



**MEMORANDUM**

To: Zach Wilson, Sares Regis

From: Gary Black  
Sandi Domingue

Date: May 3, 2007

Subject: Chess Drive Office Development Traffic Feasibility Study

This memorandum reports the results of Hexagon's traffic feasibility study for the proposed office development located on the southeast quadrant of the intersection of Foster City Boulevard and Chess Drive in Foster City, California (see Figure 1). The project as proposed would consist of replacing approximately 189,787 square-feet (s.f.) of existing office and manufacturing space with up to 767,810 s.f. of office space (based on an FAR of 1.5). The study focuses on the evaluation of existing, project and cumulative traffic conditions (as represented by intersection level of service (LOS) and freeway segment analysis) in the vicinity of the site.

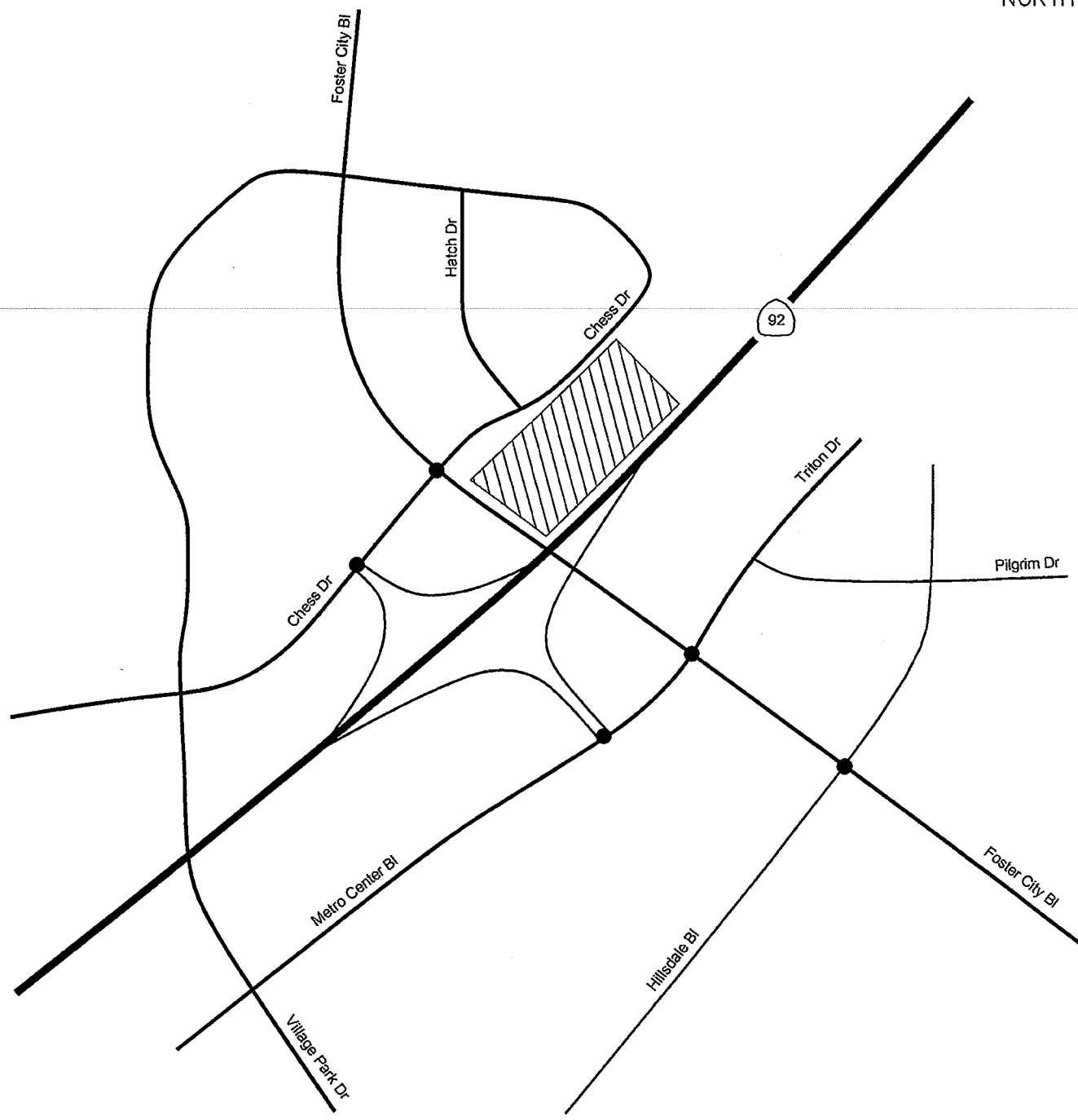
A CMP freeway analysis, in accordance with San Mateo County requirements, was conducted since the project is expected to generate more than 100 peak hour trips. Five freeway segments in the vicinity of the project site were analyzed. These segments are as follows:

