

885 Woodside Road

Draft Transportation Impact Analysis

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August 25, 2006

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Executive Summary

This report presents the results of the traffic impact analysis (TIA) conducted for the 885 Woodside Road development in Redwood City, California. The site is currently vacant. The project as proposed would consist of 43 residential condominium units. Driveway access to the site will be provided via Horgan Avenue.

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Redwood City. The project would generate fewer than 100 peak hour trips. Therefore, an analysis based on the requirements of the San Mateo County City Association of Governments, the administering agency for the Congestion Management Program (CMP), is not necessary. The traffic study included an analysis of AM, PM and Saturday peak-hour traffic conditions for the unsignalized intersection of Horgan Avenue and Woodside Road.

Project Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the development the applicable trip generation rates. On the basis of the trip generation rates published in the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation*, seventh edition, 2003, it is estimated that the project would generate 252 daily trips, with 19 trips occurring during the AM peak hour, 22 occurring during the PM peak hour and 20 occurring during the Saturday peak hour. The project would produce 3 inbound trips and 16 outbound trips during the AM peak hour, 14 inbound and 8 outbound trips during the PM peak hour and 11 inbound and 9 outbound trips during the Saturday peak hour.

Project Intersection Levels of Service

The results of the intersection level of service analysis under project conditions are summarized in Table ES-1. The results show that, measured against the City of Redwood City level of service standards, the unsignalized intersection would operate at acceptable levels of service under project conditions.

Intersection Queuing Impacts

The intersection queuing analysis, indicates that the queue on Horgan Avenue at Woodside Road would increase by only one vehicle, on average.

Other Transportation Impacts

Under project conditions, an evaluation of bicycle, transit, parking, and pedestrian facilities shows no measurable impact.

The proposed site access and circulation also shows no measurable impact under project conditions.

Table ES 1
Intersection Levels of Service Summary

	Peak Hour	Count Date	Existing		Background		Project	
			Ave. Delay (secs)*	LOS*	Ave. Delay (secs)*	LOS*	Ave. Delay (secs)*	LOS*
Woodside Road and Horgan Avenue	AM	08/03/06	14.1	B	14.5	B	14.9	B
	PM	08/03/06	14.5	B	14.8	B	15.2	C
	Sat	08/12/06	13.4	B	13.7	B	14.0	B

* Delay and LOS is for the right turn from Horgan Avenue to Woodside Road.

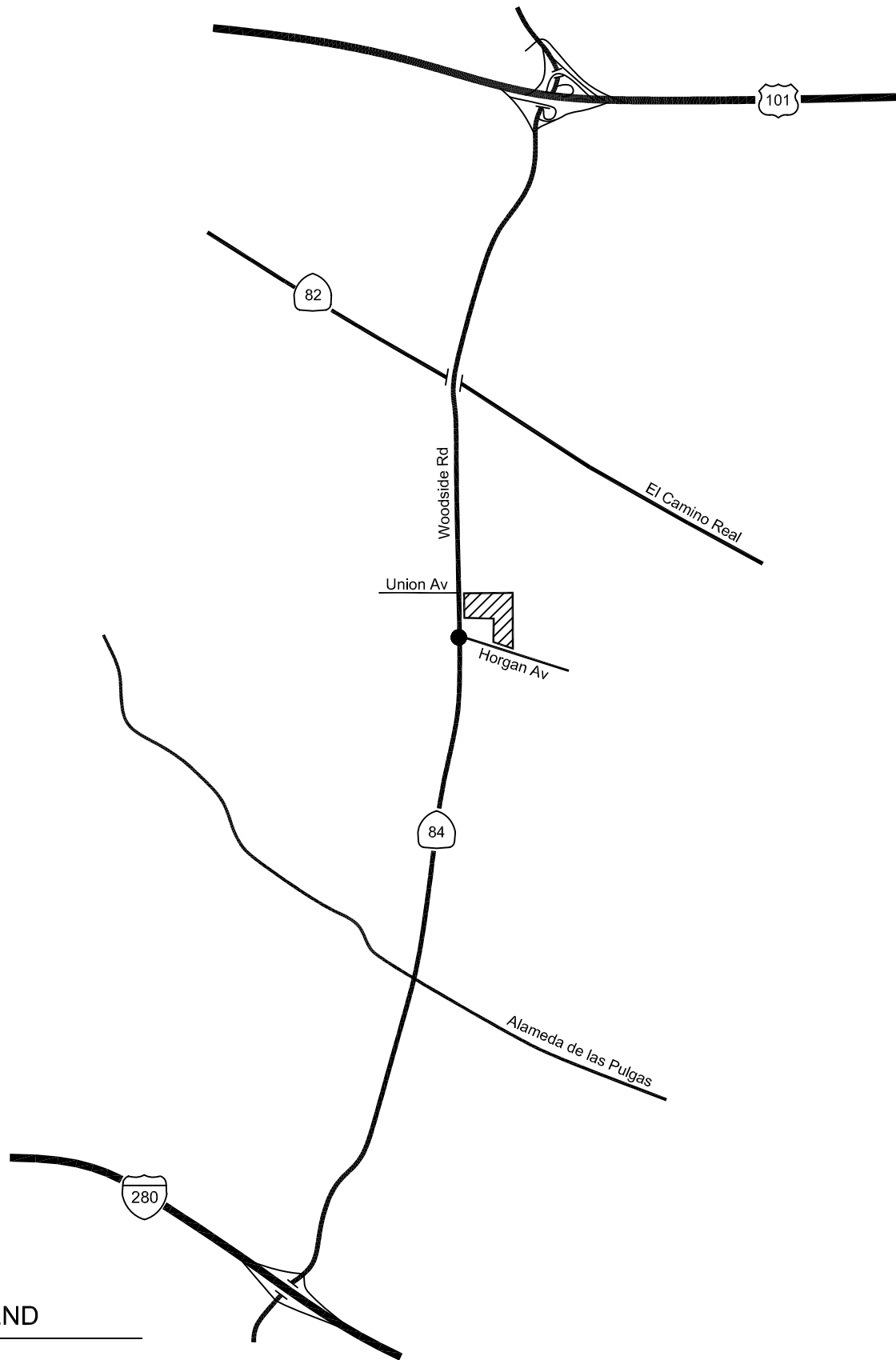
1. Introduction

This report presents the results of the traffic impact analysis (TIA) conducted for the 885 Woodside Road development in Redwood City, California. The site is currently vacant. The project as proposed would consist of 43 residential condominium units on 0.66 acres. As proposed, the project would have one full access driveway on Horgan Avenue. The project site and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

Scope of Study

This study was conducted for the purpose of identifying the potential traffic impacts related to the proposed development. The impacts of the project were evaluated following the standards and methodologies set forth by the City of Redwood City. The traffic analysis is based on peak-hour levels of service and queuing for the unsignalized intersection of Woodside Road and Horgan Avenue.

Traffic conditions at the study intersection were analyzed for the weekday AM, PM and Saturday peak hours of traffic. The AM peak hour of traffic is generally between 7:00 and 9:00 AM, the PM peak hour is typically between 4:00 and 6:00 PM, and the Saturday peak hour is typically between 12:00 and 2:00 PM. It is during these periods that the most congested traffic conditions occur.



LEGEND



-  = Site Location
-  = Study Intersection

Figure 1

SITE LOCATION AND STUDY INTERSECTION

Traffic conditions were evaluated for the following scenarios:

- Scenario 1:** *Existing Conditions.* New manual turning-movement counts were conducted at the study intersection. Traffic counts are contained in Appendix A.
- Scenario 2:** *Background Conditions.* Traffic volumes under background conditions were estimated by applying a growth factor (1.5 percent per year) to existing volumes.
- Scenario 3:** *Project Conditions.* Projected peak hour traffic volumes with the project (hereafter called *project traffic volumes*) were estimated by adding to background traffic volumes the additional traffic generated by the project. Project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from new traffic counts, previous traffic studies and the City of Redwood City. The following data were collected from these sources:

- existing traffic volumes
- lane configurations

Analysis Methodologies and Level of Service Standards

Traffic conditions at the study intersection were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

City of Redwood City Intersections

The unsignalized study intersection is located in the City of Redwood City and is therefore subject to the City of Redwood City Level of Service standards. The City of Redwood City level of service methodology is the *Highway Capacity Manual* (HCM) method for unsignalized intersections. The HCM evaluates unsignalized intersection operations on the basis of average delay time for all vehicles at the intersection. The City of Redwood City level of service standard for unsignalized intersections is LOS D or better. The correlation between average delay and level of service is shown in Table 1.

Table 1
Unsignalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Stopped Delay Per Vehicle (Secs)
A	Operations with very low delay occurring with favorable progression .	10.0 or less
B	Operations with low delay occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression or high V/C ratios.	25.1 to 35.0
E	Operations with high delay values indicating poor progression and high V/C ratios. This is considered to be the limit of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0

Source: Transportation Research Board, *Highway Capacity Manual 2000* .

Intersection Queuing

The operations analysis is based on vehicle queuing for high-demand turning movements at intersections. The basis of the analysis is as follows: (1) the average queue is estimated using the *Highway Capacity Manual* (HCM) methodology for unsignalized intersections; (2) the average queue is applied to a Poisson statistical distribution to estimate the 95th percentile maximum number of queued vehicles; (3) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (4) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections.

Report Organization

The remainder of this report is divided into five chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the intersection and freeway operations under background conditions. Chapter 4 describes the method used to estimate project traffic and its impact on the transportation system and describes the recommended mitigation measures. Chapter 5 presents the conclusions of the traffic impact analysis.

2. Existing Conditions

This chapter describes the existing conditions for all the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities.

Existing Roadway Network

Regional access to the project site is provided via I-280 and US-101. These facilities are described below.

I-280 is a north-south freeway that extends from San Francisco to San Jose and varies in width between six and eight lanes. I-280 is oriented in a north-south direction and is eight lanes wide in the vicinity of the site. Access to the site is provided via a full interchange with Woodside Road.

US-101 is a north-south eight-lane freeway through most of the City of Redwood City. US-101 extends northward to San Francisco and southward through Gilroy. Access from the site is provided via a full interchange with Woodside Road.

Local access to the site is provided by the following roadways:

Woodside Road is a six-lane divided arterial street that extends from US-101 to just west of the I-280. Woodside Road is part of SR 84, which extends from San Gregorio to the I-580 in Livermore. Woodside Road has a raised median island and sidewalks on both sides in the vicinity of the site.

Horgan Avenue is a north-south local street that extends from Woodside Road to Kentfield Avenue. Horgan Avenue is two lanes in the vicinity of the project site and provides direct access to the site.

Existing Bicycle and Pedestrian Facilities

There are two County of San Mateo designated bike routes in the vicinity of the site. County of San Mateo bike route Central Avenue/Hudson Street extends from Whipple Avenue in the north to Carlos Avenue in the south. The Virginia Avenue bike route stretches from Roosevelt Avenue in the north to Woodside Road in the south.

