840	979	841	1,820	1,031	806	1,837	866	711	1,577	712	621	1,333	939	756	1,695	1,004	803	1,807	979	843	1,822		
7:00 PM	656	428	1,084	650	465	1,115	702	558	1,260	620	457	1,077	592	416	1,008	565	410	975	602	445	1,047	636	446	1,082		
8:00 PM	558	368	926	518	335	853	476	375	851	516	395	911	377	303	680	437	307	744	459	352	811	512	352	863		
9:00 PM	409	216	625	395	264	659	458	323	781	435	302	737	270	227	497	282	188	470	380	229	609	395	236	631		
10:00 PM	188	147	335	195	145	340	270	235	505	338	247	585	148	113	261	166	122	288	177	121	298	187	138	324		
11:00 PM	107	60	167	115	63	178	195	99	294	236	137	373	97	56	153	97	50	147	117	63	180	113	62	175		
Total	15,106	15,165	30,271	14,966	15,121	30,087	15,180	15,341	30,521	13,289	13,402	26,691	11,438	11,319	22,757	14,065	13,946	28,011	14,598	14,648	29,246	14,890	14,978	29,868		
Percent	50%	50%	-	50%	50%	-	50%	50%	-	50%	50%	-	50%	50%	-	50%	50%	-	50%	50%	-	50%	50%	-		
AM Peak	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	11:00	11:00	11:00	11:00	11:00	11:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00		
Vol.	1,056	1,290	2,346	1,107	1,262	2,369	1,023	1,168	2,191	938	1,081	2,019	871	1,025	1,896	1,060	1,209	2,269	1,032	1,232	2,264	1,065	1,261	2,326		
PM Peak	17:00	17:00	17:00	17:00	16:00	17:00	16:00	16:00	16:00	15:00	12:00	15:00	13:00	13:00	13:00	17:00	16:00	16:00	17:00	16:00	17:00	17:00	16:00	17:00		
Vol.	1,401	1,221	2,622	1,340	1,279	2,570	1,327	1,255	2,582	1,115	1,161	2,158	1,118	1,009	2,127	1,295	1,221	2,499	1,462	1,233	2,672	1,401	1,230	2,621		

1. Mid-week average includes data between Tuesday and Thursday.

Location: E Natoma St, Between Gionata Way & Elvie Ln
 Date Range: 3/2/2022 - 3/8/2022
 Site Code: 02

