Final Report

# TRANSPORTATION IMPACT ANALYSIS
# for the
# PROPOSED OFFICE BUILDING AT 425 VALLEY DRIVE
# (Brisbane, California)

Prepared for:
**425 Valley Drive Associates LLC**

H1169

Prepared by:
**Fehr & Peers Associates, Inc.**

**August 14, 2000**



## EXECUTIVE SUMMARY

This report presents the results of the transportation impact analysis (TIA) conducted for the proposed conversion of a portion of warehouse space to research and development (R&D) office space at 425 Valley Drive in Brisbane, California. The existing site consists of a 320,000-square foot warehouse building and is located on the south side of Valley Drive west of North Hill Drive. The proposed project entails converting 200,000 square feet (s.f.) of warehouse space to 187,500 s.f. of R&D office space, while the remaining 120,000 s.f. of warehouse space will remain in operation. The purpose of the analysis is to identify the likely transportation impacts of the proposed development on the surrounding roadway system and to identify improvements to mitigate significant impacts.

Project impacts were estimated following the guidelines of the City of Brisbane and the San Mateo City/County Association of Governments (C/CAG), the Congestion Management Agency (CMA) for jurisdictions in San Mateo County. The operations of six key intersections were evaluated during the morning (AM) and evening (PM) peak hours under Existing, Background, Project, and Cumulative Conditions. Since the project is estimated to generate more than 100 net new peak-hour trips, a Congestion Management Program (CMP) analysis is required.

### Project Trips

The amount of traffic generated by the proposed development was estimated by applying trip appropriate trip rates for standard office and warehouse uses published in *Trip Generation* (Sixth Edition, Institute of Transportation Engineers). Although the proposed new building is expected to be occupied by a an R&D (i.e., Silicon Valley-type) tenant, trip rates for standard office were used to conservatively estimate project-generated traffic. Trips generated by the existing warehouse were subtracted from the number of trips estimated for the proposed office space. The proposed project is estimated to generate 456 net new daily trips, 175 net new AM peak-hour trips (162 inbound and 13 outbound), and 187 net new PM peak-hour trips (25 inbound and 162 outbound).

The project-generated traffic was assigned to the street segments, intersections, and turning movements based on existing travel patterns in the vicinity of the project and the relative locations of complementary land uses in the area and region.

### Intersection Levels of Service

Intersection operations are described with the term *level of service*. An intersection's level of service (LOS) can range from LOS A, free flow operations with little or no delay, to LOS F, stop-and-go operations with excessive delay. The method used by the City of

Brisbane to determine intersection operations uses the volume-to-capacity (V/C) ratio to determine the LOS.

The City of Brisbane maintains LOS D as the minimum acceptable operating level at most local intersections. The minimum acceptable operating LOS is C at the intersection of Bayshore Boulevard and Old County Road-Tunnel Road. Using existing count data, intersection lane configurations, estimated traffic volumes for approved developments in the area, signal phasing and timings, and the project-generated trips, the level of service (LOS) calculations were conducted for Existing, Background, Project, and Expected Growth Conditions. The results of the level of service calculations are presented in Table ES-1.

All of the study intersections currently operate at acceptable levels and will not degrade significantly with the addition of traffic from approved but not yet constructed development (i.e., under Background Conditions). The addition of project traffic under near-term conditions is not expected to result in any significant intersection impacts.

Under cumulative conditions that include traffic from future development in and around Brisbane, several roadway improvements will be required to provide acceptable operations without the proposed project. Improvements will be needed at the Bayshore Boulevard/Guadalupe Canyon Parkway and Bayshore Boulevard/Old County Road-Tunnel Avenue intersections. The addition of traffic from the proposed project under the cumulative scenario will contribute to the need for additional roadway improvements but will not result in any significant traffic impacts. Accordingly, the project should contribute its fair share to the required improvements. The project represents 2.7 and 1.5 percent of the total intersection volume at the intersections of Bayshore Boulevard and Old County Road and Bayshore Boulevard and Guadalupe Canyon Parkway, respectively.

Since the project is estimated to generate more than 100 net new peak-hour trips, the project will have to mitigate the impact of all new trips to meet requirements established by C/CAG. The project can incorporate Transportation Demand Management (TDM) measures such as bicycle racks and showers, participation in the Crocker Area Shuttle, which provides access to Caltrain and BART, and other means of encouraging the use of alternative travel modes.

The proposed site access and on-site circulation system is considered adequate and no changes to the site plan are recommended. The proposed parking supply exceeds the City's requirements for this type of development and no changes are recommended. A sidewalk along the Valley Drive project frontage should be provided to encourage pedestrian travel.



