Parisi
TRANSPORTATION CONSULTING

August 11, 2016

Jayni Allsep
Planning
City of Sausalito
420 Litho Street
Sausalito, CA 94965

Subject: Bridgeway Commons Circulation Study

Dear Ms. Allsep:

Parisi Transportation Consulting has conducted a circulation study to assess potential traffic-related impacts resulting from the development of the Bridgeway Commons residential project, at 1755 Bridgeway, Sausalito, California (hereafter referred to as the "Project"). The Project proposes the development of 16 condominiums (one three-bedroom and 15 two-bedroom flats) within two multi-level buildings with enclosed parking on the ground level. Vehicular access to the property would be provided via a 24-foot wide driveway along Bridgeway that would provide right-turn ingress and right-turn egress to and from the ground floor garage.

Existing Conditions

The Project encompasses Lot 02 and 03 of Assessor's Parcel 064-051, and covers approximately one-quarter of the block bounded by Bridgeway to the northeast, Filbert Avenue to the southwest, Easterby Street to the northwest and Napa Street to the southwest. The property currently consists of four residential structures (1745 Bridgeway, 1751 Bridgeway, 1757 Bridgeway, and 160 Filbert Avenue) that have been vacant for several years.

Vehicular access to the Project site is provided via Bridgeway, a major arterial street in Sausalito that is located along or near the waterfront. Bridgeway generally runs in the north-south direction from Downtown Sausalito to the northern City Limit where it connects to US Highway 101. Within the vicinity of the Project site Bridgeway consists of two through travel lanes in each direction with left-turn pockets provided at major intersections. A center raised landscape median divides the northbound and southbound lanes. The roadway also provides a sidewalk in both directions for pedestrian access, and accommodates bicycle traffic via: A Class 2 bicycle facility i.e., dedicated road space within the paved right-of-way featuring marked bicycle lane striping for northbound bicycles; and a Class 3 facility i.e., a shared lane for southbound bicycles between Easterby Street and Napa Street. On-street parking is provided along the western edge of Bridgeway, but not along the eastern side.

Regional vehicular access to the Project site is provided via US Highway 101, an eight-lane freeway located along the western edge of the City. US Highway 101 is a north-south highway that connects Sausalito to the City and County of San Francisco to the south, and the rest of the County of Marin to the north. The Project site is served by both local and regional public transit operators. Local transit to and from the site is provided by Marin Transit, while regional transit service is provided primarily by Golden Gate Transit. Bus stops located at the northwest and southeast corners of the Bridgeway / Easterby Street / Marinship Way intersection

provide access to transit lines provided by these operators. Northbound and southbound service lines are also accessible via bus stops located at the southwest corner of the Bridgeway / Napa Street intersection, and about 100 feet north of the northeast corner of the intersection.

The Sausalito Ferry Landing is located less than one mile away from the Project site. The Golden Gate Bridge, Highway and Transportation District provides ferry service connecting Sausalito to the Ferry Building in San Francisco. The Blue & Gold Fleet also operates at the Ferry Landing in Sausalito, providing ferry excursion services to and from Pier 41 in the City and County of San Francisco.

Project Vehicle Trip Generation

The project site has been vacant for several years and typically does not currently generate any vehicle trips. For purposes of this study, future trips to and from the site are assumed to result from the Project. This study estimated the amount of traffic the Project is expected to generate and the traffic's potential effect on nearby intersections along Bridgeway. The vehicle trip generation was estimated for the weekday AM and PM peak hour, defined as the peak one-hour period (four consecutive 15-minute intervals) of the weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods respectively.

Vehicle trip generation estimates were based on the Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition a manual which provides surveyed data on a variety of land uses collected throughout the United States. The manual contains data on the vehicle trip generation of the surveyed sites based on the number of dwelling units. The following land use type within the manual applies to the proposed residential uses at the site as defined in ITE Trip Generation:

> *Residential Condominium / Townhouse (Land Use 230) are defined as "ownership units that have at least one other owned unit with the same building structure".*

Table 1 summarizes the Project's estimated trip generation based on ITE Trip generation rates. As shown, the Project would generate an estimated 131 weekday vehicle-trips, 12 vehicle-trips during the weekday AM peak hour, and 14 vehicle-trips during the weekday PM peak hour.

Table 1: Project Trip Generation Rates

ITE Land Use	Units	Trip Generation			
			Daily	AM Peak	PM Peak
Residential Condominium / Townhouse (Land Use 230)	16 DU	Rate	8.19 trips / DU	0.75 trips / DU	0.84 trips / DU
		Trips	**131**	**12**	**14**

Source: ITE *Trip Generation* (9th ed., 2012); Parisi Transportation Consulting, 2016.

Notes:
DU = Dwelling Units

The Project sponsor has indicated that during the first ten years after Project buildout (near-term) the property will be operated as rental units. ITE's Apartment land use (Land Use 220) defined in the Trip Generation manual as "dwelling units located within the same building with at least three other dwelling units". This definition would be applicable to the near-term proposed rental uses of the Project site. However, the residential community / Townhouse land use would be applicable to the long-term uses of the property. A

comparison of the ITE trip generation rates (included in the appendix), determined that the projected trip generation for the project using the Residential Community/ Townhouse land use would be higher than that using the Apartment land use. As such, this study assumes the Residential Community / Townhouse land uses trip generation rates for both the near-term and long-term uses at the site. This conservative approach potentially overestimates the trips generated by the Project site in the near-term.

It is expected that a portion of residents and visitors of the Project would travel to and from the site by transit, walking, bicycling, and other non-motorized modes of transportation. However, ITE's trip generation rates generally do not factor trip reductions due to pedestrian- or bicycle-oriented travel. This study does not apply a discount to the vehicle-trip generation to account for such trips. The approach undertaken in this study should therefore be considered conservative, as the proposed use may actually generate lower vehicle trips due to the number of non-drive trips made by residents and visitors to the site.

Project Vehicle Trip Distribution

The projected vehicle trips that would be generated by the Project were assigned to the study area roadway network based on existing travel patterns. As vehicular access to the Project site would be provided via the planned driveway along Bridgeway, 100 percent of traffic to and from the Project site would be expected to travel along Bridgeway.

The center median along Bridgeway would restrict vehicular turning movements at the Project driveway to a right-turn in and right-turn out only. This would result in some vehicles having to make U-turns at nearby intersections to gain access to and from the Project site. Although other routes are physically possible, it is assumed for purposes of this study that all traffic would travel to and from the site as follows:

- Outbound traffic with destinations north of the Project site would exit the site and travel south along Bridgeway, vehicles would then make a U-turn at the Bridgeway / Napa Street intersection and proceed to travel in the northbound direction.
- Outbound traffic with destinations south of the Project site would make a right-turn from the Project driveway and would proceed to travel southbound along Bridgeway.
- Inbound traffic with origins south of the Project site would travel in the northbound direction of Bridgeway. Vehicles would then make a U-turn at the Bridgeway / Easterby Street / Marinship Way intersection and proceed to make a right-turn onto the Project driveway.
- Inbound traffic with origins north of the Project site would travel in the southbound direction of Bridgeway, and would proceed to make a right-turn onto the Project driveway.

These traffic distribution patterns were applied to the projected vehicle trip generation of the Project to assess the impact of the additional vehicle trips on intersection operations at nearby locations.

Traffic Impact Assessment

The Project's potential traffic impact along Bridgeway was assessed based on the existing traffic volumes along the roadway. Potential impacts at Bridgeway's intersections with Easterby Street / Marinship Way and with Napa Street were evaluated. Figure 1 illustrates the existing lane geometry and traffic control at these intersections, and their position in relation to the project location.