Time	Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Tuesday			Mid-Week Average				
	3/2/2022			3/3/2022			3/4/2022			3/5/2022			3/6/2022			3/7/2022			3/8/2022							
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB
12:00 AM	40	26	66	61	20	81	73	26	99	108	72	180	120	86	206	62	36	98	50	27	77	50	24	75		
1:00 AM	29	17	46	42	21	63	41	24	65	67	38	105	76	39	115	30	14	44	29	15	44	33	18	51		
2:00 AM	21	26	47	31	23	54	27	21	48	43	27	70	47	37	84	14	11	25	11	14	25	21	21	42		
3:00 AM	22	34	56	22	41	63	21	35	56	31	17	48	22	21	43	25	29	54	22	38	60	22	38	60		
4:00 AM	46	98	144	48	90	138	42	78	120	22	41	63	35	26	61	56	106	162	57	102	159	50	97	147		
5:00 AM	125	300	425	152	294	446	134	301	435	68	106	174	66	92	158	162	314	476	168	322	490	148	305	454		
6:00 AM	495	725	1,220	485	677	1,162	483	631	1,114	198	256	454	147	219	366	447	715	1,162	529	650	1,179	503	684	1,187		
7:00 AM	993	1,197	2,190	936	1,142	2,078	893	1,089	1,982	404	515	919	273	369	642	951	1,139	2,090	959	1,160	2,119	963	1,166	2,129		
8:00 AM	1,189	1,253	2,442	1,199	1,227	2,426	1,126	1,111	2,237	625	680	1,305	467	541	1,008	1,142	1,139	2,281	1,165	1,201	2,366	1,184	1,227	2,411		
9:00 AM	881	933	1,814	859	888	1,747	801	883	1,684	732	920	1,652	622	724	1,346	864	862	1,726	848	856	1,704	863	892	1,755		
10:00 AM	852	868	1,720	841	862	1,703	848	856	1,704	1,012	1,063	2,075	825	852	1,677	774	796	1,570	802	809	1,611	832	846	1,678		
11:00 AM	860	938	1,798	941	960	1,901	976	1,006	1,982	992	1,016	2,008	928	991	1,919	869	819	1,688	863	849	1,712	888	916	1,804		
12:00 PM	956	930	1,886	916	954	1,870	1,010	993	2,003	1,046	1,099	2,145	1,000	953	1,953	912	849	1,761	876	876	1,752	916	920	1,836		
1:00 PM	991	921	1,912	1,082	923	2,005	1,104	1,046	2,150	1,124	1,037	2,161	1,159	973	2,132	893	817	1,710	1,000	898	1,898	1,024	914	1,938		
2:00 PM	1,170	1,032	2,202	1,207	1,086	2,293	1,199	1,022	2,221	1,145	1,017	2,162	1,029	902	1,931	1,047	991	2,038	1,123	1,039	2,162	1,167	1,052	2,219		
3:00 PM	1,351	1,173	2,524	1,332	1,155	2,487	1,378	1,240	2,618	1,218	1,037	2,255	1,081	838	1,919	1,330	1,111	2,441	1,302	1,120	2,422	1,328	1,149	2,478		
4:00 PM	1,439	1,122	2,561	1,354	1,215	2,569	1,379	1,258	2,637	1,124	1,007	2,131	975	869	1,844	1,329	1,213	2,542	1,391	1,225	2,616	1,395	1,187	2,582		
5:00 PM	1,411	1,218	2,629	1,415	1,191	2,606	1,350	1,158	2,508	1,045	906	1,951	894	782	1,676	1,322	1,024	2,346	1,499	1,196	2,695	1,442	1,202	2,643		
6:00 PM	986	899	1,885	1,036	827	1,863	1,046	823	1,869	907	690	1,597	752	606	1,358	1,003	720	1,723	1,053	781	1,834	1,025	836	1,861		
7:00 PM	670	417	1,087	664	466	1,130	717	534	1,251	641	466	1,107	610	423	1,033	569	416	985	624	434	1,058	653	439	1,092		
8:00 PM	580	372	952	527	330	857	491	372	863	538	382	920	387	296	683	446	303	749	477	352	829	528	351	879		
9:00 PM	410	220	630	414	262	676	472	324	796	456	298	754	278	224	502	294	187	481	393	227	620	406	236	642		
10:00 PM	194	150	344	199	144	343	285	236	521	345	242	587	159	114	273	169	124	293	186	119	305	193	138	331		
11:00 PM	107	62	169	116	60	176	198	98	296	247	133	380	99	58	157	97	50	147	117	62	179	113	61	175		
Total	15,818	14,931	30,749	15,879	14,858	30,737	16,094	15,165	31,259	14,138	13,065	27,203	12,051	11,035	23,086	14,807	13,785	28,592	15,544	14,372	29,916	15,747	14,720	30,467		
Percent	51%	49%	-	52%	48%	-	51%	49%	-	52%	48%	-	52%	48%	-	52%	48%	-	52%	48%	-	52%	48%	-		
AM Peak	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	10:00	10:00	10:00	11:00	11:00	11:00	08:00	07:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00		
Vol.	1,189	1,253	2,442	1,199	1,227	2,426	1,126	1,111	2,237	1,012	1,063	2,075	928	991	1,919	1,142	1,139	2,281	1,165	1,201	2,366	1,184	1,227	2,411		
PM Peak	16:00	17:00	17:00	17:00	16:00	17:00	16:00	16:00	16:00	15:00	12:00	15:00	13:00	13:00	13:00	15:00	16:00	16:00	17:00	16:00	17:00	17:00	17:00	17:00		
Vol.	1,439	1,218	2,629	1,415	1,215	2,606	1,379	1,258	2,637	1,218	1,099	2,255	1,159	973	2,132	1,330	1,213	2,542	1,499	1,225	2,695	1,442	1,202	2,643		

1. Mid-week average includes data between Tuesday and Thursday.

Location: Gionata Way, Between E Natoma St & Lorena Ln
 Date Range: 3/2/2022 - 3/8/2022
 Site Code: 03