Pedestrian facilities in the project area consist primarily of sidewalks along the streets in most residential and commercial areas. Sidewalks are found along most previously described local roadways in the study area and along local residential streets and collectors near the site. The project site frontage along Horgan Avenue is the sole road segment without a sidewalk.

Existing Transit Service

Existing transit service to the study area is provided by the San Mateo County Transit District (SamTrans) and CalTrain. These are described below.

SamTrans Bus Service

The study area is served directly by 2 local buses. The 295 line provides service between Downtown San Mateo and Menlo Park via Woodside Road and Alameda De Las Pulgas, with 60-minute headways during commute hours. The 271 line provides service between the Sequoia CalTrain Station and Woodside Plaza via Virginia Avenue and Woodside Road, with 30-minute headways during commute hours.

CalTrain

Commuter rail service between San Francisco and Gilroy is provided by CalTrain. The project is located about 2 miles south of the Redwood City CalTrain station, which is located near the intersection of Winslow Street and Broadway Street. At the Redwood City station, CalTrain provides service with approximately 20 to 30-minute headways during the weekday AM and PM commute hours.

Existing Intersection Lane Configurations

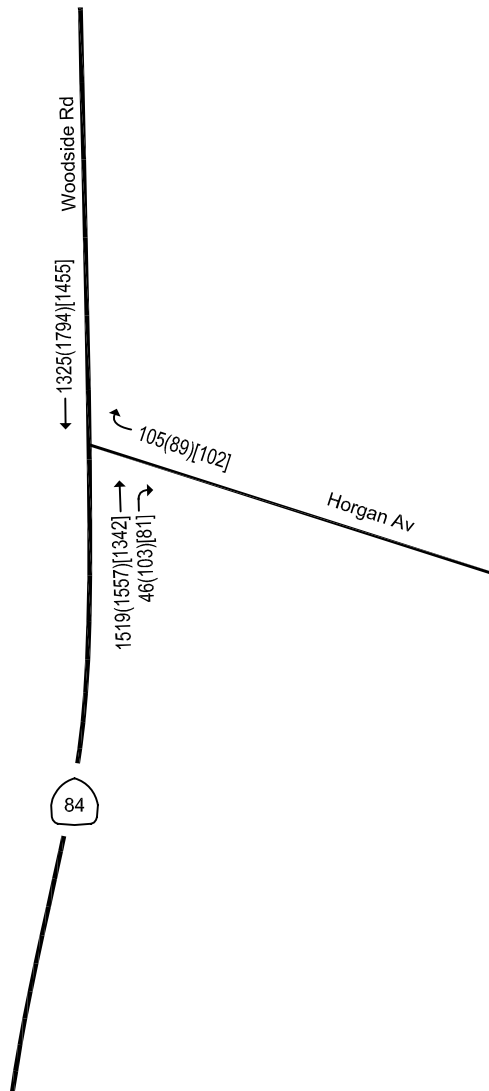
The existing lane configurations at the study intersection were provided by city staff and confirmed by observations in the field.

Existing Traffic Volumes

Existing peak-hour traffic volumes were obtained from new manual turning-movement counts at the study intersection. The existing peak-hour intersection volumes are shown on Figure 3. The traffic count data are included in Appendix A.



NORTH
Not to Scale



LEGEND

XX(XX)[XX] = AM(PM)[Saturday] Peak-Hour Traffic Volumes

Figure 3

EXISTING TRAFFIC VOLUMES

885 Woodside Road

Existing Intersection Levels of Service

The results of the level of service analysis under existing conditions are summarized in Table 2. The results show that, the right turn from Horgan Avenue to Woodside Road, the study operates at LOS B. The level of service calculation sheets are included in Appendix D.

Table 2
Existing Intersection Levels of Service

Intersection	Peak Hour	Count Date	Ave. Delay (secs)*	LOS*
Woodside Road and Horgan Avenue	AM	08/03/06	14.1	B
	PM	08/03/06	14.5	B
	Sat	08/12/06	13.4	B

* Delay and LOS is for the right turn from Horgan Avenue to Woodside Road.

Observed Existing Traffic Conditions

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accurately reflect level of service in the field.

The project site is a vacant L-shaped parcel fronting both Woodside Road and Horgan Avenue and wraps around an existing gas station. Across Horgan Avenue is an Auto Pride Car Wash with two driveways opposite the project site and gas station. Woodside Road, a six-lane arterial street, is divided by a median. South of the project site on Horgan Avenue is a mix of multi-family dwellings, a nursery school and single family homes. Street parking is available on Horgan Avenue and is utilized by car wash employees, local residents and visitors. Car wash employees park their cars perpendicularly at the project site's Horgan Avenue frontage because of its lack of sidewalk, effectively narrowing the lane width at the Woodside Avenue approach.

Field observations reveal queues of up to four vehicles on weekday peak hours and eight vehicles on Saturday peak hours for right turns from Horgan Avenue to Woodside Road, due to Woodside Road traffic flow. Typically, the right turn from Horgan Avenue to Woodside Road is free and clear. Occasionally, Saturday peak hour queues for right turns from Woodside Road to Horgan Avenue would occur due to car wash related traffic.

Overall, field observations revealed no unusual traffic problems for a local street intersecting with a major arterial street. The level of service analysis appears to accurately reflect existing traffic conditions.

3.

Background Conditions

This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed development. Traffic volumes for background conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions.

Background Transportation Network

It is assumed in this analysis that the roadway network, bicycle and pedestrian facilities, and transit service under background conditions would be the same as described under existing conditions.

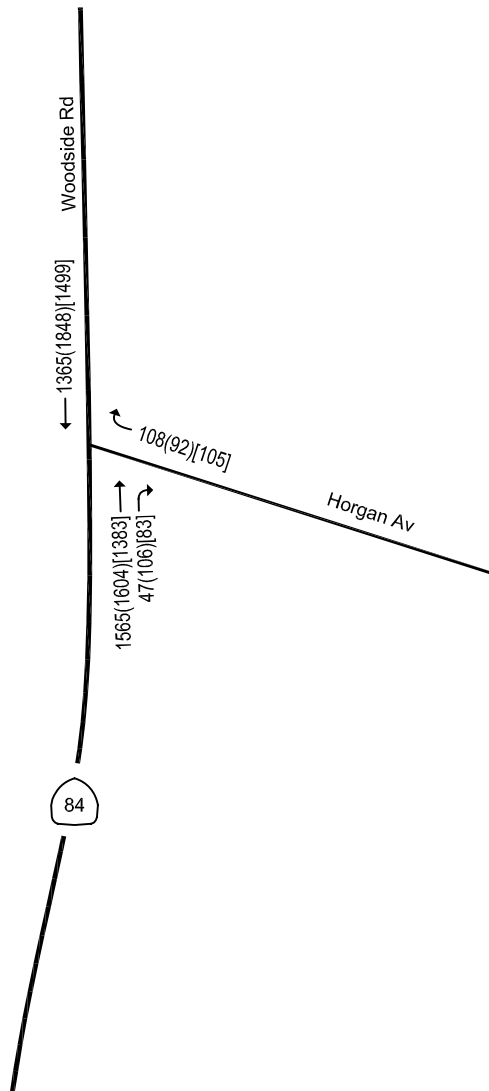
Background Traffic Volumes

The City of Redwood City provided a list of 19 approved or proposed developments within the city (see Appendix B). None of the approved or proposed developments is located in the vicinity of the Woodside Road and Horgan Avenue intersection. Therefore, it was determined that the use of an overall growth factor would best estimate background conditions.

Based on discussions with city staff, a growth factor of 1.5% per year was used. Project completion was estimated to occur in 2 years, so the existing volumes were increased by 3%.



NORTH
Not to Scale



LEGEND

XX(XX)[XX] = AM(PM)[Saturday] Peak-Hour Traffic Volumes

Figure 4

BACKGROUND TRAFFIC VOLUMES

885 Woodside Road

Background Intersection Levels of Service

City of Redwood City Intersection Analysis

The unsignalized study intersection would operate at LOS B under background conditions. The level of service calculation sheets are included in Appendix D.

Table 3
Background Intersection Levels of Service

Intersection	Peak Hour	Count Date	Existing		Background	
			Ave. Delay (secs)*	LOS*	Ave. Delay (secs)*	LOS*
Woodside Road and Horgan Avenue	AM	08/03/06	14.1	B	14.5	B
	PM	08/03/06	14.5	B	14.8	B
	Sat	08/12/06	13.4	B	13.7	B

* Delay and LOS is for the right turn from Horgan Avenue to Woodside Road.

4.

Project Impacts and Mitigation Measures

This chapter describes project traffic conditions, significant project impacts, and measures that are recommended to mitigate project impacts. Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures. Project conditions are represented by background traffic conditions with the addition of traffic generated by the project.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact, based on the City of Redwood City Level of Service standards.

Project impacts on other transportation facilities, such as bicycle facilities and transit, were determined on the basis of engineering judgment.

City of Redwood City Definition of Significant Intersection Impacts

The project is said to create a significant adverse impact on traffic conditions at an unsignalized intersection in the City of Redwood City if for any peak-hour:

1. The level of service at the intersection degrades from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions, and
2. The approach volumes on the intersecting streets are sufficiently high to satisfy signal warrant #11, “Peak-Hour Signal Warrant,” as described in the *Traffic Manual* published by Caltrans.

Future Transportation Network Under Project Conditions

It is assumed in this analysis that the transportation network under project conditions would be the same as described under existing conditions.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM, PM, and Saturday peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described further in the following sections.

Trip Generation

Through empirical research, data have been collected that correlate to common land uses their propensity for producing traffic. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development.

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the development the applicable trip generation rates. On the basis of the trip generation rates published in the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation*, seventh edition, 2003, it is estimated that the project would generate 252 daily trips, with 19 trips occurring during the AM peak hour, 22 occurring during the PM peak hour and 20 occurring during the Saturday peak hour.

Trip Distribution and Assignment

The study intersection is limited to right turns in and out due to the median on Woodside Road. Therefore, all inbound project trips would turn right from Woodside Road to Horgan Avenue, and all outbound project trips would turn right from Horgan Avenue to Woodside Road.

Project Traffic Volumes

Project trips, as represented in the above project trip assignment, were added to future background traffic volumes to obtain background plus project traffic volumes. Background traffic volumes plus project trips are typically referred to simply as *project traffic volumes*; this is contrasted with the term *project trips*, which is used to signify the traffic that is produced specifically by the project. The project traffic volumes are shown graphically on Figure 5. Traffic volumes for all components of traffic are tabulated in Appendix D.

Table 4
Project Trip Generation Estimates

Land Use	Rate ¹	Daily Rate ²	Daily Trips	AM Peak Hour			PM Peak Hour			Saturday Peak Hour					
				Peak-Hour Rate ²	In	Out	Total	Peak-Hour Rate ²	In	Out	Total	Peak-Hour Rate ²	In	Out	Total
Condominium	43 Units	5.9	252	0.44	3	16	19	0.52	14	8	22	0.47	11	9	20

¹ Size expressed in dwelling units.