Existing year traffic conditions were assessed based on vehicular traffic counts conducted at both intersections on fair-weather mid-week days in May 2016. In order to reflect the average traffic conditions along Bridgeway, weekday counts were conducted while schools were in session. The existing traffic volumes are depicted in Figure 2.

A level-of-service analysis was conducted to evaluate the potential impact of Project-generated traffic on motorist delays. As documented in the City of Sausalito General Plan (last Amended October 2012), the City has established level-of-service of C as the goal for intersections throughout the City. The estimated Project-generated traffic was added to the existing traffic volumes to evaluate the Project's potential impact on intersection operating conditions. The evaluation was conducted for both the signalized intersection at Bridgeway and Easterby Street / Marinship Way, and the stop-sign-controlled Bridgeway / Napa Street intersection.

Table 2 provides a summary of the level-of-service analysis for the study intersections. As shown, both intersections operate at or above the desired intersection level of service (LOS C) during weekday peak hours. This represents conditions with limited congestion along the corridor, and vehicles experiencing limited delays while travelling through the intersections. The addition of Project-generated traffic to the intersections is projected to result in minimal increases (less than one second) in delay at both intersections during both the weekday am and pm peak periods. Both intersections would continue to operate at or above the desired level of service (LOS C).

Table 2: Intersection Level of Service – Existing plus Project Conditions

		Existing Conditions				Existing plus Project Conditions			
		AM Peak		PM Peak		AM Peak		PM Peak	
Intersection	Control	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]
1 Bridgeway / Easterby St. / Marinship Way	Signal	B	13.2	B	11.3	B	13.2	B	11.6
2 Bridgeway / Napa Street	Two-Way Stop	C	15.2	C	21.6	C	15.3	C	21.7

Source: Parisi Transportation Consulting, 2016.

Notes:

LOS = Level of Service

[1] Delay in seconds per vehicle.

Vehicular Access

As previously mentioned, vehicular access to and from the Project site would be provided via a 24-foot wide two-way driveway along Bridgeway. Owing to the existing center median along Bridgeway, the driveway would operate as a right-turn only from and onto Bridgeway Boulevard. Entry and exit from the Project garage would be controlled by an automatic access gate set back approximately 55 feet from the curb. This study evaluated the adequacy of the stacking distance in front of the driveway gate to determine whether potential vehicle queuing would interfere with sidewalk / pedestrian traffic and/or bicycle/vehicular traffic along southbound Bridgeway.

A statistical analysis (detailed in the Appendix) was completed to determine the probability of vehicles not

being accommodated completely within the proposed driveway, which could result in blocking the sidewalk or vehicular travel lanes on southbound Bridgeway. The frequency of inbound trips was determined using the Project's estimated peak hour trip generation. This frequency was used to analyze the probability of vehicular stacking at the Project driveway. Results of the analysis showed that the likelihood of a vehicle queue spilling into the Bridgeway sidewalk or travel lane is minimal (less than one percent during the weekday AM peak hour, and about two percent during the weekday PM peak hour).

The probability of vehicular queues spilling back onto southbound Bridgeway, or blocking the sidewalk, is low. However, a field review was conducted to access sight lines at the proposed Project driveway. The driveway would be located along a curve on Bridgeway, which could hinder visibility both for vehicles exiting the driveway, and vehicles travelling along southbound Bridgeway. Additionally, on-street parking currently provided along southbound Bridgeway (adjacent to existing site curb cuts) further limits visibility. To enhance sight lines and visibility of oncoming through vehicles, it is recommended that approximately 40 feet of curb abutting the Project site (north of the Project driveway) should be designated as a no-parking zone.

Transit Conditions

The Project does not propose any modifications to transit facilities within its vicinity. Additionally, potential changes to ridership from Project residences are expected to be minimal. To maintain a conservative traffic analysis, all trips generated by the Project were assumed to be vehicular although it is likely that residents and visitors of the Project would use nearby transit facilities to access the site. The Project would not have any significant impacts on nearby transit facilities.

Parking Conditions

The Project proposes an enclosed ground-level parking garage that would consist of 32 parking spaces (two of which would be ADA-accessible spaces). The Project's proposed parking supply was compared to the requirements established in the City of Sausalito's Municipal Code, as well as to the Institute of Transportation Engineers *Parking Generation* Manual, to determine the adequacy of proposed parking.

Table 3 summarizes the assessment of parking supply at the Project site.

It should be noted that the Project sponsor proposes to accommodate both visitor and resident parking within the Project's parking garage. As shown in Table 3 the Project's proposed parking supply of 32 spaces is consistent with City requirements for residential properties. Furthermore, the Project's proposed parking supply would exceed the estimated parking demand for its uses. In addition to the vehicular parking requirements, the City requires that parking lots with more than 20 spaces must provide one bicycle rack for each 20 spaces. The Project proposes the provision of two bicycle racks within the enclosed ground-level garage, thereby satisfying the City requirements for both vehicular and bicycle parking.

Table 3: Parking Supply Assessment

Proposed Parking Supply		City of Sausalito Parking Supply Requirements		Estimated Parking Demand	
Dwelling Units	**Spaces**	**Rate[1]**	**Spaces**	**Rate[2]**	**Spaces**
16	32	2 spaces / DU	32	1.38 vehicles / DU	22

Source: City of Sausalito Municipal Code, 2016; ITE *Parking Generation* Manual (4th Ed., 2011); Parisi Transportation Consulting, 2016.

Notes:

DU = Dwelling Unit

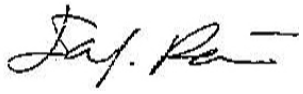
1 City parking supply requirements based on Single / Multiple Family Residential Land Use as outlined in Section 10.40.110 of the *City of Sausalito Municipal Code*.

2 Parking demand estimates based on Residential Condominium / Townhouse Land Use in the ITE *Parking Generation* Manual.

In Closing

This study was based on a worst-case scenario approach to projecting vehicle trip generation and the corresponding addition of these trips to nearby transportation facilities. It is likely that this approach overestimates the number of vehicular trips generated by the project and can thus be considered a conservative approach. As proposed, the Project is not projected to result in significant impacts to transportation conditions at or in the vicinity of the site. The addition of Project-generated vehicular trips onto nearby intersections along Bridgeway is not projected to adversely affect operations, and both intersections would continue to operate at acceptable conditions (level-of-service "C" or better). The Project proposed supply of parking would satisfy City requirements as well as adequately accommodate estimated parking demand.