Time	Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Tuesday			Mid-Week Average				
	3/2/2022			3/3/2022			3/4/2022			3/5/2022			3/6/2022			3/7/2022			3/8/2022							
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB
12:00 AM	0	0	0	1	1	2	0	1	1	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	1	
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 AM	1	1	2	1	1	2	0	0	0	0	0	0	3	3	0	1	1	0	1	1	1	1	1	1	2	
4:00 AM	0	0	0	0	0	0	0	1	1	1	0	1	2	1	3	1	1	2	1	1	2	0	0	1		
5:00 AM	0	4	4	0	7	7	0	1	1	0	0	0	1	1	0	5	5	1	7	8	0	6	6	6		
6:00 AM	1	4	5	0	5	5	9	5	14	0	2	2	0	0	0	4	4	0	3	3	0	4	4	4		
7:00 AM	11	17	28	12	19	31	9	13	22	5	6	11	2	11	13	6	18	24	4	16	20	9	17	26		
8:00 AM	19	26	45	31	31	62	10	21	31	10	8	18	4	5	9	20	25	45	21	31	52	24	29	53		
9:00 AM	11	15	26	20	19	39	7	12	19	7	14	21	3	7	10	9	11	20	7	12	19	13	15	28		
10:00 AM	15	25	40	11	17	28	9	13	22	5	11	16	7	17	24	3	9	12	8	14	22	11	19	30		
11:00 AM	16	10	26	17	33	50	11	16	27	10	13	23	6	11	17	9	10	19	7	6	13	13	16	30		
12:00 PM	14	20	34	17	22	39	7	23	30	11	11	22	4	10	14	11	9	20	16	9	25	16	17	33		
1:00 PM	16	17	33	22	18	40	19	13	32	13	14	27	15	11	26	10	9	19	7	7	14	15	14	29		
2:00 PM	11	16	27	8	9	17	12	15	27	12	12	24	6	8	14	6	11	17	11	15	26	10	13	23		
3:00 PM	14	10	24	9	15	24	12	6	18	10	9	19	5	9	14	13	14	27	11	8	19	11	11	22		
4:00 PM	14	10	24	20	9	29	14	19	33	16	23	39	17	9	26	15	6	21	20	11	31	18	10	28		
5:00 PM	13	14	27	13	14	27	16	14	30	5	12	17	6	7	13	12	9	21	7	16	23	11	15	26		
6:00 PM	17	5	22	18	10	28	9	4	13	6	6	12	4	4	8	6	10	16	11	12	23	15	9	24		
7:00 PM	10	12	22	9	3	12	8	4	12	5	1	6	6	5	11	11	4	15	15	3	18	11	6	17		
8:00 PM	8	2	10	6	2	8	3	5	8	2	1	3	3	0	3	3	2	5	8	6	14	7	3	11		
9:00 PM	7	4	11	4	3	7	5	1	6	7	6	13	4	0	4	2	1	3	4	0	4	5	2	7		
10:00 PM	1	3	4	2	4	6	3	1	4	2	2	4	5	5	10	1	0	1	0	0	0	1	2	3		
11:00 PM	1	0	1	0	3	3	0	3	3	1	1	2	3	0	3	1	0	1	0	2	2	0	2	2		
Total	200	216	416	221	245	466	163	191	354	128	152	280	103	126	229	139	159	298	159	180	339	193	214	407		
Percent	48%	52%	-	47%	53%	-	46%	54%	-	46%	54%	-	45%	55%	-	47%	53%	-	47%	53%	-	48%	52%	-		
AM Peak	08:00	08:00	08:00	08:00	11:00	08:00	11:00	08:00	08:00	08:00	09:00	11:00	10:00	10:00	10:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00		
Vol.	19	26	45	31	33	62	11	21	31	10	14	23	7	17	24	20	25	45	21	31	52	24	29	53		
PM Peak	18:00	12:00	12:00	13:00	12:00	13:00	13:00	12:00	16:00	16:00	16:00	16:00	16:00	13:00	13:00	16:00	15:00	15:00	16:00	17:00	16:00	16:00	12:00	12:00		
Vol.	17	20	34	22	22	40	19	23	33	16	23	39	17	11	26	15	14	27	20	16	31	18	17	33		

