



Memorandum

Date: August 29, 2016
To: Ms. Linda Zeng
City of San Rafael
Project: SRA119
From: Dalene J. Whitlock
dwhitlock@w-trans.com
Subject: Trip Generation for 1005, 1020 and 1025 Northgate Drive

Project Description

The proposed project would result in the demolition of the existing gas station/UPS store at 1005 Northgate Drive (located on the northwest corner of Freitas Parkway/Northgate Drive) and its replacement with a 42-unit senior housing condominium building. Additionally, through lot splits and demolition of the existing hotel 'amenities' building, 140 condominiums would be built on new parcels preliminarily addressed as 1020 and 1025 Northgate Drive.

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012 for "Residential Condominiums/Townhouse" (ITE LU #230) and "Senior Adult Housing-Attached" (ITE LU #252). Application of these rates indicates that the proposed project would be expected to generate a total of 957 trips daily, including 70 trips during the a.m. peak hour and 83 during the p.m. peak hour.

Because the site is currently occupied by a gas station and UPS store, the trip generation of the existing use was considered. Counts were obtained at both driveways during both the morning and evening peak periods for three consecutive days of October 27-29, 2015. The average of the counts for the three days indicates that the existing uses currently generate an average of 53 trips during the morning peak hour and 128 trips during the evening peak hour. The count data is attached for information.

Since the project trips are being estimated using theoretical trip generation rates, the trip generation that would be anticipated based on standard trip rates was also reviewed to ensure that the counts are generally consistent with theoretical data. There is not a specific land use that matches the existing eight fueling position gas station and UPS store, so both the rates for a "Gas/Service Station" (ITE LU #944) and "Gas/Service Station with Convenience Market" (ITE LU #945) were reviewed for application. It was determined that the rates for (ITE LU #945), the gas/service station with convenience market, were actually lower so conservatively applying these rates, the estimated trip generation for the existing uses includes 81 a.m. peak hour trips and 108 p.m. peak hour trips.

Because counts were not obtained for the entire 24-hour day, the daily trip generation for the existing uses was not obtained. Since the a.m. counts were lower than theoretical and the p.m. counts higher, the average ratio of the two peak hour rates to daily was used to estimate the actual daily trips under existing conditions.

Gas stations typically draw some of their traffic from passing volumes, but given that the gas station does not have a driveway on Freitas Parkway and there are limited volumes on Northgate Drive, the potential for pass-by appears to be lower than normal. However, as directed by staff diverted rates of 20.9 percent during the morning peak hour and 31.2 percent during the p.m. peak hour were applied to the counts to estimate the actual increase in primary trips. A rate of 25 percent was assumed for daily trips.

The expected trip generation potential for the proposed project is indicated in Table 1 with deductions taken for trips made to and from the existing use at the site, which will cease with the construction of the project. Based on counts of existing trips to the gas station site, and with deductions applied for diverted trips, the project would be expected to result in a net decrease of 98 trips per day, including 28 additional trips during the morning peak hour, but 4 fewer trips during the evening peak hour, or a net of 24 new peak hour trips. Using theoretical rates, the proposed project would be expected to generate a net decrease of 19 trips per day, including 6 addition trips during the a.m. peak hour and 10 more during the p.m. peak hour.

Table 1 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Existing (Actual)											
Gas/Service Station	-8 vfp	n/a	-1,145	n/a	-53	-28	-25	n/a	-128	-63	-65
Diverted Trips		25%	286	20.9%	11	6	5	31.2%	40	20	20
Net Primary Trips			-859		-42	-22	-20		-88	-43	-45
Proposed											
Condominiums	140 du	5.81	813	0.44	62	10	52	0.52	73	49	24
Senior Adult Housing-Attached	42 du	3.44	144	0.19	8	3	5	0.23	11	6	5
<i>Sub-total Proposed</i>			957		70	13	57		84	55	29
Net Increase (vs. Actual)			-98		28	-9	37		-4	12	-16
Existing (Theoretical)											
Gas/Service Station	-8 vfp	162.78	-1,302	10.16	-81	-41	-40	13.51	-108	-54	-54
		25%	326	20.9%	17	9	8	31.2%	34	17	17
			-976		-64	-32	-32		-74	-37	-37
Net Increase (vs. Theoretical)			-19		6	-19	25		10	18	-8