Table ES-1

Signalized Intersection Level of Service Summary

| Intersection | Peak Hour | Existing | | Background | | Project | | Cumulative No Project | | Cumulative Plus Project | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | V/C[1] | LOS[2] | V/C[1] | LOS[2] | V/C[1] | LOS[2] | V/C | LOS[2] | V/C | LOS[2] |
| Bayshore Boulevard/Geneva Avenue | AM | 0.426 | A | 0.449 | A | 0.454 | A | 0.630 | B | 0.641 | B |
| | PM | 0.470 | A | 0.476 | A | 0.482 | A | 0.929 | E | 0.934 | E |
| Bayshore Boulevard/Guadalupe Canyon Parkway | AM | 0.525 | A | 0.557 | A | 0.566 | A | 0.621 | B | 0.626 | B |
| | PM | 0.391 | A | 0.465 | A | 0.476 | A | 0.744 | C | 0.754 | C |
| Bayshore Boulevard/Valley Drive | AM | 0.510 | A | 0.439 | A | 0.476 | A | 0.718 | C | 0.755 | C |
| | PM | 0.373 | A | 0.430 | A | 0.470 | A | 0.830 | D | 0.876 | D |
| Bayshore Boulevard/Old County Road-Tunnel Avenue | AM | 0.511 | A | 0.550 | A | 0.574 | A | 0.722 | C | 0.737 | C |
| | PM | 0.501 | A | 0.539 | A | 0.543 | A | 0.742 | C | 0.758 | C |
| Valley Drive/N. Hill Drive | AM | 0.285 | A | 0.285 | A | 0.276 | A | 0.334 | A | 0.341 | A |
| | PM | 0.259 | A | 0.259 | A | 0.257 | A | 0.426 | A | 0.478 | A |
| Guadalupe Canyon Pkwy/N. Hill Drive | AM | 0.436 | A | 0.459 | A | 0.473 | A | 0.603 | B | 0.618 | D |
| | PM | 0.224 | A | 0.238 | A | 0.249 | A | 0.825 | D | 0.836 | D |

Notes: [1] Volume-to-Capacity ratio using adjusted San Mateo CMP saturation flow rates
[2] Level of Service based on Circular 212 methodology

## Table IV.F-3
## EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY

| Intersection | Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|
| | | Delay[a] | LOS[b] | Delay[a] | LOS |
| 1. Quarry Road/South Hill Dr. | 1-Way Stop | 9.5 | A | 11.7 | B |
| 2. Quarry Road-North Hill Dr./Valley Dr. | Signal | 16.6 | B | 16.6 | B |
| 3. Bayshore Blvd./Valley Dr. | Signal | 18.1 | B | 21.1 | C |
| 4. Vistacion Ave./Park Lane Extension | 1-Way Stop | 15.9 | C | 12.2 | B |
| 5. Bayshore Blvd./Old County Road | Signal | 24.9 | C | 22.3 | C |
| 6. Tunnel Ave./Lagoon Way | 1-Way Stop | 19.2 | C | 15.7 | C |
| 7. Sierra Point Pkwy./Lagoon Way | All-Way Stop | 13.2 | B | 10.8 | B |
| 8. North Hill Dr./Guadalupe Canyon Pkwy. | Signal | 20.4 | C | 18.2 | B |
| 9. Bayshore Blvd./Guadalupe Canyon Pkwy. | Signal | 20.4 | C | 19.6 | B |
| 10. Bayshore Blvd./Geneva Ave. | Signal | 20.2 | C | 20.9 | C |
| 11. Third Street/Jamestown Ave. | Signal | 4.6 | A | 6.2 | A |
| 12. Bayshore Blvd./Highway 101 SB Ramps | 1-Way Stop | 17.0 | C | 20.1 | C |
| 13. Bayshore Blvd.-Airport Blvd./Sister Cities Blvd. | Signal | 34.7 | C | 25.7 | C |

[a] Delay expressed in seconds per vehicle.
[b] LOS = Level of Service.

Source: LSA, Associates, Inc., 2001.

## Table IV.F-4
## EXISTING MAINLINE FREEWAY LEVEL OF SERVICE SUMMARY

| Intersection | # Lanes | Capacity | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | Volume[a] | V/C[b] | LOS[c] | Volume | V/C | LOS |
| **Northbound U.S. Highway 101** | | | | | | | | |
| North of Third St. (San Francisco) | 4 | 9,200 | 6,600 | 0.72 | C | 7,200 | 0.78 | C |
| Third St. to Sierra Point Pkwy. | 4 | 9,200 | 6,700 | 0.73 | C | 7,300 | 0.79 | C |
| Sierra Point Pkwy. to Oyster Point Blvd. | 4 | 9,200 | 6,900 | 0.75 | C | 7,500 | 0.82 | D |
| South of Oyster Point Blvd. | 4 | 9,200 | 7,300 | 0.79 | C | 8,000 | 0.87 | D |
| **Southbound U.S. Highway 101** | | | | | | | | |
| North of Third St. (San Francisco) | 4 | 9,200 | 7,800 | 0.85 | D | 4,600 | 0.50 | A |
| Third St. to Sierra Point Pkwy. | 4 | 9,200 | 7,900 | 0.86 | D | 4,700 | 0.51 | A |
| Sierra Point Pkwy. to Oyster Point Blvd. | 4 | 9,200 | 8,100 | 0.88 | D | 4,800 | 0.52 | A |
| South of Oyster Point Blvd. | 4 | 9,200 | 8,600 | 0.93 | E | 5,100 | 0.55 | A |

[a] Freeway mainline volumes are based on 1999 data from the Caltrans website.
[b] V/C Ratio - Volume-to-Capacity Ratio.
[c] LOS = Level of Service.