- SR 92, US 101 to Mariners Island Boulevard
- SR 92, Mariners Island Boulevard to Foster City Boulevard
- SR 92, East of Foster City Boulevard
- US 101, SR 92 to Hillsdale Boulevard
- US 101, SR 92 to 3<sup>rd</sup>/4<sup>th</sup> Avenue

Traffic conditions at signalized intersections were analyzed using the City of Foster City-recommended *Circular 212 Planning* method for the following intersections:

- Chess Drive and Foster City Boulevard
- Chess Drive and SR 92
- E. Hillsdale Boulevard and Foster City Boulevard
- Metro Center Boulevard and SR 92
- Metro Center Boulevard and Foster City Boulevard

All of the intersections are signalized. The Circular 212 Planning method bases LOS on the volume-to-capacity (V/C) ratio at the intersection. The correspondence between V/C and LOS is shown in Table 1.



**LEGEND**



-  = Site Location
-  = Study Intersection

Figure 1

**SITE LOCATION AND STUDY INTERSECTIONS**

Chess Drive

 Hexagon  
 Transportation Consultants, Inc.

**Table 1**  
**Signalized Intersection Level of Service Based on V/C Ratio**

Level of Service	Flow	Delay	V/C Ratio
A	Stable	None or Very Slight	0.00 - 0.60
B	Stable	Slight	0.61 - 0.70
C	Stable	Acceptable	0.71 - 0.80
D	Approaching Unstable	Tolerable	0.81 - 0.90
E	Unstable	Intolerable	0.91 - 1.00
F	Forced	Extreme	> 1.00

**Existing Traffic Conditions**

Existing AM and PM peak-hour traffic counts were obtained from the Triton Drive traffic study completed by Hexagon for Sares Regis in November of 2006. Intersection levels of service were calculated based on the traffic counts. The LOS results are summarized in Table 2. The results show that all of the study intersections currently operate at LOS B or better during both peak hours. The city's level of service standard is LOS D or better. Thus, existing traffic conditions are satisfactory at the five study intersections.

**Table 2**  
**Existing Intersection Levels of Service**

Intersection	Peak Hour	Count Date	V/C	LOS
Chess Drive and Foster City Blvd	AM	10/10/2006	0.49	A
	PM	10/10/2006	0.58	A
Chess Drive and SR 92 Ramps	AM	10/10/2006	0.42	A
	PM	10/10/2006	0.67	B
E. Hillsdale Blvd and Foster City Blvd	AM	10/11/2006	0.51	A
	PM	10/11/2006	0.51	A
Metro Center Blvd and SR 92 Ramps	AM	10/12/2006	0.45	A
	PM	10/10/2006	0.50	A
Metro Center Blvd and Foster City Blvd	AM	10/12/2006	0.59	A
	PM	10/10/2006	0.59	A

**Project Description**

The project proposes to replace approximately 189,787 square-feet (s.f.) of existing office and light industrial space with up to 767,810 s.f. of office space, based on 11.751 acres at a 1.5 FAR.

*Existing Uses On Site*

The Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, Seventh Edition, 2003, was used to estimate trip generation. The applicable category for the existing uses on the project site is the broad ITE category *research and development* (land use code 760).

*Proposed Uses On Site*

The proposed development would consist of office space which was represented by the ITE *general office* category (land use code 710).

**Project Traffic Conditions**

This scenario represents existing volumes plus net project trips on the existing roadway system within the study area. Net project trips are estimated by calculating the project trips by all proposed uses on site and subtracting out the trips that are currently being generated by the existing uses on site (see Table 3).

**Table 3  
 Project Trip Generation Estimates**

Land Use	Size		AM Peak Hour			PM Peak Hour				
			Rate	In	Out	Total	Rate	In	Out	Total
<b>Proposed Use:</b>										
General Office <sup>1</sup>	767,810	s.f.	1.55	1,047	143	1,190	1.49	194	950	1,144
				<u>1,047</u>	<u>143</u>	<u>1,190</u>		<u>194</u>	<u>950</u>	<u>1,144</u>
<b>Existing Use:</b>										
Office + Light Industrial <sup>2</sup>	189,787	s.f.	1.24	195	40	235	1.08	31	174	205
<b>NET NEW TRIPS:</b>				<b>852</b>	<b>103</b>	<b>955</b>		<b>164</b>	<b>775</b>	<b>939</b>