Sincerely,

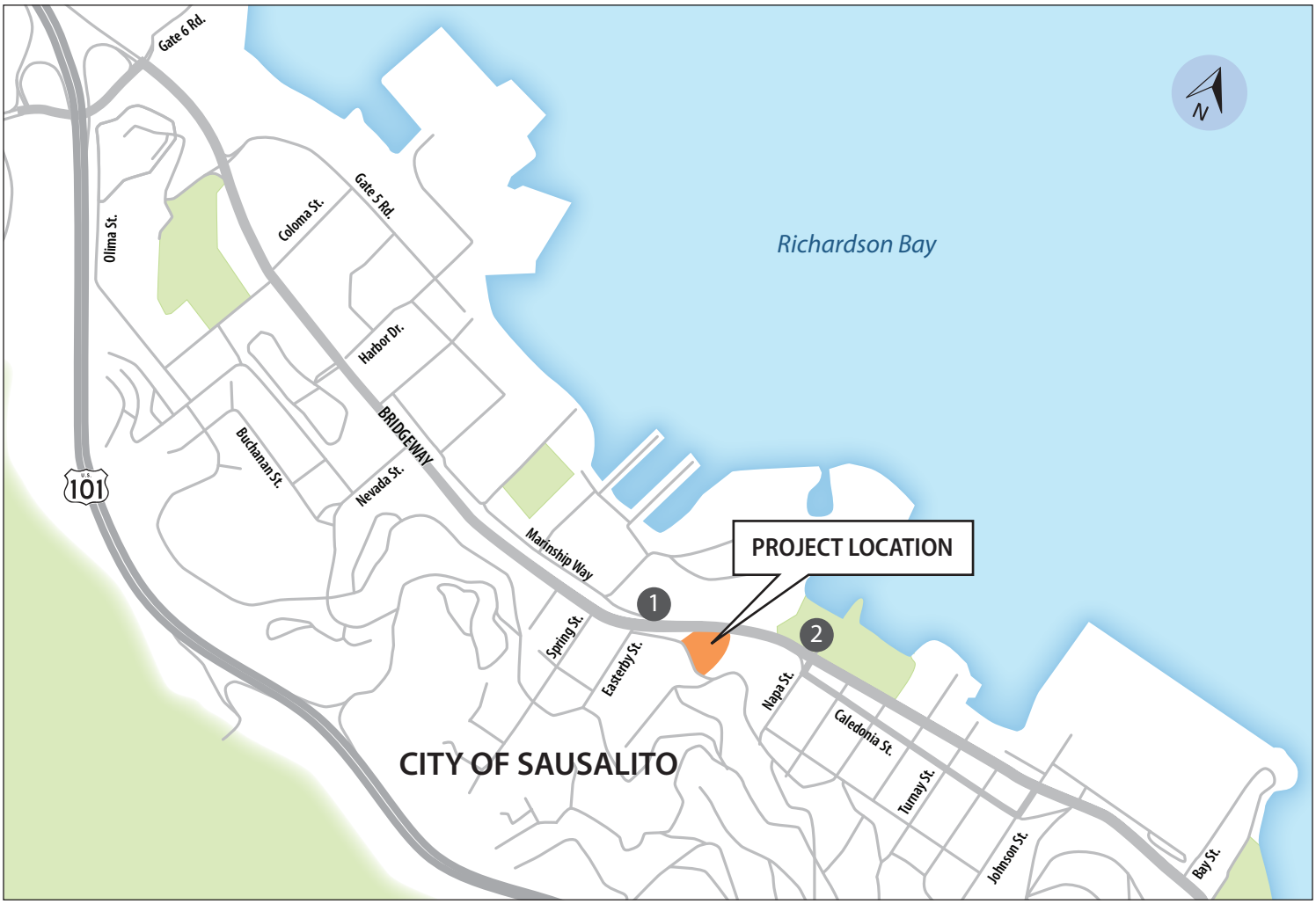


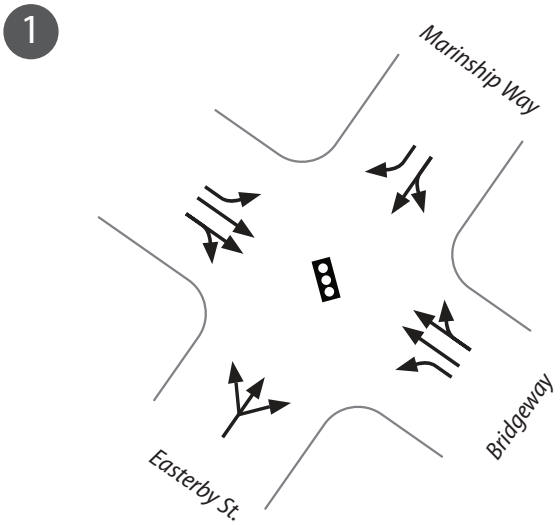
David Parisi, PE, TE
Principal

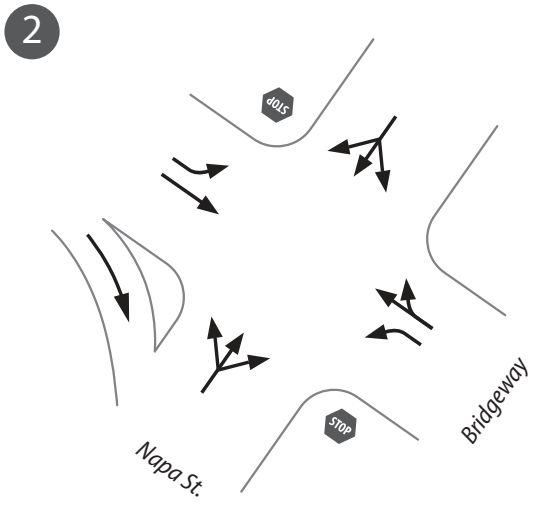
cc: Penelope Amuyunzu, EIT

August 2016

Figures







Project Location and Study Intersection Lane Geometry
Bridgeway Commons (1755 Bridgeway)

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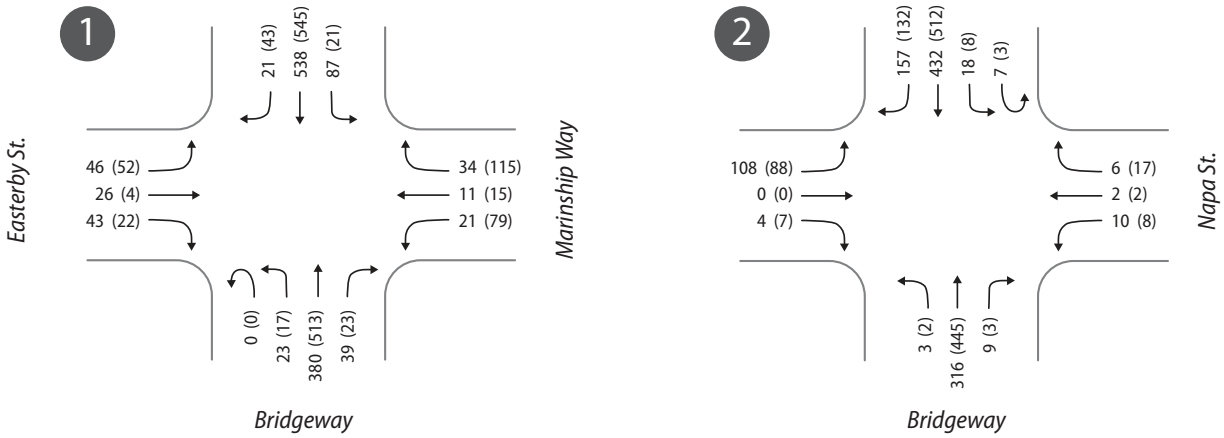
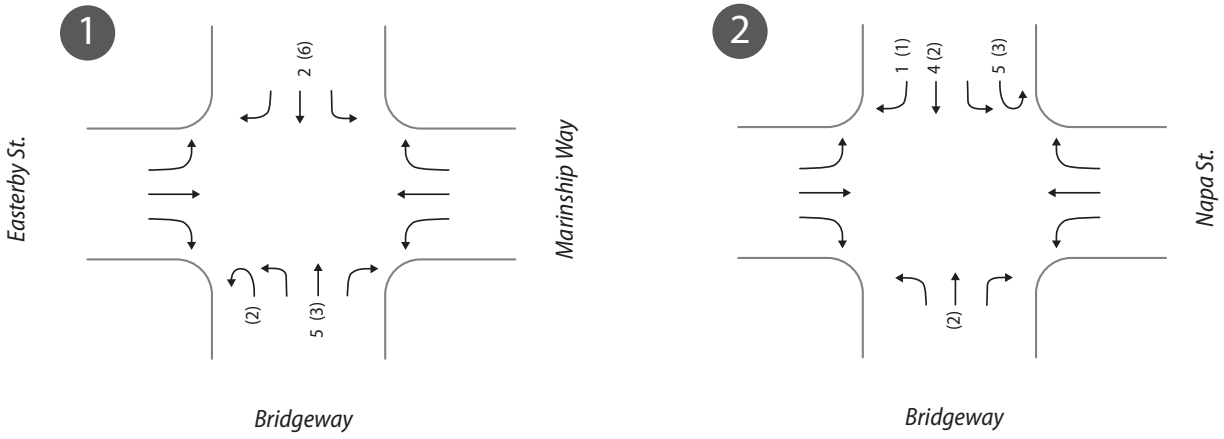
JUNE 2016