Notes: vfp = vehicle fueling positions; du = dwelling units

Trip Distribution

The distribution of project-generated trips is typically based on current turning movements. However, because much of the existing traffic is associated with the gas station that is to be eliminated, consideration was also given to the likely travel paths of residents in the new condominiums. It is anticipated that many of the residents will choose to live at this site to be near jobs at the Northgate Shopping Center, Kaiser, and other local businesses. The distribution for these trips would be different than that for existing traffic. While the current turning movements indicate that volumes to/from the east vary from 59 to 80 percent, the distribution with the project would likely be below the lower end of this range, or about 55 percent. Similarly, while current patterns indicate that 3 to 26 percent of trips are to/from the south on Northgate Drive, this movement would likely be at the upper end of the range, or about 25 percent. Finally, trips to/from the west currently comprise 15 to 23 percent of inbound or outbound peak hour trips, and a distribution of 20 percent is suggested for this direction. A copy of the turning movement count is provided for reference along with a figure showing the project trip assignment

DJW/djw/SRA119.M1

Attachments: Trip Generation Counts; Turning Movement Counts; Trip Assignment

15-7851-005 Driveways
 UPS Store/Gas Station Driveway - Northgate Drive
 Oct 27 thru Oct 29

Tuesday October 27	Driveway 1 (South)				Driveway 2 (North)				
	Inbound		Outbound		Inbound		Outbound		
	North Left	South Right	East Left	East Right	North Left	South Right	East Left	East Right	
7:00 AM	1	0	0	5	3	0	0	0	3
7:15 AM	0	0	0	3	2	1	0	0	3
7:30 AM	1	0	0	6	5	0	0	0	5
7:45 AM	1	0	0	6	5	0	0	0	5
8:00 AM	0	1	0	4	6	0	0	1	7
8:15 AM	1	0	0	7	7	0	0	0	7
8:30 AM	1	0	0	7	5	0	0	0	5
8:45 AM	3	0	0	8	4	0	0	0	4
Totals	8	1	0	46	37	1	0	1	55

IN= 28
 OUT= 27

Tuesday October 27	Driveway 1 (South)				Driveway 2 (North)				
	Inbound		Outbound		Inbound		Outbound		
	North Left	South Right	East Left	East Right	North Left	South Right	East Left	East Right	
4:00 PM	8	0	1	15	9	0	1	1	11
4:15 PM	3	0	0	12	7	1	0	1	9
4:30 PM	7	0	1	16	10	2	1	1	14
4:45 PM	5	0	1	10	4	0	1	2	7
5:00 PM	3	0	0	13	9	0	0	1	10
5:15 PM	4	0	0	9	10	0	0	0	10
5:30 PM	7	0	0	13	9	0	0	2	11
5:45 PM	0	0	0	14	12	0	0	1	13
Totals	37	0	3	102	70	3	3	9	120

IN= 56
 OUT= 64

15-7851-005 Driveways
 UPS Store/Gas Station Driveway - Northgate Drive
 Oct 27 thru Oct 29

Wednesday October 28	Driveway 1 (South)				Driveway 2 (North)					
	Inbound		Outbound		Inbound		Outbound			
	North Left	South Right	East Left	East Right	North Left	South Right	East Left	East Right		
7:00 AM	1	0	0	3	4	0	0	0	1	5
7:15 AM	1	0	0	6	7	0	0	0	6	13
7:30 AM	0	1	0	4	5	0	0	0	3	8
7:45 AM	1	0	1	0	2	0	0	0	2	4
8:00 AM	1	1	0	7	9	0	0	1	8	17
8:15 AM	1	0	0	1	2	0	0	0	3	5
8:30 AM	1	2	0	8	11	1	0	0	8	19
8:45 AM	1	0	1	9	11	1	0	0	4	15
Totals	7	4	2	38		32	2	0	1	56