² Trip rates based on Institute of Transportation Engineers, *Trip Generation*, seventh edition, 2003. Residential Condominium/Townhouse (230)

Project Intersection Analysis

The results of the level of service analysis under project conditions are summarized in Table 5. The results show that, the study intersection would continue to operate at an acceptable LOS B. The level of service calculation sheets are included in Appendix D.

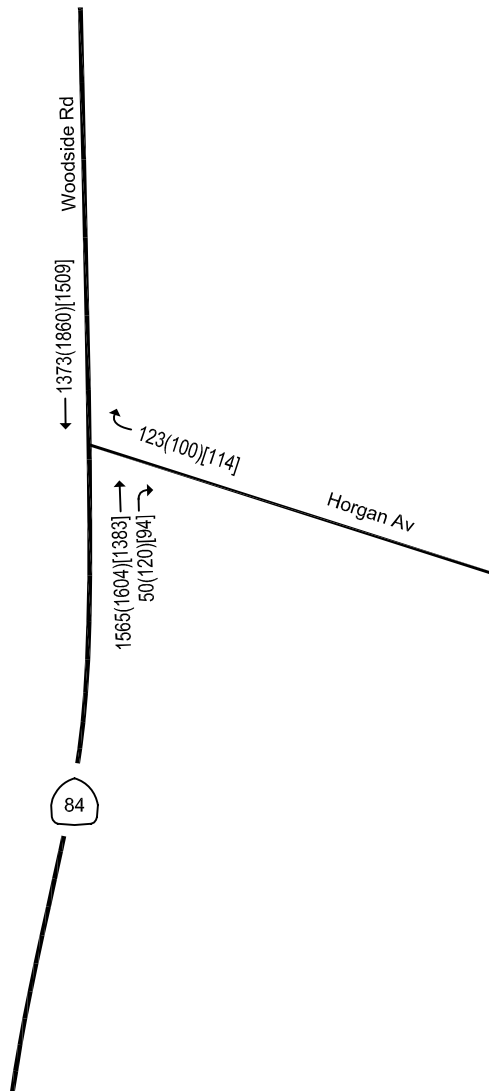
Table 5
Project Intersection Levels of Service

Intersection	Peak Hour	Background		Project	
		Ave. Delay (Secs)*	LOS*	Ave. Delay (Secs)*	LOS*
Woodside Road and Horgan Avenue	AM	14.5	B	14.9	B
	PM	14.8	B	15.2	C
	Sat	13.7	B	14.0	B

* Delay and LOS is for the right turn from Horgan Avenue to Woodside Road.



NORTH
Not to Scale



LEGEND

XX(XX)[XX] = AM(PM)[Saturday] Peak-Hour Traffic Volumes

Figure 5

PROJECT TRAFFIC VOLUMES

885 Woodside Road

Intersection Queuing Analysis

The analysis of project intersection level of service was supplemented with an analysis of intersection queuing for the outbound right turn from Horgan Avenue to Woodside Road.

The analysis indicates that the estimated maximum vehicle queues for the outbound right turn would increase by only one vehicle, or less.

The Poisson statistical distribution queue analysis is included in Appendix E.

Table 6
Vehicle Queuing

Intersection	Mvmt.	Peak Hour	95th Percentile Queue Length (vehicles)	
			Background	Project
Woodside Road and Horgan Avenue	NBR	AM	5	6
		PM	6	6
		Sat	8	8

¹ Design queue calculated by a Poisson statistical distribution.

Site Access

The site layout is evaluated based on the site plan dated March 13, 2006 by Gerald Yates.

The project would provide the missing curb, gutter and sidewalk along its frontage on Horgan Avenue between the gas station and the residential neighborhood. To smooth traffic flow in the queue on Horgan Avenue, parking should be prohibited on Horgan Avenue from Woodside Road to the south edge of the property. The proposed project would provide one full access driveway on Horgan Avenue. The project driveway should be free and clear of any obstructions to optimize sight distance. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site.

Transit Service Impacts

The project would not impact SamTrans bus service or CalTrain commuter rail service.

Pedestrian Impacts

The project as proposed includes new sidewalk construction on Horgan Avenue, creating a continuous sidewalk throughout the study area. Thus, the project would improve pedestrian facilities in the vicinity of the site.

Bicycle Impacts

The project would not affect the bicycle-carrying capacity of streets surrounding the site, and it would not require new bicycle facilities.

In summary, the proposed project would not have an adverse effect on the existing transit, pedestrian or bicycle facilities in the study area.

5. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Redwood City. The traffic analysis is based on peak-hour traffic conditions on the streets fronting the site. The traffic analysis also includes a peak hour vehicle queuing analysis. Project impacts on other transportation facilities, such as bicycle facilities and transit, were determined on the basis of engineering judgement.

Project Intersection Levels of Service

The results of the intersection level of service analysis under the project conditions show that, based on City of Redwood City level of service standards, the unsignalized study intersection of Woodside Road and Horgan Avenue would operate at acceptable levels of service under project conditions.

Intersection Queuing Analysis

A comparison of vehicle queuing indicates that the estimated maximum vehicle queues for right-turn movements from Horgan Avenue to Woodside Road would increase by only one vehicle due to the project.

Site Access

The project would add curb, gutter, and sidewalk to Horgan Avenue to fill in the missing segment between the gas station and the residential neighborhood. To improve traffic flow into and out of Horgan Avenue, parking should be prohibited along the project frontage and along the gas station.

Other Transportation Issues

The proposed project would improve pedestrian facilities by completing a missing sidewalk segment.

885 Woodside Road Technical Appendices

August 25, 2006

Appendix A

Traffic Counts

AM
SEASIDE
HEX T
TITO [916] 715 - 4006

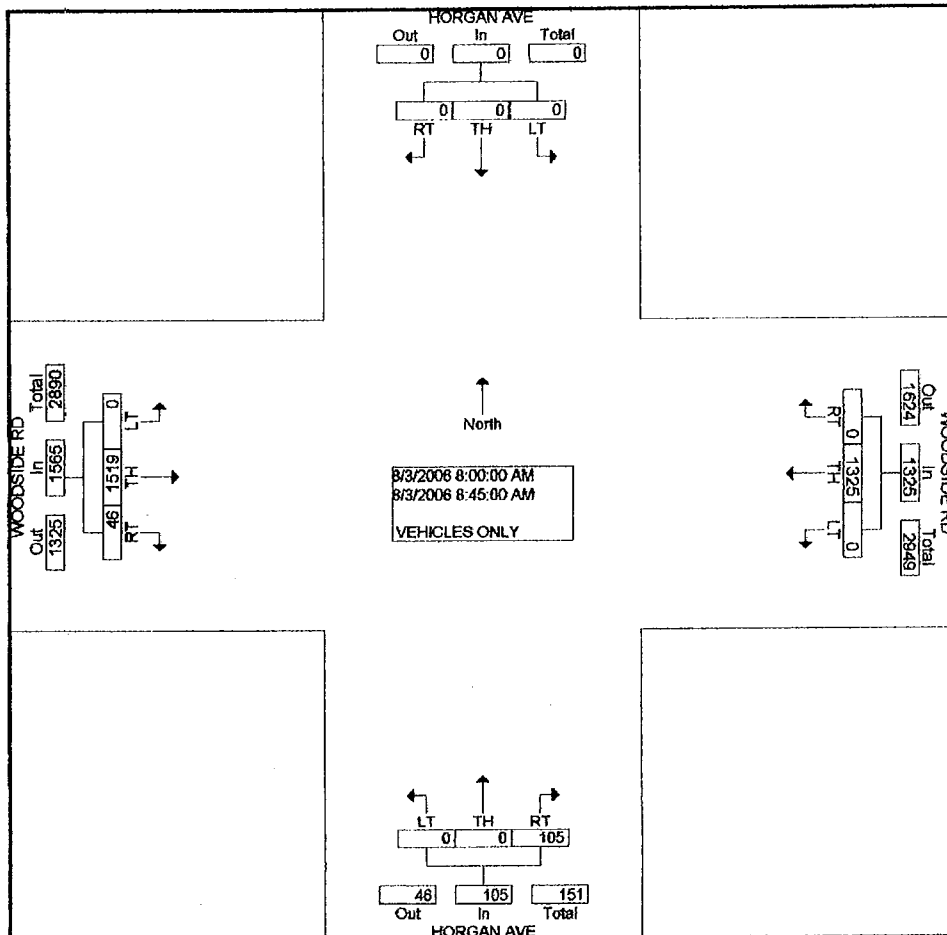
MARKS TRAFFIC DATA

File Name : ho gan-woodside-ip
Site Code : 00 X0000
Start Date : 8/ /2006
Page No : 1

Groups Printed- VEHICLES ONLY

Start Time	HORGAN AVE Southbound				WOODSIDE RD Westbound				HORGAN AVE Northbound				WOODSIDE RD Eastbound				App. Total	Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total		
07:00	0	0	0	0	0	281	0	281	18	0	0	18	8	254	0	262	561	
07:15	0	0	0	0	0	316	0	316	17	0	0	17	10	266	0	276	609	
07:30	0	0	0	0	0	361	0	361	17	0	0	17	8	282	0	290	668	
07:45	0	0	0	0	0	367	0	367	19	0	0	19	7	349	0	356	742	
Total	0	0	0	0	0	1325	0	1325	71	0	0	71	33	1151	0	1184	2580	
08:00	0	0	0	0	0	353	0	353	30	0	0	30	13	375	0	388	771	
08:15	0	0	0	0	0	325	0	325	31	0	0	31	9	358	0	367	723	
08:30	0	0	0	0	0	322	0	322	19	0	0	19	16	391	0	407	748	
08:45	0	0	0	0	0	325	0	325	25	0	0	25	8	395	0	403	753	
Total	0	0	0	0	0	1325	0	1325	105	0	0	105	46	1519	0	1565	2995	
Grand Total	0	0	0	0	0	2650	0	2650	176	0	0	176	79	2670	0	2749	5575	
Approch %	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	2.9	97.1	0.0	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	47.5	0.0	47.5	3.2	0.0	0.0	3.2	1.4	47.9	0.0	49.3	0.0	

Start Time	HORGAN AVE Southbound				WOODSIDE RD Westbound				HORGAN AVE Northbound				WOODSIDE RD Eastbound				App. Total	Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total		
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																		
Intersection	08:00																	
Volume	0	0	0	0	0	1325	0	1325	105	0	0	105	46	1519	0	1565	2995	
Percent	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	2.9	97.1	0.0	0.0	0.0	
08:00 Volume	0	0	0	0	0	353	0	353	30	0	0	30	13	375	0	388	771	
Peak Factor																	0.971	
High Int.	6:45:00 AM				08:00				08:15				08:30					
Volume	0	0	0	0	0	353	0	353	31	0	0	31	16	391	0	407	771	
Peak Factor					0.938				0.847								0.961	



MD
 REDWOOD CITY
 HEX T
 TITO [916] 715 - 4006

MARKS TRAFFIC DATA

File Name : ho jan-woodsides-m
 Site Code : 00 00000
 Start Date : 8/1 2/2006
 Page No : 1