1. Mid-week average includes data between Tuesday and Thursday.

Vehicular Volume																
AM PEAK HOUR TRAFFIC VOLUMES (2022)																
#	Intersection	Northbound/Southbound	Eastbound/Westbound	Day	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Gionata Way/E Natoma St	Gionata Way	E Natoma St	Wed 3/2	3	1204	0	0	1509	12	0	0	0	15	0	6
				Thurs 3/3	3	1277	0	0	1407	14	0	0	0	19	0	8
				Average	3	1241	0	0	1458	13	0	0	0	17	0	7

PM PEAK HOUR TRAFFIC VOLUMES (2022)																
#	Intersection	Northbound/Southbound	Eastbound/Westbound	Day	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Gionata Way/E Natoma St	Gionata Way	E Natoma St	Wed 3/2	11	1542	0	0	1349	6	0	0	0	5	0	10
				Thurs 3/3	6	1481	0	0	1414	10	0	0	0	7	0	4
				Average	9	1512	0	0	1382	8	0	0	0	6	0	7

Bicycle Volume																
AM PEAK HOUR TRAFFIC VOLUMES (2022)																
#	Intersection	Northbound/Southbound	Eastbound/Westbound	Day	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Gionata Way/E Natoma St	Gionata Way	E Natoma St	Wed 3/2	0	0	0	0	2	0	0	0	0	0	0	0
				Thurs 3/3	0	3	0	0	3	0	0	0	0	0	0	0
				Average	0	2	0	0	3	0	0	0	0	0	0	0

PM PEAK HOUR TRAFFIC VOLUMES (2022)																
#	Intersection	Northbound/Southbound	Eastbound/Westbound	Day	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Gionata Way/E Natoma St	Gionata Way	E Natoma St	Wed 3/2	0	0	0	0	11	0	0	0	0	0	0	0
				Thurs 3/3	0	2	0	0	6	0	0	0	0	0	0	
				Average	0	1	0	0	9	0	0	0	0	0	0	

Pedestrian Volume								
AM PEAK HOUR TRAFFIC VOLUMES (2022)								
#	Intersection	Northbound/Southbound	Eastbound/Westbound	Day	EB	WB	NB	SB
1	Gionata Way/E Natoma St	Gionata Way	E Natoma St	Wed 3/2	0	0	0	0
				Thurs 3/3	0	0	0	0
				Average	0	0	0	0

PM PEAK HOUR TRAFFIC VOLUMES (2022)								
#	Intersection	Northbound/Southbound	Eastbound/Westbound	Day	EB	WB	NB	SB
1	Gionata Way/E Natoma St	Gionata Way	E Natoma St	Wed 3/2	0	0	1	7
				Thurs 3/3	0	0	6	0
				Average	0	0	4	4

APPENDIX B

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

(CA MUTCD 2014 Edition)

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3/2/2022 & 3/3/2022

DIST _____ CO _____ RTE _____ PM _____

Major St: E. Natoma Street Critical Approach Speed 45 mph mph

Minor St: Gionata Way Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph..... or } **RURAL (R)**

In built up area of isolated community of < 10,000 population..... } **URBAN (U)**

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES NO
 (Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES NO
 80% SATISFIED YES NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Hour Starting at							
	U	R	U	R	7:30AM	7:45AM	8:00AM	8:15AM	10:00AM	10:15AM	10:30AM	10:45AM
	1		2 or More		Hour							
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	2405	2415	2320	2175	1659	1682	1702	1759
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	26	28	27	25	21	26	24	23

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES NO
 80% SATISFIED YES NO

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				Hour Starting at							
	U	R	U	R	7:30AM	7:45AM	8:00AM	8:15AM	10:00AM	10:15AM	10:30AM	10:45AM
	1		2 or More		Hour							
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	2405	2415	2320	2175	1659	1682	1702	1759
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	26	28	27	25	21	26	24	23

Combination of Conditions A & B SATISFIED YES NO

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes <input type="checkbox"/> No <input type="checkbox"/>

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume

SATISFIED* YES NO

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	7:30AM	7:45AM	8:00AM	8:15AM	Hour
Both Approaches - Major Street		<input checked="" type="checkbox"/>	2405	2415	2320	2175	
Higher Approach - Minor Street	<input checked="" type="checkbox"/>		26	28	27	25	