IN= 29
 OUT= 27

Wednesday October 28	Driveway 1 (South)				Driveway 2 (North)					
	Inbound		Outbound		Inbound		Outbound			
	North Left	South Right	East Left	East Right	North Left	South Right	East Left	East Right		
4:00 PM	6	0	0	11	17	0	0	1	9	26
4:15 PM	10	2	0	17	29	2	0	0	12	41
4:30 PM	4	1	1	16	22	1	0	1	15	37
4:45 PM	3	0	0	11	14	0	0	1	6	20
5:00 PM	6	0	1	17	24	0	0	1	14	38
5:15 PM	5	0	0	13	18	0	0	2	8	26
5:30 PM	4	0	0	11	15	0	0	2	13	28
5:45 PM	2	1	0	11	14	0	0	0	6	20
Totals	40	2	4	107		72	3	0	8	136

IN= 68
 OUT= 68

15-7851-005 Driveways
 UPS Store/Gas Station Driveway - Northgate Drive
 Oct 27 thru Oct 29

Thursday October 29	Driveway 1 (South)				Driveway 2 (North)					
	Inbound		Outbound		Inbound		Outbound			
	North Left	South Right	East Left	East Right	North Left	South Right	East Left	East Right		
7:00 AM	0	0	0	5	7	0	0	0	7	12
7:15 AM	1	0	1	4	3	0	0	1	4	10
7:30 AM	1	0	2	3	5	1	0	0	6	12
7:45 AM	1	0	0	7	3	0	0	0	3	11
8:00 AM	0	1	1	5	9	0	0	0	9	16
8:15 AM	0	0	0	7	7	0	0	0	7	14
8:30 AM	0	0	0	3	2	0	0	0	2	5
8:45 AM	2	0	0	4	7	0	0	0	7	13
Totals	5	1	4	38	43	1	0	1	48	