Groups Printed- VEHICLES ONLY

Start Time	0 Southbound				WOODSIDE RD Westbound				HORGAN AV Northbound				WOODSIDE RD Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
10:00	0	0	0	0	0	253	0	253	22	0	0	22	31	294	0	325	600
10:15	0	0	0	0	0	296	0	296	35	0	0	35	16	286	0	302	633
10:30	0	0	0	0	0	324	0	324	27	0	0	27	15	289	0	304	655
10:45	0	0	0	0	0	325	0	325	32	0	0	32	20	320	0	340	697
Total	0	0	0	0	0	1198	0	1198	116	0	0	116	82	1189	0	1271	2585
11:00	0	0	0	0	0	324	0	324	20	0	0	20	19	332	0	351	695
11:15	0	0	0	0	0	327	0	327	30	0	0	30	19	292	0	311	668
11:30	0	0	0	0	0	316	0	316	26	0	0	26	25	347	0	372	714
11:45	0	0	0	0	0	299	0	299	25	0	0	25	22	316	0	338	662
Total	0	0	0	0	0	1266	0	1266	101	0	0	101	85	1287	0	1372	2739
12:00	0	0	0	0	0	362	0	362	26	0	0	26	21	346	0	367	755
12:15	0	0	0	0	0	376	0	376	27	0	0	27	21	312	0	333	738
12:30	0	0	0	0	0	347	0	347	19	0	0	19	23	344	0	367	733
12:45	0	0	0	0	0	370	0	370	30	0	0	30	16	340	0	356	756
Total	0	0	0	0	0	1455	0	1455	102	0	0	102	81	1342	0	1423	2980
13:00	0	0	0	0	0	262	0	262	24	0	0	24	26	260	0	286	572
13:15	0	0	0	0	0	294	0	294	35	0	0	35	14	299	0	313	642
13:30	0	0	0	0	0	317	0	317	32	0	0	32	29	294	0	323	672
13:45	0	0	0	0	0	336	0	336	26	0	0	26	24	320	0	344	706
Total	0	0	0	0	0	1209	0	1209	117	0	0	117	93	1173	0	1266	2592
14:00	0	0	0	0	0	341	0	341	22	0	0	22	28	298	0	326	689
14:15	0	0	0	0	0	322	0	322	25	0	0	25	22	276	0	298	645
14:30	0	0	0	0	0	309	0	309	26	0	0	26	24	284	0	308	643
14:45	0	0	0	0	0	311	0	311	23	0	0	23	27	266	0	293	627
Total	0	0	0	0	0	1283	0	1283	96	0	0	96	101	1124	0	1225	2604
Grand Total	0	0	0	0	0	6411	0	6411	532	0	0	532	442	6115	0	6557	13500
Apprch %	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		6.7	93.3	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	47.5	0.0	47.5	3.9	0.0	0.0	3.9	3.3	45.3	0.0	48.6	

Start Time	0 Southbound				WOODSIDE RD Westbound				HORGAN AV Northbound				WOODSIDE RD Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
Peak Hour From 10:00 to 14:45 - Peak 1 of 1																	
Intersection	12:00																
Volume	0	0	0	0	0	1455	0	1455	102	0	0	102	81	1342	0	1423	2980
Percent	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		5.7	94.3	0.0		
12:45 Volume	0	0	0	0	0	370	0	370	30	0	0	30	18	340	0	356	756
Peak Factor																	
High Int.	9:45:00 AM				12:15				12:45				12:00				
Volume	0	0	0	0	0	376	0	376	30	0	0	30	21	346	0	367	0.985
Peak Factor					0.967				0.850				0.969				

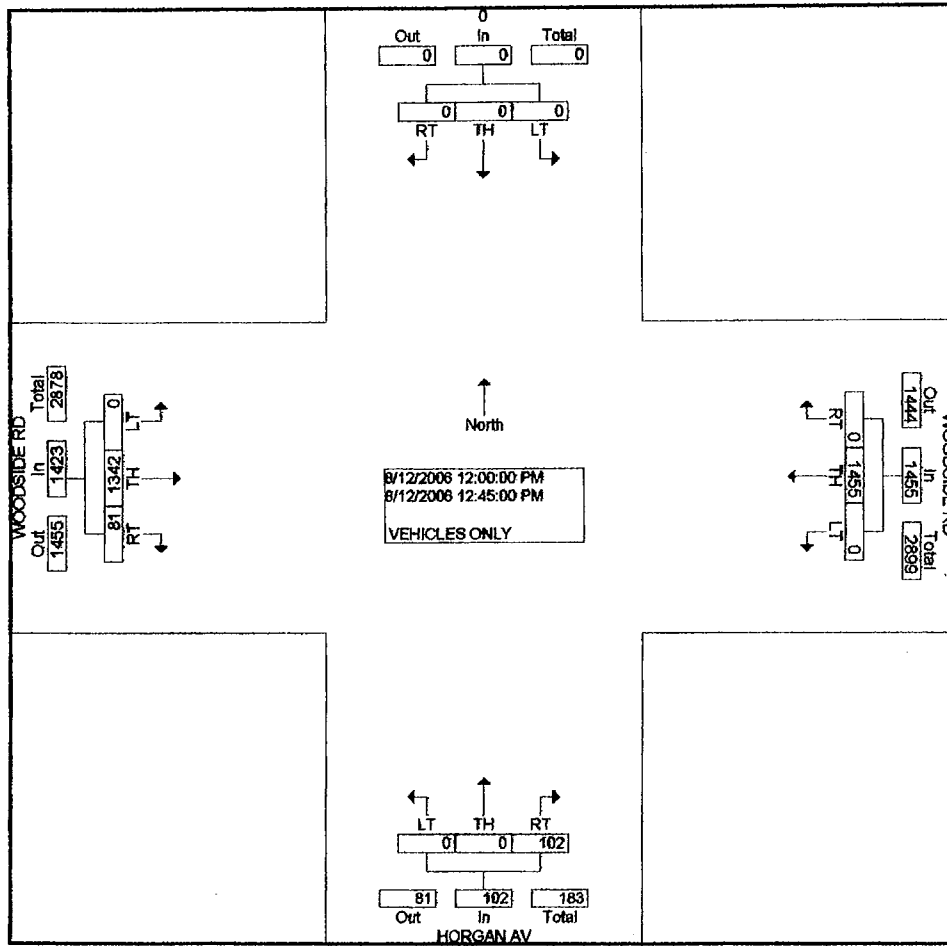
MARKS TRAFFIC DATA

File Name : ho\jan-woodside-m

Site Code : 00 00000

Start Date : 8/1 2/2006

Page No : 2



Appendix B

Approved or Proposed Developments

Summary of Development Status - 7/1/06

Under Construction Projects –New Buildings

- 1501 Seaport Blvd. (West Point Marina): Phase I - 408 Slip Marina with boat launch area and 315 parking stalls; 2½-story Harbor Master Office (5,700 s.f.) and three 500 s.f. restrooms, showers & laundry bldgs. (1,500 s.f. total)
- 2107 Broadway (Downtown cinema/retail complex) 4,200 seat theater & retail 80,000 s.f. – Cinema opens July 28, 2006 and retail from July through October 2006
- 1540 El Camino Real (Villa Montgomery Apartments) - 58 apartment units.

Approved, Pending Construction Projects - New Buildings

- 124-136 Lincoln Avenue (Habitat Townhouses) - 8 units - Construction anticipated in 2007-08
- 1 Chesapeake Drive - (Abbott Labs R & D) 541,077 s.f.
- 1501 Seaport Blvd. (West Point Marina):
Phases II – Boatyard shop area to include four covered boat bays (9,600s.f. total) and four 750 s.f. 2nd-story boat shop suites (3,000 s.f. total); 2-story boat house/ rowing facility (13,000 s.f.); and a dry stack boat storage building (25,652 s.f.)

Phase III – 2-story Yacht Club (10,000 s.f.); four retail shops (4,144 s.f. total) yacht sales office and showroom (4,243 s.f. total); marina store with shop, office and storage (9,000 s.f. total); sailing school/charter service to include a 1,000 s.f. office, 1,000 s.f. class room, 1,000 s.f. small boat storage and 1,323 s.f. storage & workshop area (4,323 s.f. total); and restaurant (8,000 s.f.)

- **Kaiser Master Plan:**

<u>Anticipated Phasing</u>	<u>Medical Building Sizes</u>	<u>New Associated Parking Structures</u>
1/07-1/08	Kaiser Demos	
6/07-6/08	MOB 1: 5-stories, 121,000 sq. ft.	
6/07-6/08		<u>B</u> : 7-story, 8-level
6/07-6/08	MOB 2: 4-stories, 100,000 square feet	<u>C</u> : 5-story, 6-level
6/08-6/13	Hospital: 6-stories, 420,000 sq. ft.	
7/09-6/13	Wellness Center: 2-stories, 20,000 sq. ft.	
7/13-6/15	Small Admin. Bldg: Main St. (unknown)	
7/13-7/20	MOB 3: 5-stories, 120,000 sq. ft.	<u>D</u> : 6-story, 7-level
7/15-7/30	MOB 4: 4-stories, 100,000 sq. ft.	<u>E</u> : 4-story, 5-level

Note: MOB 3 & 4 & associated parking structures may never be built

Projects Pending Approvals – Existing Large Building Tenant Improvement (T.I.)

- Stanford Medical Clinics Project improvements to 4 existing commercial buildings totaling 360,000 s.f.

Projects Pending Approvals - New Buildings

- Peninsula Park- 200 room hotel, 10,000 sq ft retail, 796 condos/townhouses on 33 acres
- 399 Marine Parkway- Redwood Shore Library -22,000 sq. ft on 3.5 acres
- 170 Alameda de las Pulgas (Sequoia Hospital Expansion)- 97 K hospital addition, 50K MOB & 4.5 level/ 650 stall parking structure (in Planning Permit review stage)
- 439 Fuller St. - 80 condo units (at concept plan review stage)
- 2300 Middlefield Rd (Costco Expansion) - 25,000 sq. ft. retail addition for a total of 148,000 sq ft bldg & 16 new fuel pump gas station
- East Bayshore Road (Syufy Theater Site) 600 Apartments units (only EIR is certified/ no approvals)
- 63 Oakwood – 5 townhouses
- 50 Finger - 9 townhouses
- Toyon Way Subdivision- 6 single-family residences

Expired Permit Projects (Never Constructed)

- 852-860 Walnut Street (downtown condos) -15 units.
- 612 Jefferson -4 apartment units

Large partially vacant commercial buildings:

- Pacific Shores
- Seaport Center
- Midpoint Technology Park
- Woodside Technology

Potential Future Redevelopment – No vacant land available thus will require redevelopment of existing buildings.