Source: Caltrans, *1998 Traffic Volumes on California State Highways,* 1999. LSA, Associates, Inc., 2001.

FEHR & PEERS ASSOCIATES, INC.
Transportation Consultants

255 North Market Street, Suite 200
San Jose, CA 95112

408 278-1700 • Fax 408 278-1717
www.fehrandpeers.com

September 18, 2000

Mr. Tim Tune
Senior Planner
City of Brisbane
50 Park Lane
Brisbane, CA 94005

*Subject:* ***Requirement of Separate Left-Turn Lanes on Valley Drive at the Valley Drive/ N. Hill Drive-S. Hill Drive Intersection*** *1005-257*

Dear Mr. Tune:

The purpose of this letter is to respond to the concerns that the Public Works Department expressed regarding the need for separate left-turn lanes at the Valley Drive/N. Hill Drive-S. Hill Drive intersection, as discussed in our September 6, 2000 telephone conversation.

As reported in the Transportation Impact Analysis (TIA) for the proposed development at 425 Valley Drive, intersection operations are projected to be LOS A through Cumulative Conditions for both the AM and PM peak hours. As noted in our previous response to comments on the traffic study (August 14, 2000 memorandum to you), the average delay per vehicle for traffic on Valley Drive is expected to be less than 10 seconds under this scenario. Based on this data and City impact analysis standards, separate left-turn lanes on Valley Drive are not required to provide acceptable traffic operations.

City staff requested that we use accident data as another criterion to determine the necessity of separate left-turn lanes. Accordingly, we obtained accident records from the City Public Works Department and the City of Brisbane Police Department. Data was provided for the previous three years for the Valley Drive/N. Hill Drive-S. Hill Drive intersection. Our review showed that there were four accidents in the last three years (or an average of 1.3 per year) that were caused by a failure to yield to an oncoming vehicle or other reasons that could potentially be corrected by a separate left-turn lane. All four accidents only resulted in minor injuries and property damage with no fatalities. A copy of the SWITRS data is attached and included all but



one of the accidents reported by the Police Department.

The need for separate left-turn lanes and phasing was evaluated based on information published in the *Traffic Engineering Handbook* (Pg. 295, 4th Edition, Institute of Transportation Engineers, 1999). This document references the Traffic Control Devices Handbook (U.S. Department of Transportation, 1983) that recommends installation of left-turn phasing if the critical number of accidents has occurred. The critical number of accidents is: 1) four left-turn accidents in one year or six accidents in two years for one approach, or 2) six left-turn accidents in one year or 10 accidents in two years. Based on these criteria, a total of four accidents in three years at the study intersection, and projected acceptable intersection operations, separate left-turn lanes are not considered necessary.

Should you have any questions or need additional information, please call us at (408) 278-1700.

Sincerely,

FEHR & PEERS ASSOCIATES, INC.

D. Sohrab Rashid, P.E.
Senior Associate

Jason Nesdahl
Transportation Engineer

cc: Tom Griffith/Tom Keane (ATC Partners)

# Memorandum

Kimley-Horn and Associates, Inc.

To: Kevin Fredrickson
Director of Planning
Brookfield Homes
CC: Randy Breault
City of Brisbane
From: Brian E. Sowers, P.E.
Re: Traffic Analysis and Improvement Recommendations for Valley Dr. and South Hill Dr. Intersection
Date: June 7, 2004

## Introduction

The purpose of this memorandum is to summarize procedures and findings for the traffic study completed at the intersection of Valley Drive and South Hill Drive in the City of Brisbane.

The objective of the study was to determine whether modifications are necessary to intersection lane configuration and signal phasing to improve traffic operations. The specific traffic movement of concern was the westbound left turn from Valley Drive to South Hill Drive. The study took into account the proposed redevelopment of the existing rock quarry south of the intersection to a residential housing development with approximately 200 single family homes.

Tasks completed as part of this study included collection of turning movement counts at the study intersection and a vehicular classification machine tube count on Valley Drive, field review, and development of a traffic simulation model.

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## Methodology

Turning movement counts were collected at the intersection during two-hour time periods at 15 minute drop intervals during the following times:

- AM Peak 7:00 AM to 9:00 AM
- Midday Peak 11:00 AM to 1:00 PM
- PM Peak 4:00 PM to 6:00 PM

Count times were determined following conversation with the quarry's management staff to determine the peak haul times for quarry trucks.

A seven day, 24-hour, machine tube vehicle classification count was collected on Valley Drive east of the intersection to determine the percentage of heavy vehicles in the traffic stream. Turning movement and machine tube count summaries are attached. In addition to the traffic counts, intersection data, including signal plans and timing information, was collected from the



City staff. Intersection lane configuration and signal and traffic operation were confirmed via field review.

Using the information and data collected, a traffic model was developed using the Synchro traffic modeling software. Initially, two model scenarios were analyzed with the existing lane configuration and signal operation as follows:

- Scenario 1 (Existing Conditions): Evaluated existing operation with the existing traffic volumes during the AM and PM peak periods.
- Scenario 2 (Existing Plus Project): Took into account increased traffic resulting from the redevelopment of the quarry.