IN= 28
 OUT= 20

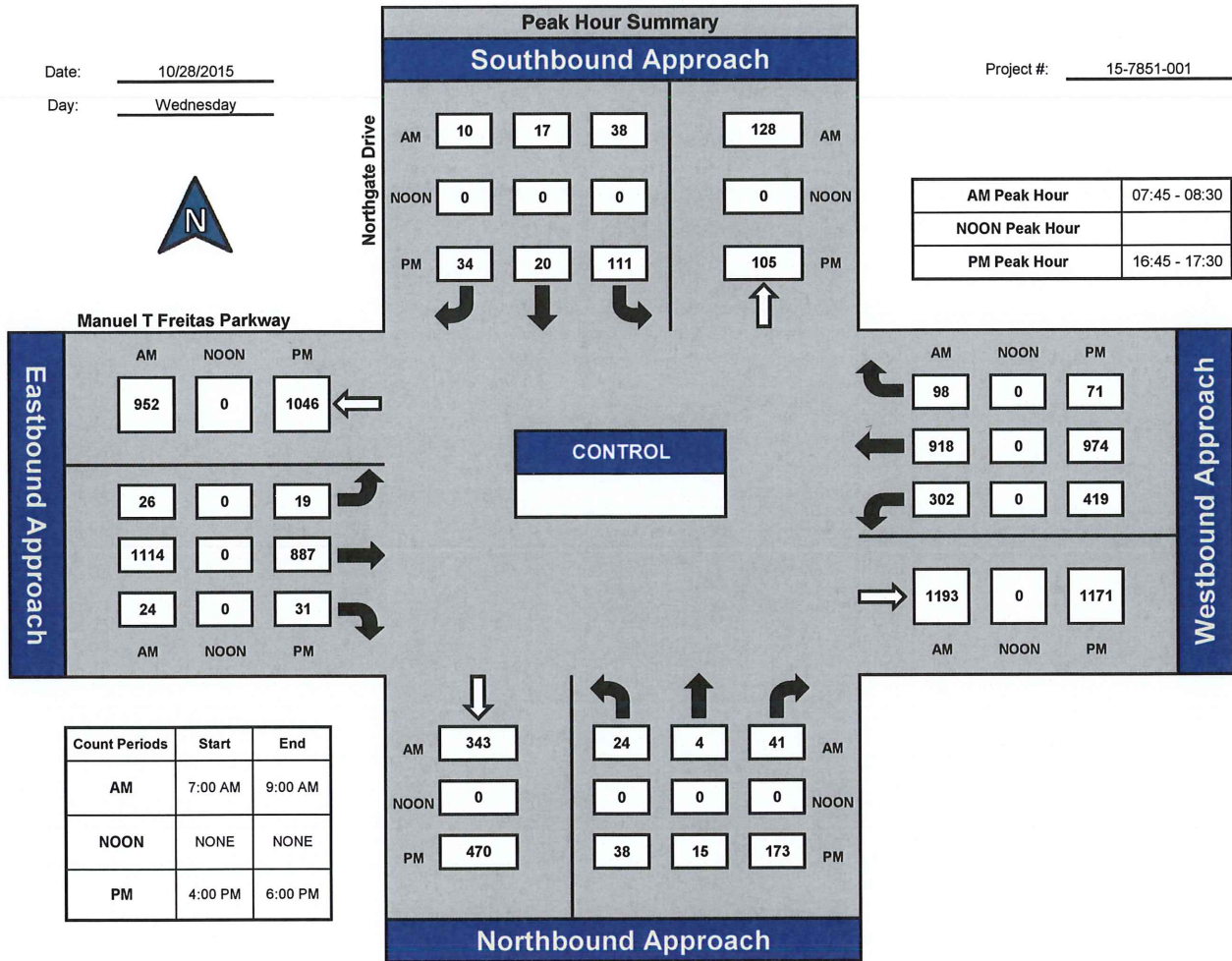
Thursday October 29	Driveway 1 (South)				Driveway 2 (North)					
	Inbound		Outbound		Inbound		Outbound			
	North Left	South Right	East Left	East Right	North Left	South Right	East Left	East Right		
4:00 PM	7	0	2	8	5	2	1	1	9	26
4:15 PM	1	0	1	10	9	0	0	0	9	21
4:30 PM	4	0	1	9	14	0	0	1	15	29
4:45 PM	2	0	1	13	11	0	1	4	16	32
5:00 PM	4	0	0	14	13	0	0	1	14	32
5:15 PM	5	1	1	15	8	2	0	1	11	33
5:30 PM	4	0	1	7	5	1	0	0	6	18
5:45 PM	1	0	0	13	5	0	0	0	5	19
Totals	28	1	7	89	70	5	2	8	126	

IN= 64
 OUT= 62

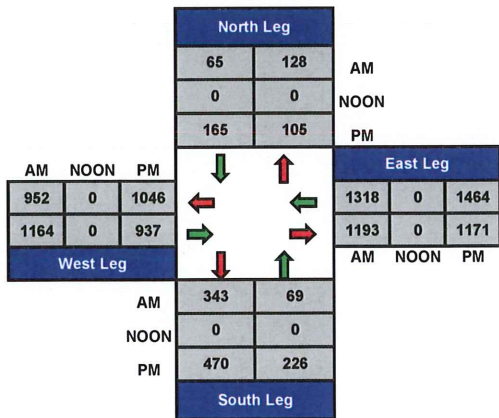
Northgate Drive & Manuel T Freitas Parkway