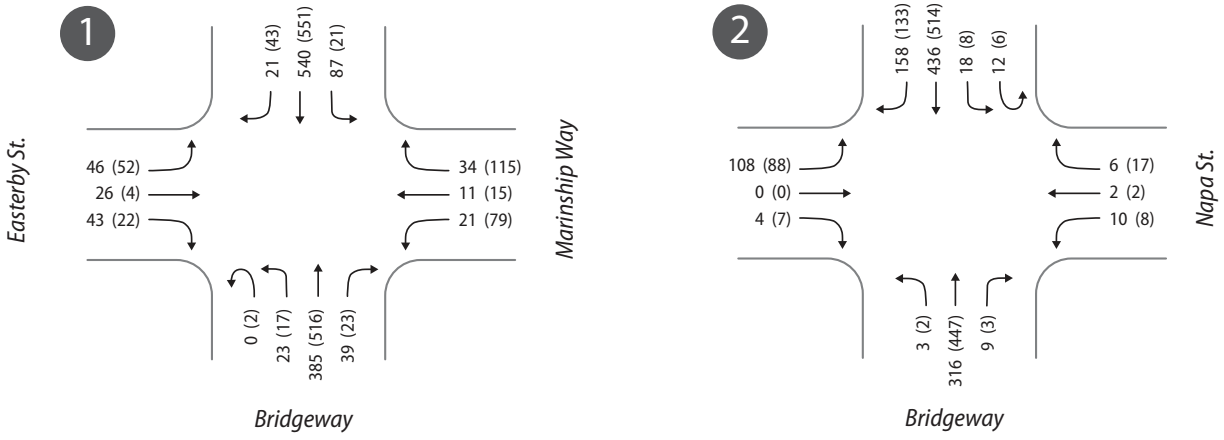
EXISTING CONDITIONS



PROJECT TRIPS



EXISTING PLUS PROJECT CONDITIONS



LEGEND XX – AM Peak Hour (XX) – PM Peak Hour

Intersection Traffic Volumes
Bridgeway Commons (1755 Bridgeway)

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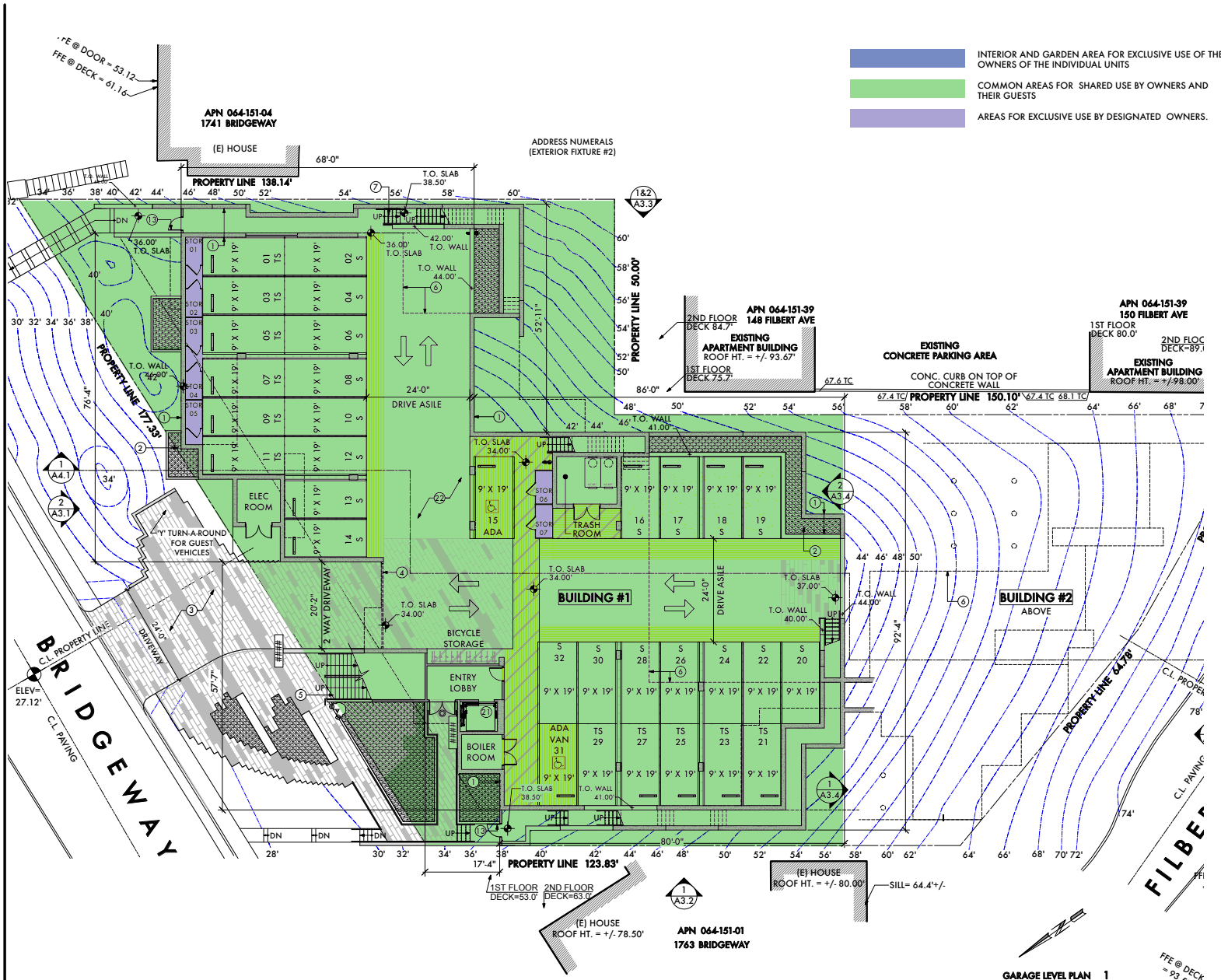
JUNE 2016



Source: Miles Berger, A.I.A, 2014

FIGURE NOT TO SCALE

BRIDGEWAY COMMONS

160 FILBERT AVENUE 1731-1757 BRIDGWAY STREET SAUSALITO, CALIFORNIA, 94920

OWNERS: BY JARDINE'S LOOKOUT, LLC

MILES BERGER, A.I.A.