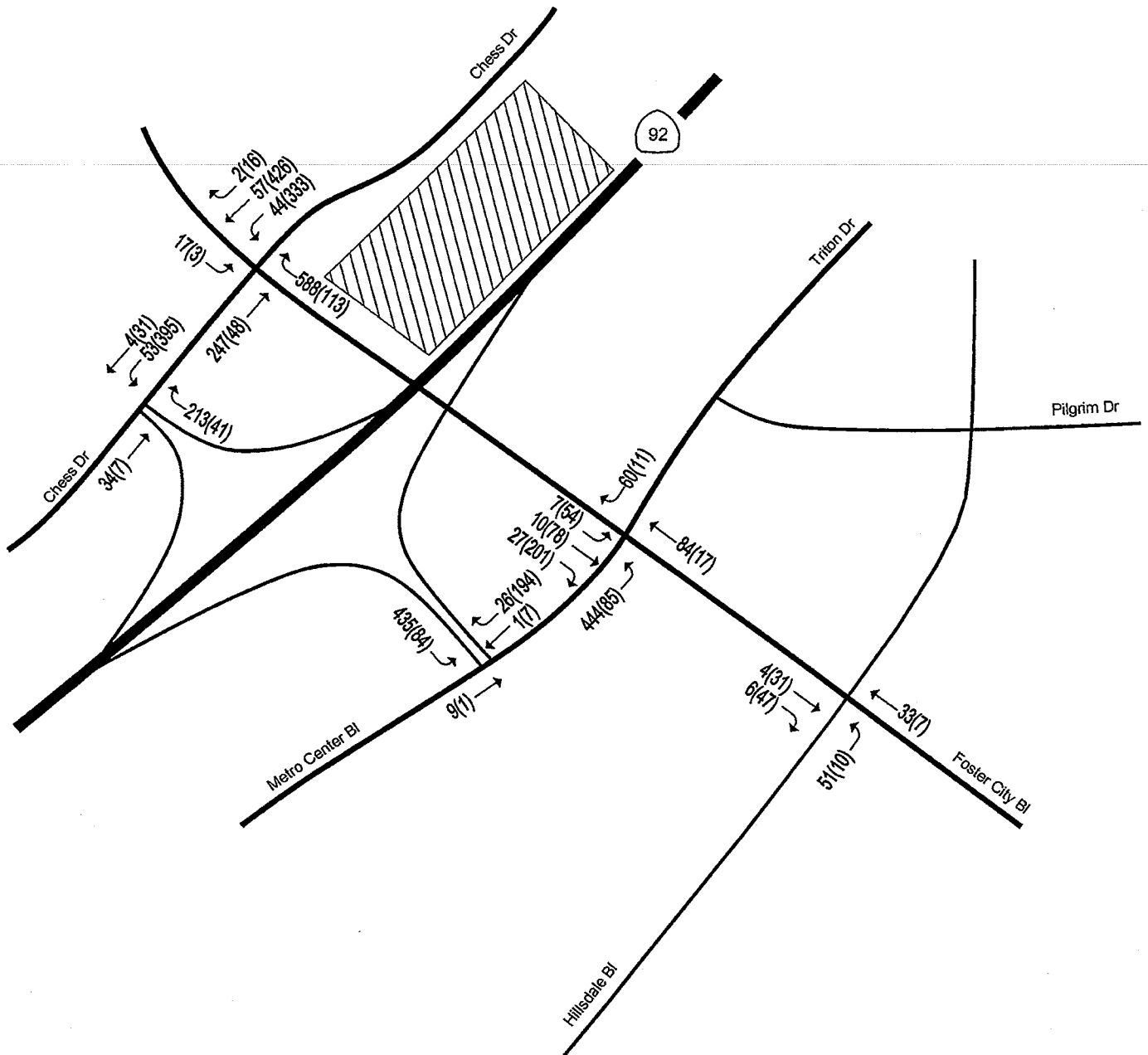
Note 1: Numbers may not add due to rounding  
<sup>1</sup> Source: General Office Building (710) ITE Trip Generation, Seventh Edition, 2003.  
<sup>2</sup> Source: Research and Development Center (760) ITE Trip Generation, Seventh Edition, 2003. Research and Development was used as a conservative general category for existing uses on the project site.

Note that the existing site (1) was given credit for the trips generated by the existing uses, and (2) credit was estimated using the standard trip generation, distribution, and assignment procedure that is used for developments that don't yet exist and whose traffic therefore cannot be measured. Although the existing site consists of occupied buildings, it would be difficult to conduct traffic counts of an area the size and complexity of this site. With a multitude of driveways and streets serving uses located both on and off the site, it would be virtually impossible to separate which trips are tied to the site, and which ones are not.

The trip generation estimates, shown in Table 3, indicate that the proposed uses would clearly generate a greater number of peak-hour trips than the existing uses on site. The proposed use would generate about 1,190 AM peak-hour trips and 1,144 PM peak-hour trips. This compares to the 235 and 205 trips generated by the existing uses on the project site in the AM and PM peak hours, respectively. See Figure 2 for the project trip assignment.