- Downtown Precise Plan -2,400 to 3,400 units (30+ year projection).
- El Camino Real - 800 residential units (30+ year projection)
- Woodside Road - 800 residential units (30+ year projection)

Appendix C
Volume Summary Tables

885 Woodside - Volume Summary Sheet

1

Intersection Name: Woodside Road & Horgan Avenue
 Peak Hour: AM Date of Analysis: 8/24/06
 Scenario: Count Date 8/3/06
 (SJ) Growth Factor: Future Growth % Per Year: 0.015
 (SJ) Number of Months: Number of Years to Buildout: 2.0

Scenario:	Movements											
	North Approach			East Approach			South Approach			West Approach		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	0	0	0	1325	0	105	0	0	46	1519	0
Growth	0	0	0		40	0	3	0	0	1	46	0
Background Volumes	0	0	0	0	1365	0	108	0	0	47	1565	0
Project Trips	0	0	0	0	8	0	15	0	0	3	0	0
Project Conditions	0	0	0	0	1373	0	123	0	0	50	1565	0

885 Woodside - Volume Summary Sheet

1

Intersection Name: Woodside Road & Horgan Avenue
 Peak Hour: PM Date of Analysis: 8/24/06
 Scenario: Count Date 8/3/06
 (SJ) Growth Factor: Future Growth % Per Year: 0.015
 (SJ) Number of Months: Number of Years to Buildout: 2.0

Scenario:	Movements											
	North Approach			East Approach			South Approach			West Approach		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	0	0	0	1794	0	89	0	0	103	1557	0
Growth	0	0	0		54	0	3	0	0	3	47	0
Background Volumes	0	0	0	0	1848	0	92	0	0	106	1604	0
Project Trips	0	0	0	0	12	0	8	0	0	14	0	0
Project Conditions	0	0	0	0	1860	0	100	0	0	120	1604	0

885 Woodside - Volume Summary Sheet

1

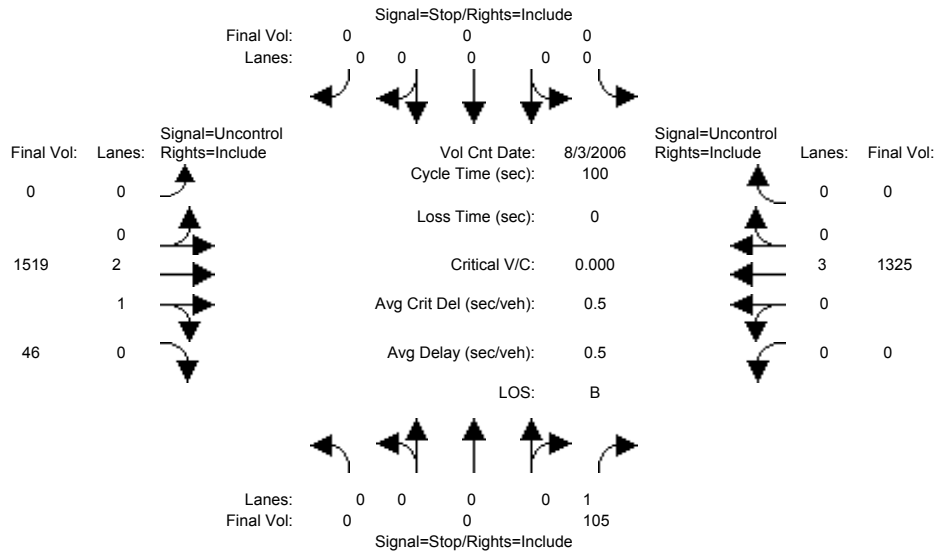
Intersection Name: Woodside Road & Horgan Avenue
 Peak Hour: Saturday Date of Analysis: 8/24/06
 Scenario: Count Date 8/12/06
 (SJ) Growth Factor: Future Growth % Per Year: 0.015
 (SJ) Number of Months: Number of Years to Buildout: 2.0

Scenario:	Movements											
	North Approach			East Approach			South Approach			West Approach		
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
Existing	0	0	0	0	1455	0	102	0	0	81	1342	0
Growth	0	0	0		44	0	3	0	0	2	41	0
Background Volumes	0	0	0	0	1499	0	105	0	0	83	1383	0
Project Trips	0	0	0	0	10	0	9	0	0	11	0	0
Project Conditions	0	0	0	0	1509	0	114	0	0	94	1383	0

Appendix D
Level of Service Calculations

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with columns for Volume Module, Count, Date (3 Aug 2006), and AM (8 AM - 9 AM). Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module showing Critical Gp (6.9) and FollowUpTim (3.3) with various status indicators (xxxx).

Table for Capacity Module showing Cnflct Vol (529), Potent Cap. (499), Move Cap. (499), and Volume/Cap (0.21) with status indicators.

Table for Level Of Service Module showing 2Way95thQ (0.8), Control Del (14.1), LOS by Move (*), and ApproachDel (14.1).

Peak Hour Delay Signal Warrant Report

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

```

Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|-----|
Control:      Stop Sign      Stop Sign      Uncontrolled  Uncontrolled
Lanes:        0 0 0 0 1      0 0 0 0 0      0 0 2 1 0      0 0 3 0 0
Initial Vol:   0 0 105      0 0 0 0      0 1519 46      0 1325 0
ApproachDel:   14.1          xxxxxx          xxxxxx          xxxxxx
-----|-----|-----|-----|
Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=105]
    SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2995]
    SUCCEED - Total volume greater than or equal to 650 for intersection
                with less than four approaches.
    
```

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

```

*****
Intersection #1 Woodside Road at Horgan Avenue
*****
Future Volume Alternative: Peak Hour Warrant Met
    
```

```

-----|-----|-----|-----|
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|
Control:      Stop Sign      Stop Sign      Uncontrolled  Uncontrolled
Lanes:        0 0 0 0 1      0 0 0 0 0      0 0 2 1 0      0 0 3 0 0
Initial Vol:   0 0 105      0 0 0 0      0 1519 46      0 1325 0
-----|-----|-----|-----|
Major Street Volume:      2890
Minor Approach Volume:    105
Minor Approach Volume Threshold: -81 [less than minimum of 100]
    
```

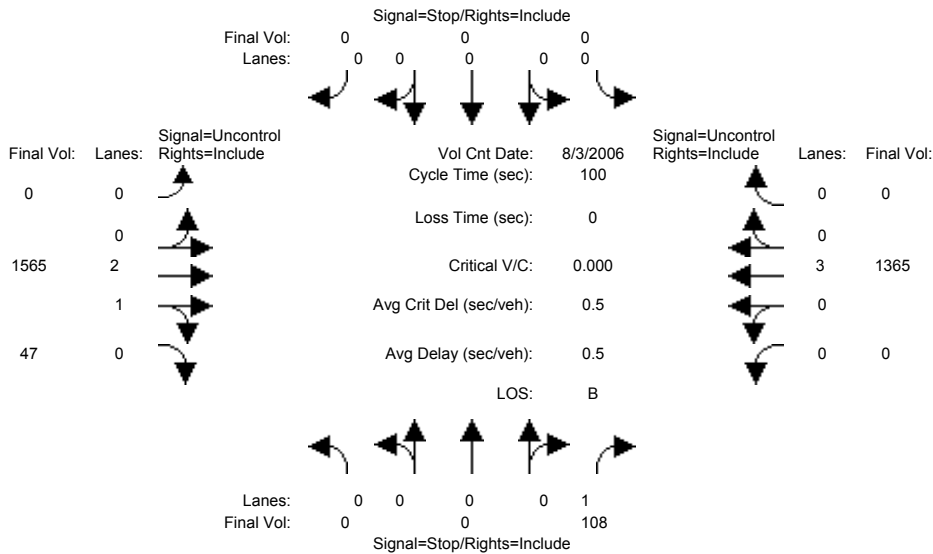
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Level Of Service Computation Report
 2000 HCM Unsignalized (Future Volume Alternative)
 Background AM

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:	>>	Count	Date:	3 Aug 2006	<<	8 AM - 9 AM						
Base Vol:	0	0	105	0	0	0	0	1519	46	0	1325	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	105	0	0	0	0	1519	46	0	1325	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth:	0	0	3	0	0	0	0	46	1	0	40	0
Initial Fut:	0	0	108	0	0	0	0	1565	47	0	1365	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	108	0	0	0	0	1565	47	0	1365	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	108	0	0	0	0	1565	47	0	1365	0

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	545	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	488	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	488	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.22	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	0.8	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	14.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	14.5			xxxxxxx			xxxxxxx		xxxxxxx			xxxxxxx
ApproachLOS:	B			*			*		*			*

Peak Hour Delay Signal Warrant Report

 Intersection #1 Woodside Road at Horgan Avenue

 Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

```

Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|-----|
Control:      Stop Sign      Stop Sign      Uncontrolled  Uncontrolled
Lanes:        0 0 0 0 1      0 0 0 0 0      0 0 2 1 0      0 0 3 0 0
Initial Vol:   0 0 108      0 0 0 0      0 1565 47      0 1365 0
ApproachDel:   14.5          xxxxxx          xxxxxx          xxxxxx
-----|-----|-----|-----|
Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=108]
    SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3085]
    SUCCEED - Total volume greater than or equal to 650 for intersection
    with less than four approaches.
    
```

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant Met

```

-----|-----|-----|-----|-----|
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:      L - T - R      L - T - R      L - T - R      L - T - R
-----|-----|-----|-----|-----|
Control:      Stop Sign      Stop Sign      Uncontrolled  Uncontrolled
Lanes:        0 0 0 0 1      0 0 0 0 0      0 0 2 1 0      0 0 3 0 0
Initial Vol:   0 0 108      0 0 0 0      0 1565 47      0 1365 0
-----|-----|-----|-----|-----|
Major Street Volume:      2977
Minor Approach Volume:    108
Minor Approach Volume Threshold: -91 [less than minimum of 100]
    
```

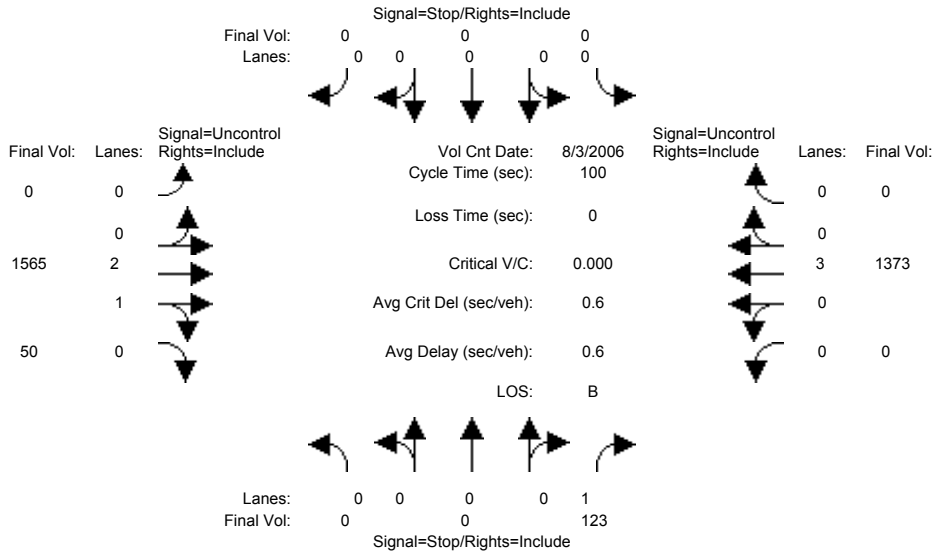
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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project AM

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with columns for Volume Module, Count, Date, and AM - 9 AM. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, Growth, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module showing Critical Gp and FollowUpTim values for various movements.