MILES@MB-AIA.COM

SCHEMATIC DESIGN

SHEET: USE DIAGRAM - garage level

SCALE: NTS - SEE GRAPHIC SCALE
SEE SHT. A 1.1 FOR SCALE PLAN

DRAWN BY: MLB

PROJECT No.: 1302

DATE: 9.6.2014

AO.13

Project Site Plan – Ground Level Garage
Bridgeway Commons (1755 Bridgeway)

Parisi TRANSPORTATION CONSULTING

JUNE 2016

August 2016

Appendix

Traffic Impact Analysis

August 2016

Trip Generation

Project Description	
Dwelling Units	**#**
3-Bedroom	1
2-Bedroom	15
Total	**16**

Apartment (ITE LU 220)

	Trip Generation								
	Daily			AM			PM		
	In	Out	Total	In	Out	Total	In	Out	Total
Rate	0.50	0.50	4.18	0.20	0.80	0.51	0.62	0.38	0.38
Trips	**3.3**	**3.3**	**6.7**	**1.6**	**6.5**	**8.2**	**3.8**	**2.3**	**6.1**

ITE Land USE Residential Condominium / Townhouse (ITE LU 230)

	Trip Generation								
	Daily			AM			PM		
	In	Out	Total	In	Out	Total	In	Out	Total
Rate	0.50	0.50	8.19	0.19	0.81	0.75	0.62	0.38	0.84
Trips	**66**	**66**	**131**	**2**	**10**	**12**	**9**	**6**	**14**

Source: ITE Trip Generation Manual, 9th ed. 2012

August 2016

Vehicular Traffic Volumes

Intersection Turning Movement Volumes

Intersection	Direction		Existing Conditions		Project Trips		Existing plus Project	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Bridgeway / Marinship Way	EB	L	46	52	0	0	46	52
		T	26	4	0	0	26	4
		R	43	22	0	0	43	22
	WB	L	21	79	0	0	21	79
		T	11	15	0	0	11	15
		R	34	115	0	0	34	115
	NB	U	0	0	0	2	0	2
		L	23	17	0	0	23	17
		T	380	513	5	3	385	516
		R	39	23	0	0	39	23
	SB	L	87	21	0	0	87	21
		T	538	545	2	6	540	551
		R	21	43	0	0	21	43
	Total		**1,269**	**1,449**	**7**	**11**	**1,276**	**1,460**
Bridgeway / Napa	EB	L	108	88	0	0	108	88
		T	0	0	0	0	0	0
		R	4	7	0	0	4	7
	WB	L	10	8	0	0	10	8
		T	2	2	0	0	2	2
		R	6	17	0	0	6	17
	NB	L	3	2	0	0	3	2
		T	316	445	0	2	316	447
		R	9	3	0	0	9	3
	SB	U	7	3	5	3	12	6
		L	18	8	0	0	18	8
		T	432	512	4	2	436	514
		R	157	132	1	1	158	133
	Total		**1,072**	**1,227**	**10**	**7**	**1,082**	**1,234**

TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

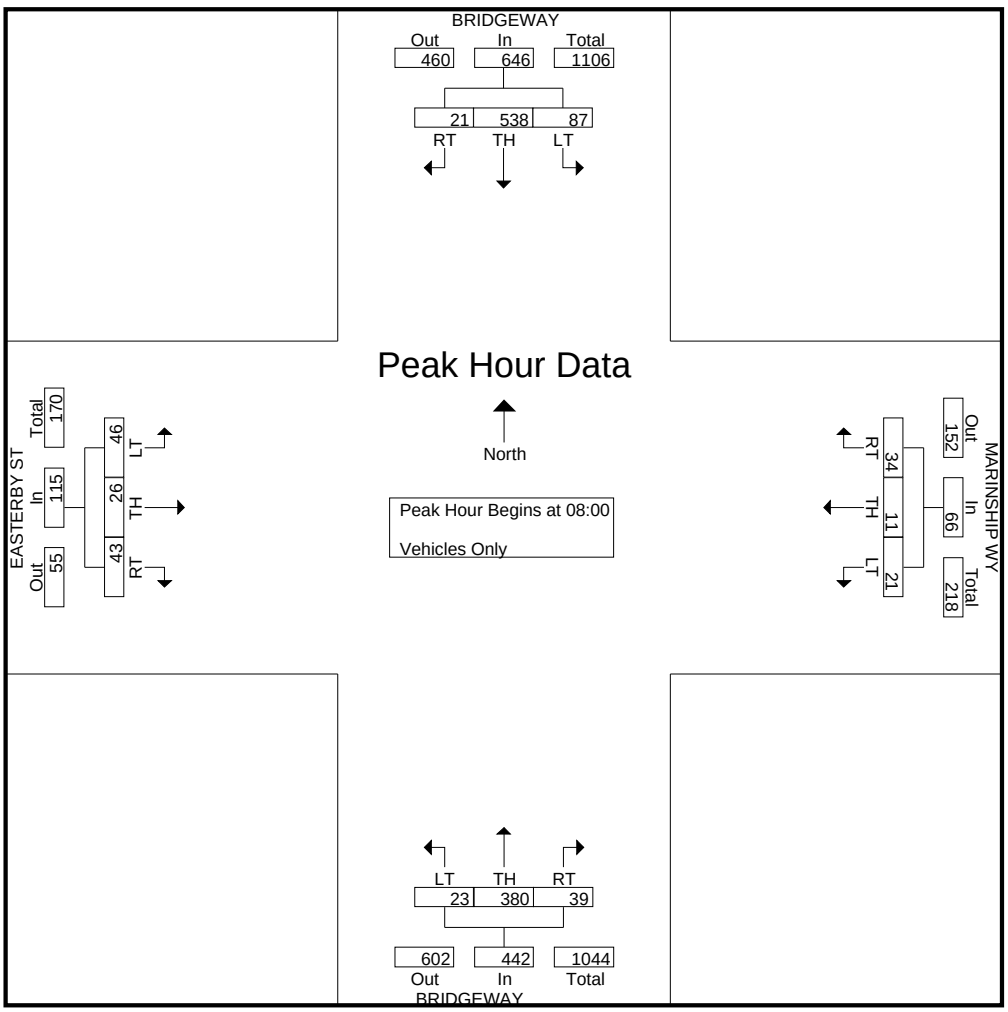
CITY OF SAUSALITO
Proj. # 16011
Latitude: 37.861881
Longitude: -122.493738

File Name : bridgeway-marinship-a
Site Code : 2
Start Date : 5/17/2016
Page No : 1

Groups Printed- Vehicles Only

	BRIDGEWAY Southbound				MARINSHIP WY Westbound				BRIDGEWAY Northbound				EASTERBY ST Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	1	71	8	80	3	0	3	6	4	48	3	55	9	3	7	19	160
07:15	3	82	13	98	5	2	3	10	3	59	1	63	11	1	7	19	190
07:30	3	89	7	99	9	1	1	11	3	76	4	83	9	6	11	26	219
07:45	4	112	15	131	8	1	4	13	3	83	5	91	7	2	10	19	254
Total	11	354	43	408	25	4	11	40	13	266	13	292	36	12	35	83	823
08:00	8	125	14	147	8	4	6	18	6	95	5	106	7	5	14	26	297
08:15	4	120	24	148	6	3	4	13	9	100	4	113	15	4	14	33	307
08:30	5	147	23	175	6	2	2	10	15	101	6	122	11	7	3	21	328
08:45	4	146	26	176	14	2	9	25	9	84	8	101	10	10	15	35	337
Total	21	538	87	646	34	11	21	66	39	380	23	442	43	26	46	115	1269
Grand Total	32	892	130	1054	59	15	32	106	52	646	36	734	79	38	81	198	2092
Apprch %	3	84.6	12.3		55.7	14.2	30.2		7.1	88	4.9		39.9	19.2	40.9		
Total %	1.5	42.6	6.2	50.4	2.8	0.7	1.5	5.1	2.5	30.9	1.7	35.1	3.8	1.8	3.9	9.5	