Trips generated as a result of redevelopment of the quarry to residential housing were calculated using the *ITE Trip Generation Manual (7th Edition)* and distributed through the study intersection. The addition of 200 single family homes would generate 150 trips during the AM peak hour and 202 trips during the PM peak hour. Per conversation with the quarry's management staff, the number of daily and peak hour trips generated by the quarry were determined to be too inconsistent to justify reducing traffic volumes or the percentage of heavy vehicles through the intersection. Therefore, the traffic model may be slightly conservative with the intersection having better operation following the redevelopment than the model indicates.

Following review of the initial model results for the existing and existing plus project scenarios, additional scenarios were analyzed to review intersection operation with potential modifications to traffic signal phasing and lane configuration. These scenarios used the existing plus project traffic volumes and included the following:

- providing protected/permitted signal phasing for the westbound left turn movement using the existing lane configuration,
- providing a protected westbound left turn movement by modifying the westbound lane configuration from two through lanes with shared right and left turn movements to one left turn trap lane and one through lane with a shared right turn movement, and
- providing a protected westbound left turn movement by narrowing the existing eastbound and westbound curb lanes (14' and 18' respectively) and eliminating the striped median area to provide room for a 11' wide left turn bay while maintaining two 12' wide through lanes in each direction.

A summary of the results from these model analyses is provided below.

## Results

Critical measures of effectiveness for intersection operation are summarized in **Table 1** for the existing and existing plus project model scenarios for the AM and PM peak periods. **Table 2** summarizes the critical measures of effectiveness for the potential intersection modifications.

Table 1: Operational Summary for Existing Intersection Configuration

| Time Period | Model Scenario | Intersection Level of Service | Intersection Delay (seconds) | Approach 95th Percentile Queue Length (feet) | | | |
|---|---|---|---|---|---|---|---|
| | | | | EB | WB | NB | SB |
| AM | Existing | A | 6.7 | 0 | 51 | 8 | 80 |
| | Ex. + Project | A | 7.0 | 0 | 61 | 18 | 103 |
| | | | | | | | |
| PM | Existing | A | 4.5 | 24 | 17 | 15 | 30 |
| | Ex. + Project | A | 5.6 | 34 | 33 | 28 | 51 |

Table 2: Operational Summary for Modified Intersection Configurations

| Time Period | Alternative | Intersection Level of Service | Intersection Delay (seconds) | Approach 95th Percentile Queue Length (feet) | | | |
|---|---|---|---|---|---|---|---|
| | | | | EB | WB | NB | SB |
| AM | Prot./Perm. WB Left | A | 6.5 | 0 | 58 | 19 | 108 |
| | Prot. WB Left (Trap Lane) | B | 10.5 | 23 | 105* | 23 | 136 |
| | Prot. WB Left (Turn Bay) | B | 10.1 | 23 | 105* | 23 | 136 |
| | | | | | | | |
| PM | Prot./Perm. WB Left | A | 5.2 | 34 | 32 | 30 | 53 |
| | Prot. WB Left (Trap Lane) | B | 10.1 | 66 | 84* | 47 | 88 |
| | Prot. WB Left (Turn Bay) | B | 10.1 | 66 | 84* | 47 | 88 |

* Maximum queue length for left turn lane/bay only.

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## Conclusions and Design Considerations

As is shown in **Table 1**, the existing lane configuration and signal operation at the intersection of Valley Drive and South Hill Drive provides sufficient capacity for both existing and existing plus project traffic conditions. In addition, the westbound left turn movement from Valley Drive to South Hill Drive does not warrant consideration for protected left turn phasing based on the *California Department of Transportation Traffic Manual* guidelines for collision history or volume. The *Traffic Manual* states protected left turn phasing should be considered where there have been five or more accidents for a particular left turn movement during a recent 12-month period or there are 50 or more left turning vehicles per hour in one direction with the product of the turning an conflicting through traffic during peak hour of 100,000 or more. Based on the collision records available, there were two collisions involving left turing vehicles at the intersection of Valley Drive and South Hill Drive between January 1999 and December 2001. The product of westbound left turning vehicles and eastbound through vehicles is 6,890 for the AM peak hour and 6,624 for the PM peak hour.

Given these findings and those shown in **Table 2**, which indicate increased intersection delay and queues with the addition of a protected left turn phase, modification of the intersection to provide a protected left turn does not appear necessary at this time. However, given the relatively high percentage of truck traffic (approximately 8% of the total traffic) through the intersection, the City may consider modifying the signal to provide a protected/permitted westbound left turn movement. The *Traffic Manual* allows consideration of left turn phasing in areas with a larger than normal percentage of truck traffic. As shown in **Table 2**, providing a protected/permitted phase for the westbound left turn movement would slightly decrease intersection delay with the existing plus project traffic conditions.