Table for Capacity Module showing Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. for different movements.

Table for Level Of Service Module showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Peak Hour Delay Signal Warrant Report

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

Movement:	L	T	R	L	T	R	L	T	R	L	T	R						
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Lanes:	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	3	0	0
Initial Vol:	0	0	123	0	0	0	0	1565	50	0	1373	0						
ApproachDel:	14.9			xxxxxxx			xxxxxxx			xxxxxxx								

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.5]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=123]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3111]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	T	R	L	T	R	L	T	R	L	T	R						
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled								
Lanes:	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	3	0	0
Initial Vol:	0	0	123	0	0	0	0	1565	50	0	1373	0						

Major Street Volume: 2988
 Minor Approach Volume: 123
 Minor Approach Volume Threshold: -92 [less than minimum of 100]

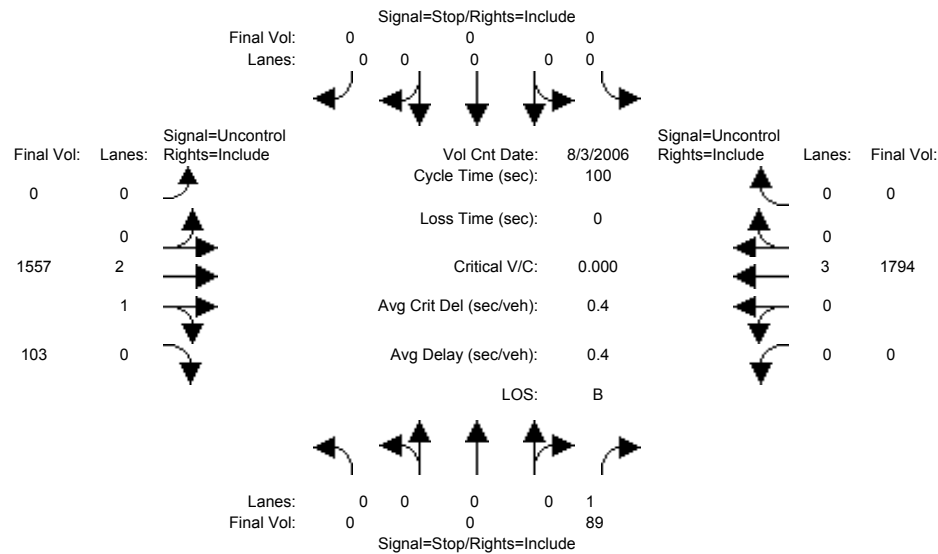
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:	>>	Count	Date:	3 Aug 2006	<<	5 pm - 6 pm						
Base Vol:	0	0	89	0	0	0	0	1557	103	0	1794	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	89	0	0	0	0	1557	103	0	1794	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	89	0	0	0	0	1557	103	0	1794	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	89	0	0	0	0	1557	103	0	1794	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	89	0	0	0	0	1557	103	0	1794	0

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	571	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	469	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	469	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	0.19	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	0.7	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	14.5	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
LOS by Move:	*	*	B	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	14.5			xxxxxxx			xxxxxxx			xxxxxxx		
ApproachLOS:	B			*			*			*		

Peak Hour Delay Signal Warrant Report

 Intersection #1 Woodside Road at Horgan Avenue

 Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
-----------	-------------	-------------	------------	------------

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 89	0 0 0	0 1557 103	0 1794 0
ApproachDel:	14.5	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=89]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3543]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 89	0 0 0	0 1557 103	0 1794 0
Major Street Volume:	3454			
Minor Approach Volume:	89			
Minor Approach Volume Threshold:	-142 [less than minimum of 100]			

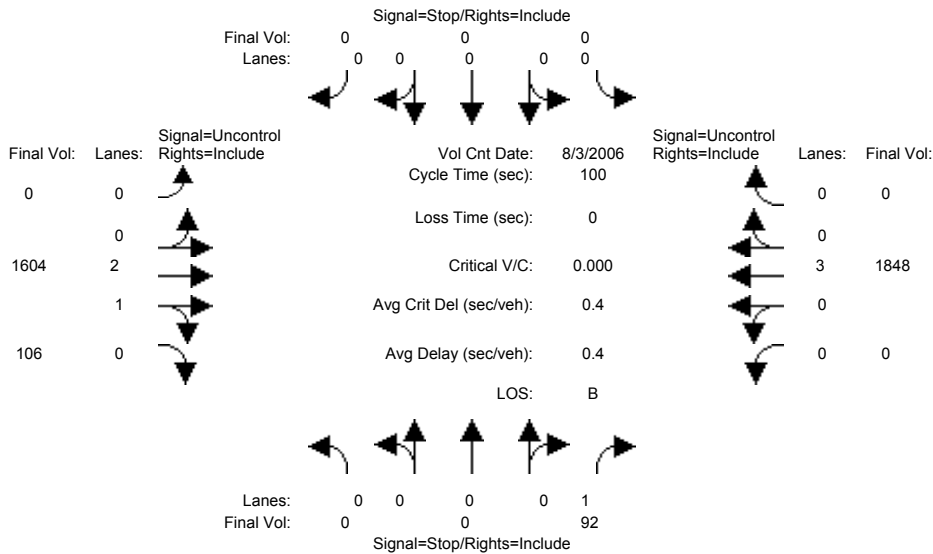
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Level Of Service Computation Report
 2000 HCM Unsignalized (Future Volume Alternative)
 Background PM

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:	>>	Count	Date:	3 Aug 2006	<<	5 PM - 6 PM					
Base Vol:	0	0	89	0	0	0	1557	103	0	1794	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	89	0	0	0	1557	103	0	1794	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0
Growth:	0	0	3	0	0	0	47	3	0	54	0
Initial Fut:	0	0	92	0	0	0	1604	106	0	1848	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	92	0	0	0	1604	106	0	1848	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	92	0	0	0	1604	106	0	1848	0

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	588	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	457	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	457	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.20	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	0.7	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	14.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	14.8			xxxxxxx			xxxxxxx		xxxxxxx			xxxxxxx
ApproachLOS:	B			*			*		*			*

Peak Hour Delay Signal Warrant Report

 Intersection #1 Woodside Road at Horgan Avenue

 Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
-----------	-------------	-------------	------------	------------

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 92	0 0 0	0 1604 106	0 1848 0
ApproachDel:	14.8	xxxxxx	xxxxxx	xxxxxx

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=92]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3650]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

 SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 92	0 0 0	0 1604 106	0 1848 0
Major Street Volume:	3558			
Minor Approach Volume:	92			
Minor Approach Volume Threshold:	-152 [less than minimum of 100]			

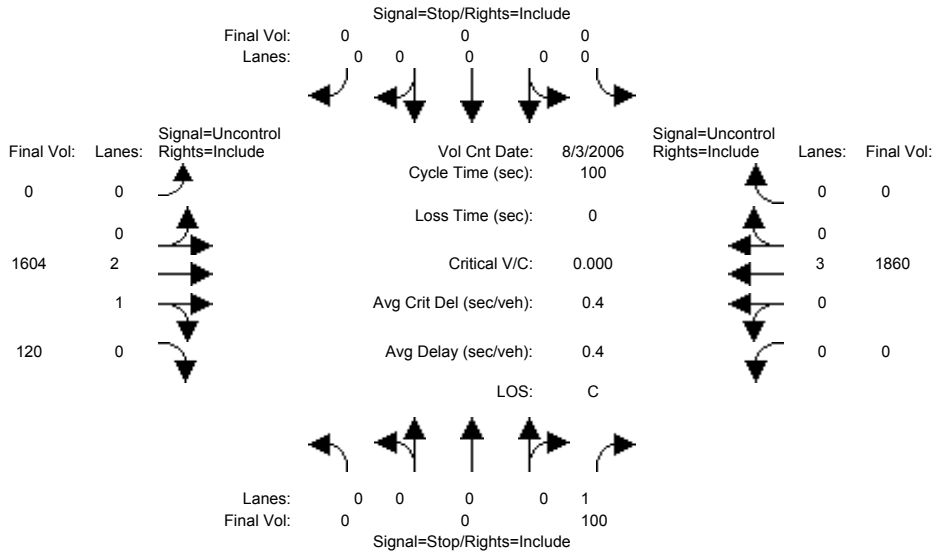
 SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project PM

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with columns for Volume Module, Count, Date, and various volume metrics (Base Vol, Growth Adj, Initial Bse, Added Vol, Growth, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.) for each approach.

Table for Critical Gap Module showing Critical Gap (6.9) and FollowUp Time (3.3) for each approach.

Table for Capacity Module showing metrics like Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. for each approach.

Table for Level Of Service Module showing 2Way95thQ (0.8), Control Del (15.2), LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel (15.2), and ApproachLOS (C).

Peak Hour Delay Signal Warrant Report

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 100	0 0 0	0 1604 120	0 1860 0
ApproachDel:	15.2	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=100]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3684]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #1 Woodside Road at Horgan Avenue

 Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 100	0 0 0	0 1604 120	0 1860 0
Major Street Volume:	3584			
Minor Approach Volume:	100			
Minor Approach Volume Threshold:	-155 [less than minimum of 100]			

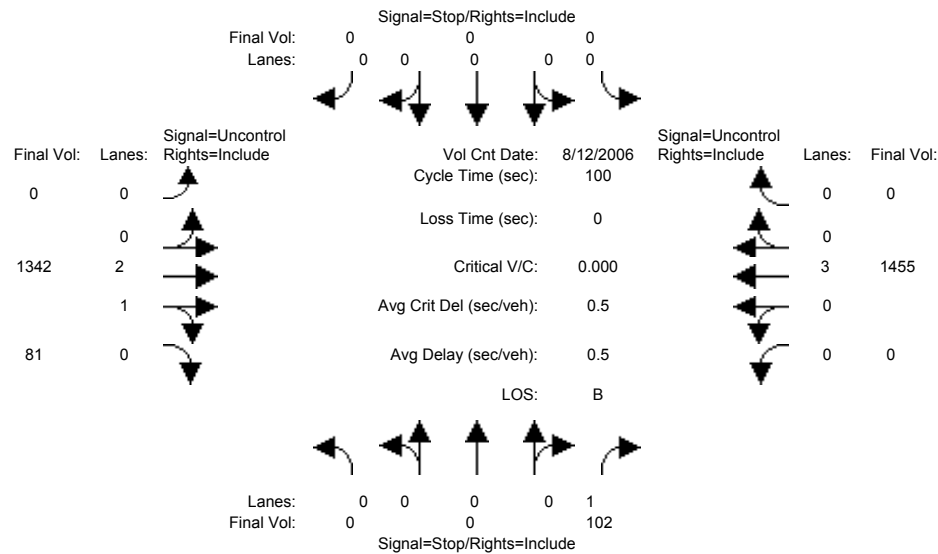
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing Saturday

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with columns for Volume Module, Count, Date, and various traffic volume metrics (Base Vol, Growth Adj, Initial Bse, etc.) for each approach.