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<u>OR</u> , All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

**WARRANT 3 - Peak Hour
 (Part A or Part B must be satisfied)**

SATISFIED YES NO

PART A

SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

PART B

SATISFIED YES NO

APPROACH LANES	One	2 or More	7:45AM	Hour
Both Approaches - Major Street		<input checked="" type="checkbox"/>	2415	
Higher Approach - Minor Street	<input checked="" type="checkbox"/>		28	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)

**WARRANT 4 - Pedestrian Volume
 (Parts 1 and 2 Must Be Satisfied)**

SATISFIED YES NO

Part 1 (Parts A or B must be satisfied)

Hours - - ->	7:30AM	7:45AM	8:00AM	8:15AM
A. Vehicles per hour for any 4 hours	2405	2415	2320	2175
Pedestrians per hour for any 4 hours	0	0	0	0

Figure 4C-5 or Figure 4C-6
 SATISFIED YES NO

Hours - - ->	7:30AM	7:45AM	8:00AM	8:15AM
B. Vehicles per hour for any 1 hour	2405	2415	2320	2175
Pedestrians per hour for any 1 hour	0	0	0	0

Figure 4C-7 or Figure 4C-8
 SATISFIED YES NO

Part 2

SATISFIED YES NO

<u>AND</u> , The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<u>OR</u> , The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes <input type="checkbox"/>	No <input type="checkbox"/>

**WARRANT 5 - School Crossing
 (Parts A and B Must Be Satisfied)**

SATISFIED YES NO

**Part A
 Gap/Minutes and # of Children**

SATISFIED YES NO

Gaps vs Minutes	Minutes Children Using Crossing	Hour
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		

Gaps < Minutes YES NO
AND Children > 20/hr YES NO

<u>AND</u> , Consideration has been given to less restrictive remedial measures.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
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Part B

SATISFIED YES NO

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<u>OR</u> , The proposed signal will not restrict the progressive movement of traffic.	Yes <input type="checkbox"/>	No <input type="checkbox"/>

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 4 of 5)

**WARRANT 6 - Coordinated Signal System
 (All Parts Must Be Satisfied)**

SATISFIED YES NO

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E <u>1160</u> ft, W <u>1350</u> ft	Yes <input type="checkbox"/> No <input type="checkbox"/>
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes <input type="checkbox"/> No <input type="checkbox"/>
<u>OR</u> , On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		Yes <input type="checkbox"/> No <input type="checkbox"/>

**WARRANT 7 - Crash Experience Warrant
 (All Parts Must Be Satisfied)**

SATISFIED YES NO

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.		Yes <input type="checkbox"/> No <input type="checkbox"/>
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
5 OR MORE	0 Crashes	
REQUIREMENTS	CONDITIONS	✓
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	<u>OR</u> , Warrant 1, Condition B - Interruption of Continuous Traffic	
	<u>OR</u> , Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8	

**WARRANT 8 - Roadway Network
 (All Parts Must Be Satisfied)**

SATISFIED YES NO

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes <input type="checkbox"/> No <input type="checkbox"/>
	<u>OR</u> During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr		
CHARACTERISTICS OF MAJOR ROUTES		MAJOR ROUTE A	MAJOR ROUTE B
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan			
Any Major Route Characteristics Met, Both Streets			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 5 of 5)

WARRANT 9 - Intersection Near a Grade Crossing **SATISFIED** YES NO
(Both Parts A and B Must Be Satisfied)

<p><u>PART A</u></p> <p>A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>
<p><u>PART B</u></p> <p>There is one minor street approach lane at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9.</p> <p>Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH</p> <hr style="border-top: 1px dashed black;"/> <p><u>OR</u>, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10.</p> <p>Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

- 1- Number of Rail Traffic per Day _____ Adjustment factor from table 4C-2 _____
- 2- Percentage of High-Occupancy Buses on Minor Street Approach _____ Adjustment factor from table 4C-3 _____
- 3- Percentage of Tractor-Trailer Trucks on Minor Street Approach _____ Adjustment factor from table 4C-4 _____

NOTE: If no data is available or known, then use AF = 1 (no adjustment)