Future developments in the study area may eventually lead to protected left turn phasing being warranted at the intersection. Specifically, the planned office and warehouse space at 425 Valley Drive may need to be considered in evaluating potential intersection modification at Valley Drive and South Hill Drive. According to the Fehr & Peers report, dated May 14, 2004, the development should generate an additional 266 trips during the AM peak hour and 265 trips during the PM peak hour travelling through the intersection of Valley Drive and South Hill Drive, resulting in a net increase of 35% to the existing peak hour traffic using the intersection. The proposed redevelopment of the quarry would contribute a net increase of 112 trips during the AM peak hour and 202 trips during the PM peak hour. The net trip generation values were reduced based on daily trip volumes for the quarry, provided by the quarry staff, that would be eliminated by the redevelopment. The resulting net increase to existing peak hour traffic through the intersection of Valley Drive and South Hill Drive should be approximately 21% following redevelopement of the quarry.

To provide the protected/permitted left turn phase, the existing mast arm mounted signal for the westbound approach on Valley Drive would have to be replaced with a new four-section signal head to indicate the protected vehicle movement. A similar four-section head would have to be installed on the signal pole on the southwest corner of the intersection. New conductors to each head for the new protected phase and an appropriate mast arm sign to guide left turning vehicles would also need to be installed. Structural analysis would be necessary to determine if the existing signal pole would be adequate to support the four-section signal head and mast arm mounted sign.

Installing a left turn trap lane and protected signal phase for the westbound left turn would require modification of lane striping on the westbound approach to the intersection and installation of appropriate advance warning signs. The existing mast arm and pole for the westbound approach would have to be replaced to serve the new lane configuration and signal operation.

Modifying the existing lane configuration to install a left turn bay at the intersection would require striping modifications on the west and east side of the intersection to provide adequate vehicle transitions. The exising mast arms and poles for the westbound and eastbound approaches would have to be replaced and new conductors installed for the new signal phase.

From the desk of...

**Brian E. Sowers, P.E.**
Kimley-Horn and Associates, Inc.
2000 Crow Canyon Place, Suite 410
San Ramon, CA 94583

Ph. 925-543-0840
Fax 925-543-0839



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FEHR & PEERS
TRANSPORTATION CONSULTANTS

# MEMORANDUM

Date: November 18, 2004

To: Tim Tune
Senior Planner
City of Brisbane
50 Park Place
Brisbane, CA 94005

From: Matt Haynes, PE, Fehr & Peers

***Subject: Valley Drive and South Hill Drive Intersection Distribution for 425 Valley Drive***
*1047-0151/LB*

This is a follow up memorandum to the *425 Valley Drive Trip Generation and Site Access Study* addressing distribution of traffic passing through the Valley Drive / South Hill Intersection. In a memorandum entitled *Traffic Analysis and Improvement Recommendations for Valley Drive and South Hill Drive*, June 7, 2004, Kimley-Horn and Associates identifies the potential need for a protected/permitted left turn phase at the Valley Drive / South Hill Intersection. Both the 425 Valley Drive project and the Quarry Redevelopment project will increase traffic at this intersection. To establish the 425 Valley Drive project's contribution to increased traffic at the study intersection, this report presents the project-generated trips through this intersection, including the number of westbound left-turns.

***Proposed Intersection Mitigation***

The signalized intersection at Valley Drive and South Hill Drive currently operates at level of service A (Kimley-Horn, 2004). Kimley-Horn and Associates indicates in their June 2004 memorandum that increased traffic from the Quarry Redevelopment and the 425 Valley Drive project, combined with high truck volumes, may warrant adding a protected/permitted westbound left-turn phase to this intersection.

The 425 Valley Drive project is comprised of office and warehouse space. The majority of project generated westbound left-turns at the study intersection will be from inbound vehicles during the AM peak hour. In contrast, the quarry development is a proposed residential development located to the south of the study intersection and will generate westbound left-turn traffic during the PM peak hour when residents are returning to their homes. This temporal variation between the two projects' demand for westbound left turn movements should be considered when evaluating the need for a protected/permitted left turn phase at the intersection of Valley Drive and South Hill Drive.

604 Mission Street, 4th Floor San Francisco, CA 94105 (415) 369-0425 Fax (415) 369-0426
www.fehrandpeers.com



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TRANSPORTATION CONSULTANTS

***Trip Generation Summary***

As described in the May 14, 2004 report, 425 Valley Drive is located on the southwest corner of the intersection of Valley Drive and South Hill Drive. The project replaces a 320,000 square foot warehouse with 57,795 square feet of office space and 219,760 square feet of warehouse space. For the May 2004 report, curve equations from *Trip Generation* (Seventh Editions, 2003) by the Institute of Transportation Engineers (ITE), were used to estimate trip generation for the site's previous and future uses.