Table for Critical Gap Module showing Critical Gap (6.9) and FollowUpTime (3.3) for each approach.

Table for Capacity Module showing Cnflct Vol (488), Potent Cap. (531), Move Cap. (531), and Volume/Cap (0.19) for each approach.

Table for Level Of Service Module showing 2Way95thQ (0.7), Control Del (13.4), LOS by Move (* * B * * *), and ApproachDel (13.4).

Peak Hour Delay Signal Warrant Report

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 102	0 0 0	0 1342 81	0 1455 0
ApproachDel:	13.4	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=102]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2980]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #1 Woodside Road at Horgan Avenue

 Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 102	0 0 0	0 1342 81	0 1455 0
Major Street Volume:	2878			
Minor Approach Volume:	102			
Minor Approach Volume Threshold:	-79 [less than minimum of 100]			

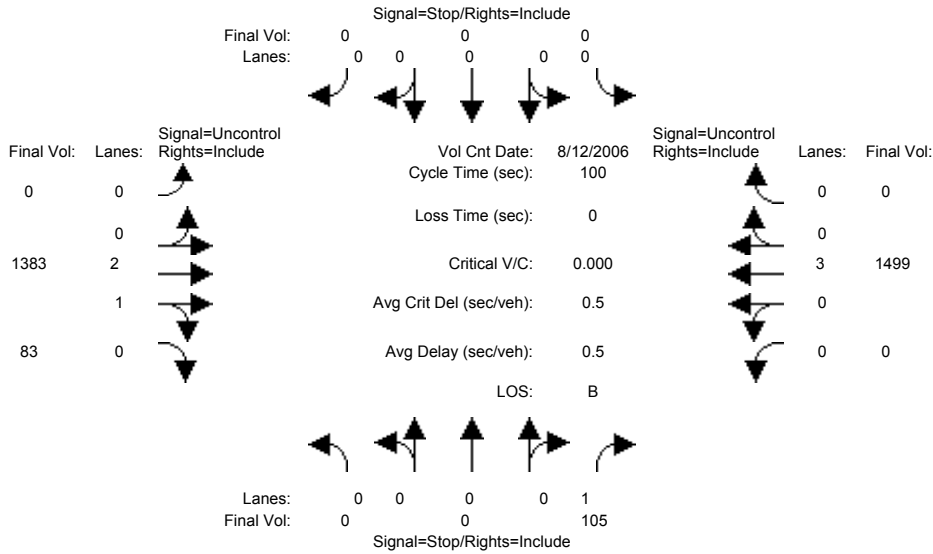
SIGNAL WARRANT DISCLAIMER

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The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background Saturday

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with columns for Volume Module, Count, Date, and various volume metrics (Base Vol, Growth Adj, Initial Bse, Added Vol, Growth, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.) for each approach and movement.

Table for Critical Gap Module showing Critical Gp and FollowUpTim values for different movements.

Table for Capacity Module showing Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. for each approach and movement.

Table for Level Of Service Module showing 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd ConDel, Shared LOS, ApproachDel, and ApproachLOS.

Peak Hour Delay Signal Warrant Report

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 105	0 0 0	0 1383 83	0 1499 0
ApproachDel:	13.7	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.4]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=105]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3070]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #1 Woodside Road at Horgan Avenue

 Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 105	0 0 0	0 1383 83	0 1499 0

Major Street Volume: 2965
 Minor Approach Volume: 105
 Minor Approach Volume Threshold: -90 [less than minimum of 100]

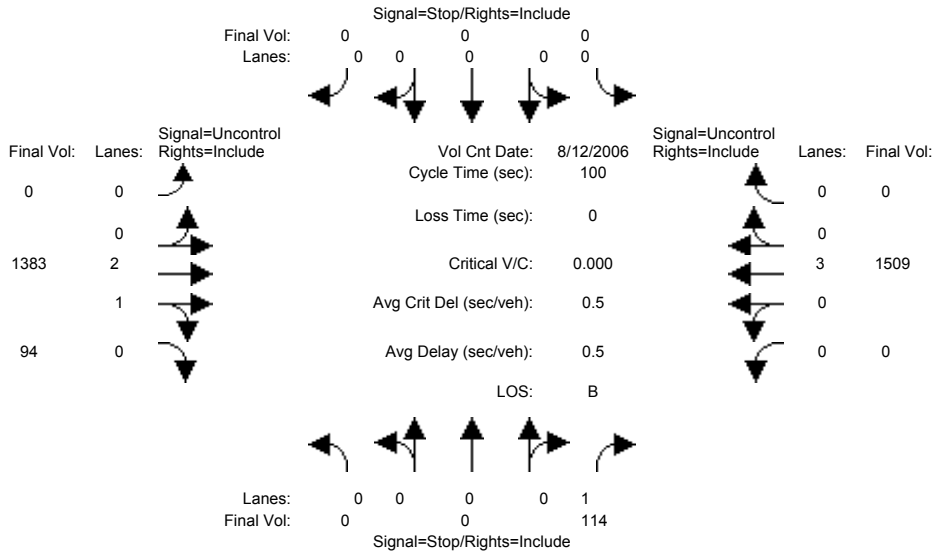
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Project Saturday

Intersection #1: Woodside Road at Horgan Avenue



Street Name: Horgan Avenue Woodside Road
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Table with columns for Volume Module, Count, Date, and various volume metrics (Base Vol, Growth Adj, Initial Bse, Added Vol, Growth, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.) for each approach.

Table for Critical Gap Module showing Critical Gap (6.9) and FollowUp Time (3.3) for each approach.

Table for Capacity Module showing metrics like Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. for each approach.

Table for Level Of Service Module showing 2Way95thQ (0.8), Control Del (14.0), LOS by Move (* * B * * * * * * * * * *), and ApproachDel (14.0).

Peak Hour Delay Signal Warrant Report

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 114	0 0 0	0 1383 94	0 1509 0
ApproachDel:	14.0	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=114]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3100]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 Woodside Road at Horgan Avenue

Future Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 1	0 0 0 0 0	0 0 2 1 0	0 0 3 0 0
Initial Vol:	0 0 114	0 0 0	0 1383 94	0 1509 0

Major Street Volume: 2986
Minor Approach Volume: 114
Minor Approach Volume Threshold: -92 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Appendix E

Vehicle Queuing Analysis

Intersection: Woodside Road and Horgan Avenue
Peak Hour: 8 AM - 9 AM Background

Volume (vph) 105
 Cycle Length/Ave Delay* (sec) 89
 # Lanes/Movement (lanes) 1

95th Percentile Queues (veh)=	5
90th Percentile Queues (veh)=	5
Average Queue (veh)=	2.596

* Use Cycle Length for Signalized Intersections and Average Delay for Unsignalized Intersections.

Number of Queued Vehicles	Individual Probability	Cumulative Probability	Queue Length Per Lane	
			@25 ft/vehicle	@20 ft/vehicle
0	0.0746	0.0746	0	0
1	0.1936	0.2682	25	20
2	0.2513	0.5195	50	40
3	0.2174	0.7369	75	60
4	0.1411	0.8780	100	80
5	0.0733	0.9513	125	100
6	0.0317	0.9830	150	120
7	0.0118	0.9947	175	140
8	0.0038	0.9985	200	160
9	0.0011	0.9996	225	180
10	0.0003	0.9999	250	200
11	0.0001	1.0000	275	220
12	0.0000	1.0000	300	240
13	0.0000	1.0000	325	260
14	0.0000	1.0000	350	280
15	0.0000	1.0000	375	300
16	0.0000	1.0000	400	320
17	0.0000	1.0000	425	340
18	0.0000	1.0000	450	360
19	0.0000	1.0000	475	380
20	0.0000	1.0000	500	400
21	0.0000	1.0000	525	420
22	0.0000	1.0000	550	440
23	0.0000	1.0000	575	460
24	0.0000	1.0000	600	480
25	0.0000	1.0000	625	500
26	0.0000	1.0000	650	520
27	0.0000	1.0000	675	540
28	0.0000	1.0000	700	560
29	0.0000	1.0000	725	580
30	0.0000	1.0000	750	600
31	0.0000	1.0000	775	620
32	0.0000	1.0000	800	640
33	0.0000	1.0000	825	660
34	0.0000	1.0000	850	680
35	0.0000	1.0000	875	700
36	0.0000	1.0000	900	720
37	0.0000	1.0000	925	740
38	0.0000	1.0000	950	760
39	0.0000	1.0000	975	780
40	0.0000	1.0000	1000	800
41	0.0000	1.0000	1025	820
42	0.0000	1.0000	1050	840
43	0.0000	1.0000	1075	860
44	0.0000	1.0000	1100	880
45	0.0000	1.0000	1125	900
46	0.0000	1.0000	1150	920
47	0.0000	1.0000	1175	940
48	0.0000	1.0000	1200	960
49	0.0000	1.0000	1225	980
50	0.0000	1.0000	1250	1000

Intersection: Woodside Road and Horgan Avenue
Peak Hour: 8 AM - 9 AM Project

Volume (vph) 123
 Cycle Length/Ave Delay* (sec) 89
 # Lanes/Movement (lanes) 1

95th Percentile Queues (veh)=	6
90th Percentile Queues (veh)=	5
Average Queue (veh)=	3.041

* Use Cycle Length for Signalized Intersections and Average Delay for Unsignalized Intersections.

Number of Queued Vehicles	Individual Probability	Cumulative Probability	Queue Length Per Lane	
			@25 ft/vehicle	@20 ft/vehicle
0	0.0478	0.0478	0	0
1	0.1453	0.1931	25	20
2	0.2210	0.4141	50	40
3	0.2240	0.6381	75	60
4	0.1703	0.8084	100	80
5	0.1036	0.9119	125	100
6	0.0525	0.9644	150	120
7	0.0228	0.9872	175	140
8	0.0087	0.9959	200	160
9	0.0029	0.9988	225	180
10	0.0009	0.9997	250	200
11	0.0002	0.9999	275	220
12	0.0001	1.0000	300	240
13	0.0000	1.0000	325	260
14	0.0000	1.0000	350	280
15	0.0000	1.0000	375	300
16	0.0000	1.0000	400	320
17	0.0000	1.0000	425	340
18	0.0000	1.0000	450	360
19	0.0000	1.0000	475	380
20	0.0000	1.0000	500	400
21	0.0000	1.0000	525	420
22	0.0000	1.0000	550	440
23	0.0000	1.0000	575	460
24	0.0000	1.0000	600	480
25	0.0000	1.0000	625	500
26	0.0000	1.0000	650	520
27	0.0000	1.0000	675	540
28	0.0000	1.0000	700	560
29	0.0000	1.0000	725	580
30	0.0000	1.0000	750	600
31	0.0000	1.0000	775	620
32	0.0000	1.0000	800	640
33	0.0000	1.0000	825	660
34	0.0000	1.0000	850	680
35	0.0000	1.0000	875	700
36	0.0000	1.0000	900	720
37	0.0000	1.0000	925	740
38	0.0000	1.0000	950	760
39	0.0000	1.0000	975	780
40	0.0000	1.0000	1000	800
41	0.0000	1.0000	1025	820
42	0.0000	1.0000	1050	840
43	0.0000	1.0000	1075	860
44	0.0000	1.0000	1100	880
45	0.0000	1.0000	1125	900
46	0.0000	1.0000	1150	920
47	0.0000	1.0000	1175	940
48	0.0000	1.0000	1200	960
49	0.0000	1.0000	1225	980
50	0.0000	1.0000	1250	1000

Intersection: Woodside Road and Horgan Avenue
Peak Hour: 5 PM - 6 PM Background

Volume (vph) 89
 Cycle Length/Ave Delay* (sec) 106
 # Lanes/Movement (lanes) 1

95th Percentile Queues (veh)=	6
90th Percentile Queues (veh)=	5
Average Queue (veh)=	2.621

* Use Cycle Length for Signalized Intersections and Average Delay for Unsignalized Intersections.