Date: 10/28/2015
Day: Wednesday

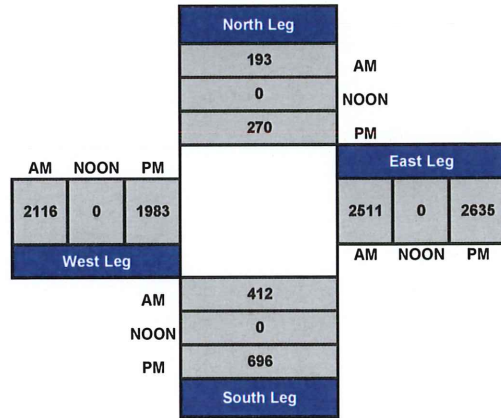
Project #: 15-7851-001

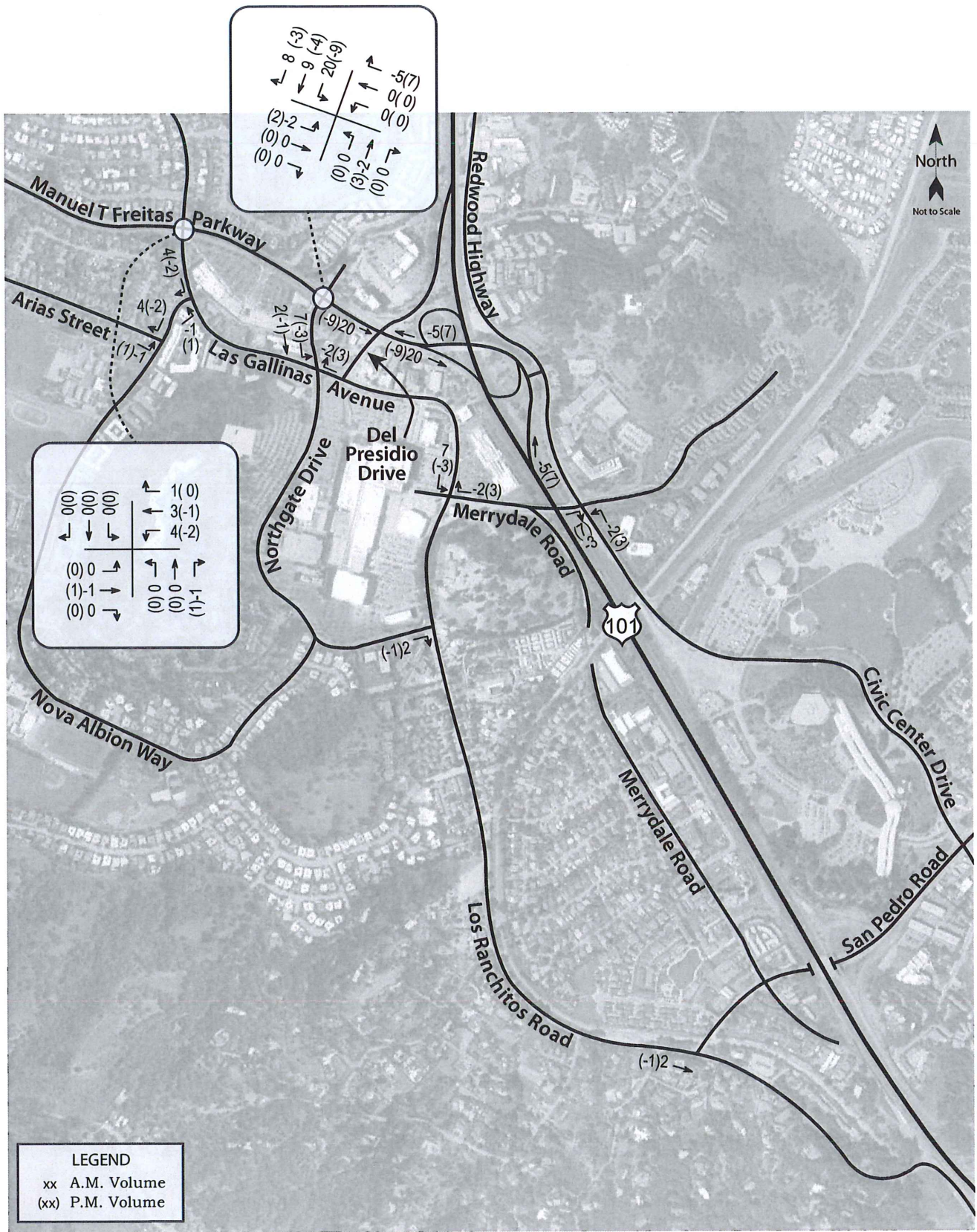


Total Ins & Outs



Total Volume Per Leg





Trip Generation for 1005 and 1010 Northgate Drive
 Figure 1 – Trip Assignment