	BRIDGEWAY Southbound				MARINSHIP WY Westbound				BRIDGEWAY Northbound				EASTERBY ST Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**8**	125	14	147	8	**4**	6	18	6	95	5	106	7	5	14	26	297
08:15	4	120	24	148	6	3	4	13	9	100	4	113	**15**	4	14	33	307
08:30	5	**147**	23	175	6	2	2	10	**15**	**101**	6	**122**	11	7	3	21	328
08:45	4	146	**26**	**176**	**14**	2	**9**	**25**	9	84	**8**	101	10	**10**	**15**	**35**	**337**
Total Volume	21	538	87	646	34	11	21	66	39	380	23	442	43	26	46	115	1269
% App. Total	3.3	83.3	13.5		51.5	16.7	31.8		8.8	86	5.2		37.4	22.6	40		
PHF	.656	.915	.837	.918	.607	.688	.583	.660	.650	.941	.719	.906	.717	.650	.767	.821	.941



TRAFFIC COUNTS PLUS

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Proj. # 16011
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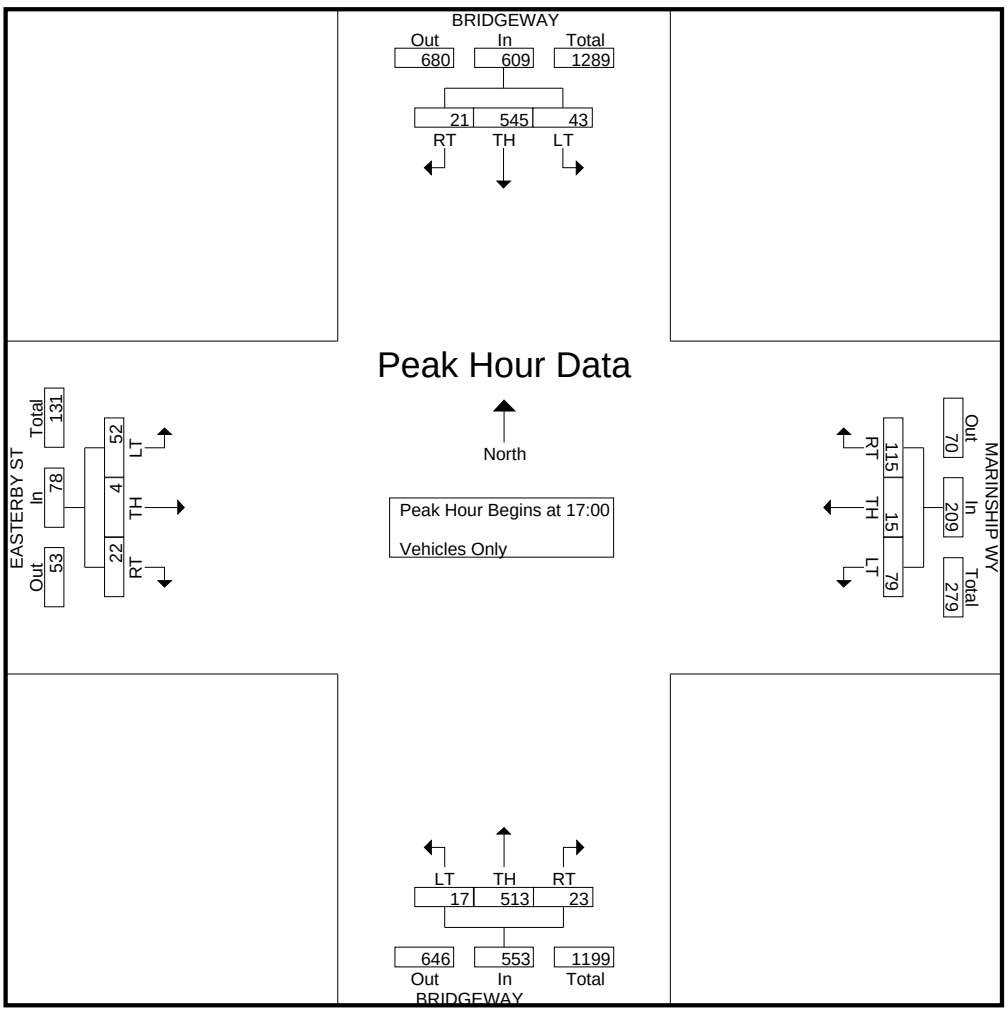
Longitude: -122.493738

File Name : bridgeway-marinship-p
Site Code : 2
Start Date : 5/17/2016
Page No : 1

Groups Printed- Vehicles Only

	BRIDGEWAY Southbound				MARINSHIP WY Westbound				BRIDGEWAY Northbound				EASTERBY ST Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	9	126	9	144	32	3	15	50	5	145	8	158	6	0	10	16	368
16:15	6	142	12	160	21	2	12	35	7	133	5	145	5	1	9	15	355
16:30	12	112	10	134	18	5	20	43	3	120	5	128	2	5	14	21	326
16:45	9	115	11	135	24	5	12	41	3	122	3	128	5	1	11	17	321
Total	36	495	42	573	95	15	59	169	18	520	21	559	18	7	44	69	1370
17:00	4	125	10	139	27	5	23	55	4	120	1	125	4	2	17	23	342
17:15	10	110	11	131	27	3	19	49	8	117	7	132	5	0	12	17	329
17:30	3	137	13	153	32	4	19	55	8	130	7	145	5	1	6	12	365
17:45	4	173	9	186	29	3	18	50	3	146	2	151	8	1	17	26	413
Total	21	545	43	609	115	15	79	209	23	513	17	553	22	4	52	78	1449
Grand Total	57	1040	85	1182	210	30	138	378	41	1033	38	1112	40	11	96	147	2819
Apprch %	4.8	88	7.2		55.6	7.9	36.5		3.7	92.9	3.4		27.2	7.5	65.3		
Total %	2	36.9	3	41.9	7.4	1.1	4.9	13.4	1.5	36.6	1.3	39.4	1.4	0.4	3.4	5.2	

	BRIDGEWAY Southbound				MARINSHIP WY Westbound				BRIDGEWAY Northbound				EASTERBY ST Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	4	125	10	139	27	**5**	**23**	**55**	4	120	1	125	4	**2**	**17**	23	342
17:15	**10**	110	11	131	27	3	19	49	**8**	117	**7**	132	5	0	12	17	329
17:30	3	137	**13**	153	**32**	4	19	55	8	130	7	145	5	1	6	12	365
17:45	4	**173**	9	**186**	29	3	18	50	3	**146**	2	**151**	**8**	1	17	**26**	**413**
Total Volume	21	545	43	609	115	15	79	209	23	513	17	553	22	4	52	78	1449
% App. Total	3.4	89.5	7.1		55	7.2	37.8		4.2	92.8	3.1		28.2	5.1	66.7		
PHF	.525	.788	.827	.819	.898	.750	.859	.950	.719	.878	.607	.916	.688	.500	.765	.750	.877