Number of Queued Vehicles	Individual Probability	Cumulative Probability	Queue Length Per Lane	
			@25 ft/vehicle	@20 ft/vehicle
0	0.0728	0.0728	0	0
1	0.1907	0.2634	25	20
2	0.2498	0.5133	50	40
3	0.2182	0.7315	75	60
4	0.1430	0.8745	100	80
5	0.0749	0.9494	125	100
6	0.0327	0.9822	150	120
7	0.0123	0.9944	175	140
8	0.0040	0.9984	200	160
9	0.0012	0.9996	225	180
10	0.0003	0.9999	250	200
11	0.0001	1.0000	275	220
12	0.0000	1.0000	300	240
13	0.0000	1.0000	325	260
14	0.0000	1.0000	350	280
15	0.0000	1.0000	375	300
16	0.0000	1.0000	400	320
17	0.0000	1.0000	425	340
18	0.0000	1.0000	450	360
19	0.0000	1.0000	475	380
20	0.0000	1.0000	500	400
21	0.0000	1.0000	525	420
22	0.0000	1.0000	550	440
23	0.0000	1.0000	575	460
24	0.0000	1.0000	600	480
25	0.0000	1.0000	625	500
26	0.0000	1.0000	650	520
27	0.0000	1.0000	675	540
28	0.0000	1.0000	700	560
29	0.0000	1.0000	725	580
30	0.0000	1.0000	750	600
31	0.0000	1.0000	775	620
32	0.0000	1.0000	800	640
33	0.0000	1.0000	825	660
34	0.0000	1.0000	850	680
35	0.0000	1.0000	875	700
36	0.0000	1.0000	900	720
37	0.0000	1.0000	925	740
38	0.0000	1.0000	950	760
39	0.0000	1.0000	975	780
40	0.0000	1.0000	1000	800
41	0.0000	1.0000	1025	820
42	0.0000	1.0000	1050	840
43	0.0000	1.0000	1075	860
44	0.0000	1.0000	1100	880
45	0.0000	1.0000	1125	900
46	0.0000	1.0000	1150	920
47	0.0000	1.0000	1175	940
48	0.0000	1.0000	1200	960
49	0.0000	1.0000	1225	980
50	0.0000	1.0000	1250	1000

Intersection: Woodside Road and Horgan Avenue
Peak Hour: 5 PM - 6 PM Project

Volume (vph) 100
 Cycle Length/Ave Delay* (sec) 106
 # Lanes/Movement (lanes) 1

95th Percentile Queues (veh)=	6
90th Percentile Queues (veh)=	5
Average Queue (veh)=	2.944

* Use Cycle Length for Signalized Intersections and Average Delay for Unsignalized Intersections.

Number of Queued Vehicles	Individual Probability	Cumulative Probability	Queue Length Per Lane	
			@25 ft/vehicle	@20 ft/vehicle
0	0.0526	0.0526	0	0
1	0.1550	0.2076	25	20
2	0.2282	0.4358	50	40
3	0.2239	0.6597	75	60
4	0.1648	0.8245	100	80
5	0.0971	0.9216	125	100
6	0.0476	0.9692	150	120
7	0.0200	0.9893	175	140
8	0.0074	0.9966	200	160
9	0.0024	0.9990	225	180
10	0.0007	0.9997	250	200
11	0.0002	0.9999	275	220
12	0.0000	1.0000	300	240
13	0.0000	1.0000	325	260
14	0.0000	1.0000	350	280
15	0.0000	1.0000	375	300
16	0.0000	1.0000	400	320
17	0.0000	1.0000	425	340
18	0.0000	1.0000	450	360
19	0.0000	1.0000	475	380
20	0.0000	1.0000	500	400
21	0.0000	1.0000	525	420
22	0.0000	1.0000	550	440
23	0.0000	1.0000	575	460
24	0.0000	1.0000	600	480
25	0.0000	1.0000	625	500
26	0.0000	1.0000	650	520
27	0.0000	1.0000	675	540
28	0.0000	1.0000	700	560
29	0.0000	1.0000	725	580
30	0.0000	1.0000	750	600
31	0.0000	1.0000	775	620
32	0.0000	1.0000	800	640
33	0.0000	1.0000	825	660
34	0.0000	1.0000	850	680
35	0.0000	1.0000	875	700
36	0.0000	1.0000	900	720
37	0.0000	1.0000	925	740
38	0.0000	1.0000	950	760
39	0.0000	1.0000	975	780
40	0.0000	1.0000	1000	800
41	0.0000	1.0000	1025	820
42	0.0000	1.0000	1050	840
43	0.0000	1.0000	1075	860
44	0.0000	1.0000	1100	880
45	0.0000	1.0000	1125	900
46	0.0000	1.0000	1150	920
47	0.0000	1.0000	1175	940
48	0.0000	1.0000	1200	960
49	0.0000	1.0000	1225	980
50	0.0000	1.0000	1250	1000

Intersection: Woodside Road and Horgan Avenue
Peak Hour: 12 PM - 1 PM Background

Volume (vph) 102
 Cycle Length/Ave Delay* (sec) 141
 # Lanes/Movement (lanes) 1

95th Percentile Queues (veh)=

8

 90th Percentile Queues (veh)=

7

 Average Queue (veh)=

3.995

* Use Cycle Length for Signalized Intersections and Average Delay for Unsignalized Intersections.

Number of Queued Vehicles	Individual Probability	Cumulative Probability	Queue Length Per Lane	
			@25 ft/vehicle	@20 ft/vehicle
0	0.0184	0.0184	0	0
1	0.0735	0.0919	25	20
2	0.1469	0.2388	50	40
3	0.1956	0.4344	75	60
4	0.1954	0.6298	100	80
5	0.1561	0.7859	125	100
6	0.1039	0.8898	150	120
7	0.0593	0.9492	175	140
8	0.0296	0.9788	200	160
9	0.0131	0.9919	225	180
10	0.0053	0.9972	250	200
11	0.0019	0.9991	275	220
12	0.0006	0.9997	300	240
13	0.0002	0.9999	325	260
14	0.0001	1.0000	350	280
15	0.0000	1.0000	375	300
16	0.0000	1.0000	400	320
17	0.0000	1.0000	425	340
18	0.0000	1.0000	450	360
19	0.0000	1.0000	475	380
20	0.0000	1.0000	500	400
21	0.0000	1.0000	525	420
22	0.0000	1.0000	550	440
23	0.0000	1.0000	575	460
24	0.0000	1.0000	600	480
25	0.0000	1.0000	625	500
26	0.0000	1.0000	650	520
27	0.0000	1.0000	675	540
28	0.0000	1.0000	700	560
29	0.0000	1.0000	725	580
30	0.0000	1.0000	750	600
31	0.0000	1.0000	775	620
32	0.0000	1.0000	800	640
33	0.0000	1.0000	825	660
34	0.0000	1.0000	850	680
35	0.0000	1.0000	875	700
36	0.0000	1.0000	900	720
37	0.0000	1.0000	925	740
38	0.0000	1.0000	950	760
39	0.0000	1.0000	975	780
40	0.0000	1.0000	1000	800
41	0.0000	1.0000	1025	820
42	0.0000	1.0000	1050	840
43	0.0000	1.0000	1075	860
44	0.0000	1.0000	1100	880
45	0.0000	1.0000	1125	900
46	0.0000	1.0000	1150	920
47	0.0000	1.0000	1175	940
48	0.0000	1.0000	1200	960
49	0.0000	1.0000	1225	980
50	0.0000	1.0000	1250	1000

Intersection: Woodside Road and Horgan Avenue
Peak Hour: 12 PM - 1 PM Project

Volume (vph) 114
 Cycle Length/Ave Delay* (sec) 141
 # Lanes/Movement (lanes) 1

95th Percentile Queues (veh)=

8

 90th Percentile Queues (veh)=

7

 Average Queue (veh)=

4.465

* Use Cycle Length for Signalized Intersections and Average Delay for Unsignalized Intersections.

Number of Queued Vehicles	Individual Probability	Cumulative Probability	Queue Length Per Lane	
			@25 ft/vehicle	@20 ft/vehicle
0	0.0115	0.0115	0	0
1	0.0514	0.0629	25	20
2	0.1147	0.1776	50	40
3	0.1707	0.3482	75	60
4	0.1905	0.5388	100	80
5	0.1701	0.7089	125	100
6	0.1266	0.8355	150	120
7	0.0808	0.9163	175	140
8	0.0451	0.9613	200	160
9	0.0224	0.9837	225	180
10	0.0100	0.9937	250	200
11	0.0041	0.9977	275	220
12	0.0015	0.9992	300	240
13	0.0005	0.9998	325	260
14	0.0002	0.9999	350	280
15	0.0000	1.0000	375	300
16	0.0000	1.0000	400	320
17	0.0000	1.0000	425	340
18	0.0000	1.0000	450	360
19	0.0000	1.0000	475	380
20	0.0000	1.0000	500	400
21	0.0000	1.0000	525	420
22	0.0000	1.0000	550	440
23	0.0000	1.0000	575	460
24	0.0000	1.0000	600	480
25	0.0000	1.0000	625	500
26	0.0000	1.0000	650	520
27	0.0000	1.0000	675	540
28	0.0000	1.0000	700	560
29	0.0000	1.0000	725	580
30	0.0000	1.0000	750	600
31	0.0000	1.0000	775	620
32	0.0000	1.0000	800	640
33	0.0000	1.0000	825	660
34	0.0000	1.0000	850	680
35	0.0000	1.0000	875	700
36	0.0000	1.0000	900	720
37	0.0000	1.0000	925	740
38	0.0000	1.0000	950	760
39	0.0000	1.0000	975	780
40	0.0000	1.0000	1000	800
41	0.0000	1.0000	1025	820
42	0.0000	1.0000	1050	840
43	0.0000	1.0000	1075	860
44	0.0000	1.0000	1100	880
45	0.0000	1.0000	1125	900
46	0.0000	1.0000	1150	920
47	0.0000	1.0000	1175	940
48	0.0000	1.0000	1200	960
49	0.0000	1.0000	1225	980
50	0.0000	1.0000	1250	1000