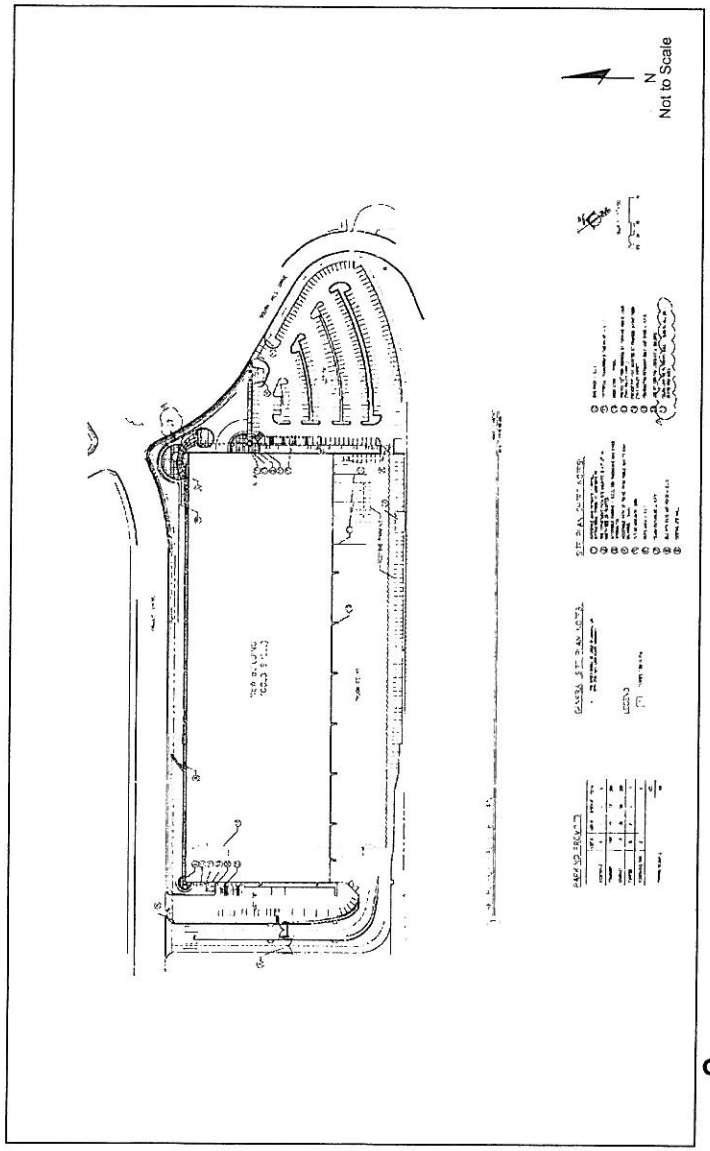
The new warehouse and office space at 425 Valley Road will increase vehicle trips to the site, though the shift from warehouse to office space will reduce the amount of heavy truck traffic. The previous warehouse at 425 Valley Road was estimated to generate 201 AM peak hour and 175 PM peak hour vehicle trips. Based on building area, about 91 percent of these trips were truck trips generated by the warehouse operations. The new warehouse and office space is projected to increase trips to the site by 65 AM peak hour and 90 PM peak hour trips. The shift from warehouse to office space is expected to reduce truck traffic during the AM and PM peak hours from 91 percent to 50 percent (or by 77 truck trips).

***Trip Distribution***

As shown in the site plan (Figure 1), the site will have three driveways, two on Valley Drive and one on South Hill Drive. The driveway located off South Hill Drive and one of the driveways off of Valley Drive are designed for non-truck access to on-site parking. The second driveway located off of Valley Drive is designed for truck access to the warehouse facilities. No truck traffic to the site will make a westbound left onto Valley Drive to access the project site.

Inbound vehicles using the South Hill Drive entrance will make a left-turn at the study intersection onto South Hill Drive. Trips generated by the office space were assigned to the driveways according to the number of parking spaces in each parking lot. According to the site plan (dated May 7, 2004) Lot A, with access off of South Hill Drive, will have 258 parking stalls and Lot B, with access off of Valley Drive, will have 60 parking stalls. Therefore, it was assumed 81 percent of inbound office generated project trips, 88 AM peak hour and 16 PM peak hour, will access parking Lot A after executing a westbound left-turn at the study intersection.

The previous site had truck access to the warehouse on both Valley Drive and South Hill Drive. We estimated 50 percent of inbound warehouse traffic and all office traffic previously accessed the site via the South Hill Drive entrance after executing a westbound left-turn at the study intersection.




**SITE PLAN**
**FIGURE 1**

FEHR & PEERS
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November 2004
1037-0151\graphics\0151-30 site plan



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**TABLE 1**
**TRIP GENERATION AND LEFT TURN VOLUMES AT VALLEY DRIVE / SOUTH HILL ROAD**

| Land Use Type | Area (ksf) | Daily Trips | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | WB Left Turns | Total Project Trips | WB Left Turns | Total Project Trips |
| New Project | 278 | 2034 | 88 | 266 | 16 | 265 |
| Existing Warehouse | 320 | 1605 | 90 | 201 | 23 | 175 |
| **Net New Trips** | | **429** | **-2** | **65** | **-7** | **90** |

*Notes:*
*1.) Anticipated future project buildout will convert 3,365 square feet of warehouse space to office space. This change in use would result in an additional 27 daily trips, 4 AM peak hour trips, and 2 PM peak hour trips.*
*2) ksf – thousands of square feet*

Source: Trip Generation, Institute of Transportation Engineers and Fehr & Peers November 2004

***Conclusions***

Table 1 shows that the 425 Valley Road project will add 65 AM peak hour and 90 PM peak hour trips to the Valley Drive and South Hill Drive intersection. Counts taken in April 2004 had intersection volumes of 768 in the AM peak hour and 761 vehicles in the PM peak hour (Kimley-Horn, 2004). Using these intersection volumes, the 425 Valley Road project's net trips represent 8 percent and 12 percent increases in intersection traffic, respectively. April 2004 traffic counts also show there are approximately 106 westbound left-turns in the AM peak hour and 46 westbound left in the PM peak hour. The 425 Valley Road project will reduce the current westbound left turns by two AM and seven PM peak hour trips when accounting for previous traffic distribution patterns at the site.