*Project Intersection Levels of Service*

Intersection levels of service were calculated for the five study intersections using the AM and PM peak-hour project traffic volumes. The results of the analysis are summarized in Table 5. The



**LEGEND**

 = Site Location

XX(YY) = AM(PM) Peak Hour Traffic Volumes

Figure 2

**PROJECT TRIP ASSIGNMENT**

Chess Drive

results show that all of the study intersections would operate at LOS D or better during both peak hours.

**Table 5**  
**Project Intersection Level of Service**

Intersection	Peak Hour	Existing		Project	
		V/C	LOS	V/C	LOS
Chess Drive and Foster City Blvd	AM	0.49	A	0.75	C
	PM	0.58	A	0.86	D
Chess Drive and SR 92 Ramps	AM	0.42	A	0.46	A
	PM	0.67	B	0.79	C
E. Hillsdale Blvd and Foster City Blvd	AM	0.51	A	0.55	A
	PM	0.51	A	0.52	A
Metro Center Blvd and SR 92 Ramps	AM	0.45	A	0.57	A
	PM	0.50	A	0.53	A
Metro Center Blvd and Foster City Blvd	AM	0.59	A	0.77	C
	PM	0.59	A	0.63	B

*Project Freeway Segment Levels of Service*

The CMP defines an acceptable level of service for freeway segments as LOS E or better. Freeway segment levels of service were obtained from the San Mateo County 2005 CMP Monitoring Report. The existing LOS on the SR 92 freeway segments is A/B. The project would not have a significant impact on the SR 92 segments under any of the three possible FAR scenarios (1.0, 1.25 and 1.5). According to the Monitoring Report, US 101 is operating at LOS F. The project would add 145 AM peak hour trips (inbound) and 132 PM peak hour trips (outbound) to US 101 in each direction north and south of SR 92 in the 1.5 FAR scenario. Therefore, both of the US 101 directional freeway segments analyzed would be significantly impacted by the project (based on a 1.5 FAR), according to county CMP level of service standards for freeways. If the proposed project were built based on a 1.0 FAR, the project volumes assigned to the freeway study segments would be just below the threshold of causing a significant impact. If the square footage of the proposed project were based on a 1.25 FAR, the project would significantly impact both of the US 101 freeway study segments.

**Cumulative Traffic Conditions**

This scenario represents project volumes plus net project trips from the traffic feasibility study for the Triton Drive Mixed-Use development centered at the intersection of Triton Drive and Pilgrim Drive in Foster City. Net project trips for the Triton Drive project were estimated by calculating the project trips by all proposed uses on the Triton Drive site and subtracting out the trips that are currently being generated by the existing uses on site. This scenario was included in the study due to the close proximity of the Triton Drive project to the Chess Drive project.

*Cumulative Intersection Levels of Service*

Intersection levels of service were calculated for the five study intersections using the AM and PM peak-hour cumulative traffic volumes. The results of the analysis are summarized in Table 6. The results show that all of the study intersections would operate at LOS D or better during both peak hours under cumulative conditions. However, the intersection of Chess Drive and Foster City Boulevard would be right at the threshold of LOS E. Therefore, no additional development could be accommodated in the area unless improvements were made to the Chess Drive and Foster City Boulevard intersection.

**Table 6**  
**Cumulative Intersection Level of Service**

Intersection	Peak Hour	Cumulative	
		V/C	LOS
Chess Drive and Foster City Blvd	AM	0.75	C
	PM	0.90	D
Chess Drive and SR 92 Ramps	AM	0.52	A
	PM	0.84	D
E. Hillsdale Blvd and Foster City Blvd	AM	0.55	A
	PM	0.52	A
Metro Center Blvd and SR 92 Ramps	AM	0.62	B
	PM	0.58	A
Metro Center Blvd and Foster City Blvd	AM	0.86	D
	PM	0.83	D

**Conclusions**

- All of the study intersections currently operate at LOS B or better during both peak hours.
- The existing use on site has the trip-generating capacity of 235 AM peak-hour trips and 205 PM peak-hour trips.
- The proposed use on site has the trip-generating capacity of 1,190 AM peak-hour trips and 1,144 PM peak-hour trips.
- All of the study intersections would operate at LOS D or better during both peak hours under conditions with the project added to existing conditions.
- The proposed project would not have a significant impact on the freeway study segments under the 1.0 FAR scenario. Under both the 1.25 and 1.5 FAR scenarios, the project would have a significant impact on each of the two US 101 freeway study segments.
- All of the study intersections would operate at LOS D or better during both peak hours under conditions with the Triton Drive Mixed-Use project added to project conditions. However, the intersection of Chess Drive and Foster City Boulevard would be at the limit and could not accommodate any additional development without improvements.