TRAFFIC COUNTS PLUS

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925.305.4358

CITY OF SAUSALITO
Proj. # 16011
Latitude: 37.861234
Longitude: -122.489425

File Name : bridgeway-napa-a
Site Code : 1
Start Date : 5/17/2016
Page No : 1

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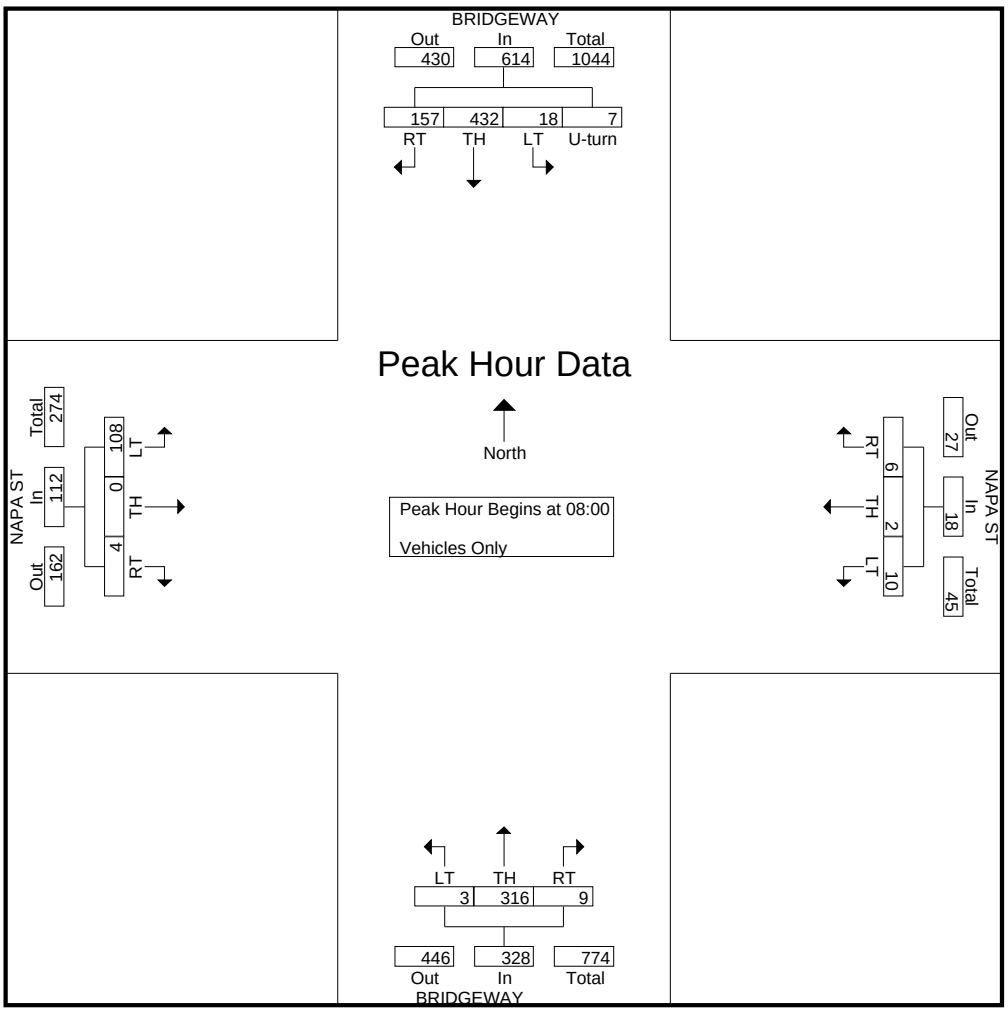
	BRIDGEWAY Southbound					NAPA ST Westbound				BRIDGEWAY Northbound				NAPA ST Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	15	72	1	2	90	2	0	0	2	0	42	0	42	1	0	10	11	145
07:15	17	72	2	0	91	0	0	0	0	1	44	0	45	1	0	18	19	155
07:30	12	84	3	0	99	1	1	0	2	1	64	1	66	1	0	20	21	188
07:45	18	96	1	2	117	3	0	0	3	1	71	0	72	0	0	16	16	208
Total	62	324	7	4	397	6	1	0	7	3	221	1	225	3	0	64	67	696
08:00	29	112	3	0	144	3	0	1	4	1	71	0	72	1	0	33	34	254
08:15	36	97	6	2	141	1	1	3	5	1	87	1	89	0	0	26	26	261
08:30	39	104	6	2	151	1	0	3	4	1	81	1	83	1	0	27	28	266
08:45	53	119	3	3	178	1	1	3	5	6	77	1	84	2	0	22	24	291
Total	157	432	18	7	614	6	2	10	18	9	316	3	328	4	0	108	112	1072
Grand Total	219	756	25	11	1011	12	3	10	25	12	537	4	553	7	0	172	179	1768
Apprch %	21.7	74.8	2.5	1.1		48	12	40		2.2	97.1	0.7		3.9	0	96.1		
Total %	12.4	42.8	1.4	0.6	57.2	0.7	0.2	0.6	1.4	0.7	30.4	0.2	31.3	0.4	0	9.7	10.1	

	BRIDGEWAY Southbound					NAPA ST Westbound				BRIDGEWAY Northbound				NAPA ST Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 08:00																		
08:00	29	112	3	0	144	**3**	0	1	4	1	71	0	72	1	0	**33**	**34**	254
08:15	36	97	**6**	2	141	1	**1**	**3**	**5**	1	**87**	**1**	**89**	0	0	26	26	261
08:30	39	104	6	2	151	1	0	3	4	1	81	1	83	1	0	27	28	266
08:45	**53**	**119**	3	**3**	**178**	1	1	3	5	**6**	77	1	84	**2**	0	22	24	**291**
Total Volume	157	432	18	7	614	6	2	10	18	9	316	3	328	4	0	108	112	1072
% App. Total	25.6	70.4	2.9	1.1		33.3	11.1	55.6		2.7	96.3	0.9		3.6	0	96.4		
PHF	.741	.908	.750	.583	.862	.500	.500	.833	.900	.375	.908	.750	.921	.500	.000	.818	.824	.921