## Table III.B-3: Existing (2006) Intersection Levels of Service – Without Project

| Intersection | Control | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | V/C | Delay (Seconds) | LOS | V/C | Delay (Seconds) | LOS |
| 1. Mission Blue Drive/Guadalupe Canyon Parkway | Signal | 0.23 | 7.6 | A | 0.15 | 12.2 | B |
| 2. North Hill Drive/Guadalupe Canyon Parkway | Signal | 0.43 | 21.3 | C | 0.33 | 21.7 | C |
| 3. Bayshore Boulevard/Guadalupe Canyon Parkway | Signal | 0.56 | 21.3 | C | 0.43 | 20.1 | B |
| 4. Silverspot Drive/West Hill Drive | Minor Stop | -[a] | 9.3 | A | -[a] | 9.3 | A |
| 5. North Hill Drive/Valley Drive | Signal | 0.38 | 16.8 | B | 0.27 | 15.2 | B |
| 6. Bayshore Boulevard/Valley Drive | Signal | 0.51 | 17.6 | B | 0.54 | 21.2 | C |

[a] The intersection of Silverspot Drive and West Hill Drive is stop controlled in the southbound direction and uncontrolled in the east/westbound direction. Critical delay does not apply in this instance.

Notes:

Minor stop = Stop control on minor street. No control on major street.
V/C = Volume/capacity ratio.
Delay = Average control delay in seconds.
LOS = Level of service.
Source: LSA Associates, Inc., 2006.

## Table III.B-4: Proposed Project Trip Generation[a]

| Land Uses | Units | A.M. Peak Hour | | | P.M. Peak Hour | | | Daily Trips |
|---|---|---|---|---|---|---|---|---|
| | | In | Out | Total | In | Out | Total | |
| **Under Construction (2006)** | | | | | | | | |
| *Unit I-Neighborhood II*[b] | | | | | | | | |
| Single Family Residential | 11 | | | | | | | |
| Trips/Unit | | 0.19 | 0.56 | 0.75 | 0.65 | 0.36 | 1.01 | 9.57 |
| Trip Generation | | 2 | 6 | 8 | 7 | 4 | 11 | 105 |
| **Proposed Landmark II** | | | | | | | | |
| *Unit II-Neighborhood II* | | | | | | | | |
| Single Family Residential | 77 | | | | | | | |
| Trips/Unit | | 0.19 | 0.56 | 0.75 | 0.65 | 0.36 | 1.01 | 9.57 |
| Trip Generation | | 15 | 43 | 58 | 50 | 28 | 78 | 737 |
| **Total New Northeast Ridge Trip** | 88 | 17 | 49 | 66 | 57 | 32 | 89 | 842 |

[a] Trip rates taken from the Institute of Transportation Engineers, *Trip Generation* (7th Edition).

[b] The 11 additional units under construction as a part of Unit I Neighborhood II were originally considered part of the Unit II Neighborhood II (Landmark II).

Source: LSA Associates, Inc., 2006.

**Table III.B-5: Existing Plus Project Intersection Levels of Service**

| Intersection | Control | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | V/C | Delay (Seconds) | LOS | V/C | Delay (Seconds) | LOS |
| 1. Mission Blue Drive/Guadalupe Canyon Parkway | Signal | 0.25 | 10.2 | B | 0.16 | 14.5 | B |
| 2. North Hill Drive/Guadalupe Canyon Parkway | Signal | 0.47 | 22.4 | C | 0.36 | 22.3 | C |
| 3. Bayshore Boulevard/Guadalupe Canyon Parkway | Signal | 0.58 | 21.9 | C | 0.45 | 20.6 | C |
| 4. Silverspot Drive/West Hill Drive | Minor stop | -[a] | 9.8 | A | -[a] | 9.8 | A |
| 5. North Hill Drive/Valley Drive | Signal | 0.39 | 17.5 | B | 0.29 | 15.1 | B |
| 6. Bayshore Boulevard/Valley Drive | Signal | 0.54 | 18.5 | B | 0.55 | 21.9 | C |

[a] The intersection of Silverspot Drive and West Hill Drive is stop controlled in the southbound direction and uncontrolled in the east/westbound direction. Critical delay does not apply in this instance.

Notes:

Minor stop = Stop control on minor street. No control on major street.
V/C = Volume/capacity ratio.
Delay = Average control delay in seconds.
LOS = Level of service.
Source: LSA Associates, Inc., 2006.

**a. Forecast Year 2015 Traffic Volume Methodology.** Forecast year 2015 traffic volumes were developed from forecast traffic volumes in the 2003 Traffic and Circulation Technical Analysis, which relied on the Year 2015 San Mateo Travel Demand Forecasting Model and includes development expected under build out of the City of Brisbane's current General Plan. Trips from the dwelling units in Unit I Neighborhood I and Unit I Neighborhood II as of 2003 were included in the "Total Without Project" volumes in the 2003 Traffic and Circulation Technical Analysis.