TRAFFIC COUNTS PLUS

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CITY OF SAUSALITO
Proj. # 16011
Latitude: 37.861234
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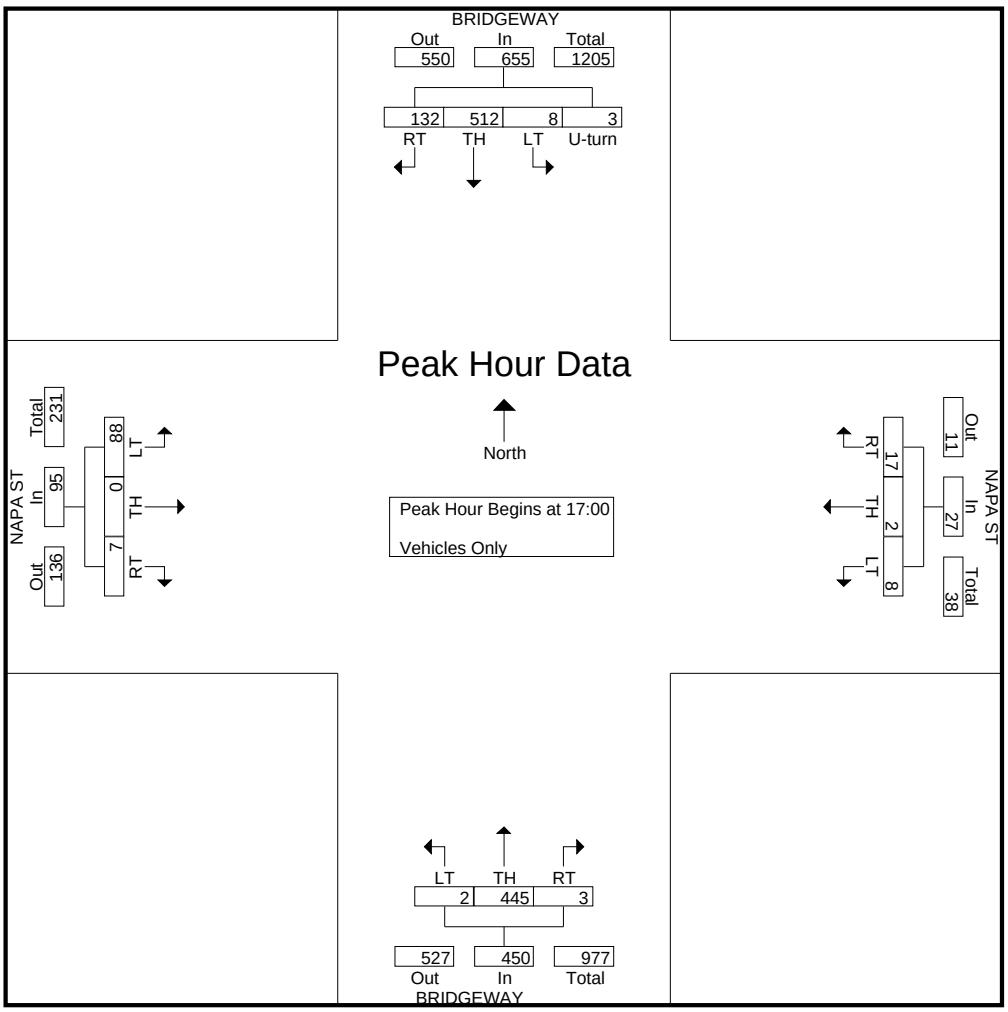
File Name : bridgeway-napa-p
Site Code : 1
Start Date : 5/17/2016
Page No : 1

Groups Printed- Vehicles Only

	BRIDGEWAY Southbound					NAPA ST Westbound				BRIDGEWAY Northbound				NAPA ST Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
16:00	9	129	4	1	143	1	0	1	2	1	127	2	130	1	1	24	26	301
16:15	22	127	4	1	154	8	0	1	9	3	120	1	124	1	0	23	24	311
16:30	31	103	1	1	136	3	0	1	4	4	100	2	106	2	0	9	11	257
16:45	27	96	5	0	128	3	1	1	5	0	114	2	116	0	0	23	23	272
Total	89	455	14	3	561	15	1	4	20	8	461	7	476	4	1	79	84	1141
17:00	32	112	4	0	148	4	0	2	6	1	88	0	89	3	0	30	33	276
17:15	28	109	0	1	138	2	1	0	3	2	110	0	112	0	0	21	21	274
17:30	30	127	2	0	159	5	0	3	8	0	123	0	123	1	0	23	24	314
17:45	42	164	2	2	210	6	1	3	10	0	124	2	126	3	0	14	17	363
Total	132	512	8	3	655	17	2	8	27	3	445	2	450	7	0	88	95	1227
Grand Total	221	967	22	6	1216	32	3	12	47	11	906	9	926	11	1	167	179	2368
Apprch %	18.2	79.5	1.8	0.5		68.1	6.4	25.5		1.2	97.8	1		6.1	0.6	93.3		
Total %	9.3	40.8	0.9	0.3	51.4	1.4	0.1	0.5	2	0.5	38.3	0.4	39.1	0.5	0	7.1	7.6	

	BRIDGEWAY Southbound					NAPA ST Westbound				BRIDGEWAY Northbound				NAPA ST Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 17:00																		
17:00	32	112	**4**	0	148	4	0	2	6	1	88	0	89	**3**	0	**30**	**33**	276
17:15	28	109	0	1	138	2	**1**	0	3	**2**	110	0	112	0	0	21	21	274
17:30	30	127	2	0	159	5	0	**3**	8	0	123	0	123	1	0	23	24	314
17:45	**42**	**164**	2	**2**	**210**	**6**	1	3	**10**	0	**124**	**2**	**126**	3	0	14	17	**363**
Total Volume	132	512	8	3	655	17	2	8	27	3	445	2	450	7	0	88	95	1227
% App. Total	20.2	78.2	1.2	0.5		63	7.4	29.6		0.7	98.9	0.4		7.4	0	92.6		
PHF	.786	.780	.500	.375	.780	.708	.500	.667	.675	.375	.897	.250	.893	.583	.000	.733	.720	.845



August 2016

Driveway Access Statistical Analysis

Statistical Analysis of Stacking Distance

A statistical analysis using a cumulative Poisson distribution was completed to determine the probability of vehicles not being accommodated completely within the proposed driveway, which would result in blocking the sidewalk or travel lanes on southbound Bridgeway. It was determined that the likelihood of a vehicle queue spilling into the Bridgeway sidewalk or travel lane is very minimal.

Poisson distribution is a discrete probability distribution that is often used to describe the arrival rate in queuing theory. In the excel function used, *X* and *n* must be defined. In this instance, the X variable is defined as the number of arrivals per minute at which the driveway could accommodate. X is defined as 2, which references the number of American Association of State Highway and Transportation Officials (AASHTO) passenger vehicles (P) that could comfortably fit in the driveway in front of the gate with five-foot spacing between the gate and first vehicle, and between the first and second vehicle. This distance, 48', is easily accommodated in the approximately 54' from the parking garage gate to the back of Bridgeway sidewalk. Realistically, the AASHTO "P" design vehicle is quite long (19'); the average passenger vehicle is closer to 15' in length. Thus, three vehicles would most likely fit in the driveway without blocking the sidewalk. However, to be conservative in the analysis, it is assumed that the third vehicle would block the sidewalk.

In Poisson analysis, the *n* value is defined as the average arrival rate during the time period in consideration. In this analysis, the n value is defined as the average arrival rate to the development site during the peak AM or peak PM period as determined in the trip generation portion of this study. Per the trip generation in the peak AM period, 2 vehicle arrivals per hour are generated; 8 arrivals per hour are generated in the PM peak. This translates to 0.033 and 0.133 vehicles per minute, respectively. These are the *n* values used in the Poisson distribution. A minute is used as the "event" period which conservatively assumes that a stacking event would occur in a time period of approximately one minute; any longer of an event, and the gate would open and stacking would be less likely to occur.

Event	AM Peak	PM Peak
Arrivals/Minute for a no blocking event (X≤2)	2	2
Arrivals/Hr (from inbound trip generation analysis)	2	8
Average Arrivals/Min (*n*)	0.0333	0.1333
Cumulative Poisson (X≤2)	1.0000	0.9996
Percent success (no blocking) per peak hour minute	99.999%	99.96%
Probability of blocking event per peak hour minute	0.001%	0.036%
Probability of a blocking event per peak hour	0.04%	2.15%
Weekdays in a month (approx.)	25	25
Probability of a peak hour blocking event per month	0.9%	53.6%
Arrivals/Minute for a no blocking event (X≤2)	2	2

As shown in the table above, the probability that the stacking is acceptable, i.e., is less than or equal to two cars during any minute during the peak PM hour, is 99.96%. The odds that there are three or greater vehicles queued during a minute within the PM peak, thus potentially blocking sidewalk, is 0.04%. Extrapolated out to the percent chance of stacking during any given day's PM peak hour is approximately 2%. If there are 25 weekday PM peak periods per month, the percent chance of an overflow is about one overflow event every two months. The AM peak overflow rate is negligible based on just two arrivals per peak AM period.