This analysis provides an updated evaluation of the 2003 Traffic and Circulation Technical Analysis based on previous cumulative traffic volume modeling. To provide a conservative approach to this analysis, the cumulative traffic volumes developed in the model include the future trips from the One Quarry Road Residential project, even though this project was defeated by voters in 2006 as "Measure B." Detailed volume development worksheets for the revised project are included in Appendix A.

**b. Year 2015 Without Project Conditions.** Year 2015 without project AM and PM peak hour turn volumes for study area intersections are illustrated in Figure III.B-7. The year 2015 Without Project Levels of Service for the study area intersections are summarized in Table III.B-6. The level of service calculation sheets are contained in Appendix C. As indicated in Table III.B-6, all study area intersections are projected to operate at satisfactory levels of service under year 2015 without project conditions.

**c. Year 2015 with Project Conditions.** The year 2015 with project condition considers the addition of traffic generated by the proposed project to the roadways in the project vicinity. Year 2015 With Project AM and PM Peak Hour turn volumes for study area intersections are illustrated in Figure III.B-8. The year 2015 with project levels of service for the study area intersections are summarized in Table III.B-7. The level of service calculation sheets are contained in Appendix C. As indicated in Table III.B-7, all intersections examined are projected to operate at satisfactory levels of service under year 2015 with project conditions.

**Table III.B-6: Year 2015 Without Project Intersection Levels of Service**

| Intersection | Control | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | V/C | Delay (Seconds) | LOS | V/C | Delay (Seconds) | LOS |
| 1. Mission Blue Drive/Guadalupe Canyon Parkway | Signal | 0.30 | 8.9 | A | 0.25 | 10.3 | B |
| 2. North Hill Drive/Guadalupe Canyon Parkway | Signal | 0.64 | 27.0 | C | 0.38 | 21.8 | C |
| 3. Bayshore Boulevard/Guadalupe Canyon Parkway | Signal | 0.72 | 27.1 | C | 0.52 | 20.4 | C |
| 4. Silverspot Drive/West Hill Drive | Minor Stop | -[a] | 9.9 | A | -[a] | 9.9 | B |
| 5. North Hill Drive/Valley Drive | Signal | 0.55 | 17.8 | B | 0.42 | 17.7 | B |
| 6. Bayshore Boulevard/Valley Drive | Signal | 0.63 | 21.9 | C | 0.59 | 23.5 | C |

[a] The intersection of Silverspot Drive and West Hill Drive is stop controlled in the southbound direction and uncontrolled in the east/westbound direction. Critical delay does not apply in this instance.

Notes:
Minor stop = Stop control on minor street. No control on major street.
V/C = Volume/capacity ratio.
Delay = Average control delay in seconds.
LOS = Level of service.
Source: LSA Associates, Inc., 2006.

**Table III.B-7: Year 2015 With Project Intersection Levels of Service**

| Intersection | Control | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | V/C | Delay (Seconds) | LOS | V/C | Delay (Seconds) | LOS |
| 1. Mission Blue Drive/Guadalupe Canyon Parkway | Signal | 0.30 | 8.9 | A | 0.25 | 10.3 | B |
| 2. North Hill Drive/Guadalupe Canyon Parkway | Signal | 0.66 | 28.0 | C | 0.41 | 22.0 | C |
| 3. Bayshore Boulevard/Guadalupe Canyon Parkway | Signal | 0.72 | 27.1 | C | 0.54 | 20.4 | C |
| 4. Silverspot Drive/West Hill Drive | Minor stop | -[a] | 10.5 | B | -[a] | 10.4 | B |
| 5. North Hill Drive/Valley Drive | Signal | 0.57 | 18.6 | B | 0.44 | 18.0 | B |
| 6. Bayshore Boulevard/Valley Drive | Signal | 0.65 | 22.8 | C | 0.60 | 24.1 | C |

[a] The intersection of Silverspot Drive and West Hill Drive is stop controlled in the southbound direction and uncontrolled in the east/westbound direction. Critical delay does not apply in this instance.

Notes:
Minor stop = Stop control on minor street. No control on major street.
V/C = Volume/capacity ratio.
Delay = Average control delay in seconds.
LOS = Level of service.
Source: LSA Associates, Inc., 2006.

## 5. Circulation Improvements

The 2003 Traffic and Circulation Technical Analysis identified intersection deficiencies for the northbound left turn lanes and queue lengths for Bayshore Boulevard/Guadalupe Canyon Parkway and Bayshore Boulevard/Valley Drive intersections. The recommended improvements to correct these deficiencies, including the addition of a second northbound left turn pocket at the Bayshore Boulevard/ Valley Drive intersection and lengthening the left turn pocket to provide at least 300 feet of queuing space, have been implemented and were included in the existing conditions for this traffic study. No new impacts were identified for traffic and circulation issues associated with the proposed project and no additional analysis or mitigation measures are required.

IN WITNESS WHEREOF, this Agreement is executed by the City and by Owner as of the ____ day of _____, ~~2004~~, at Brisbane, California.

"CITY"

APPROVED AS TO FORM:

CITY OF BRISBANE

Harold S. Topple,
City Attorney

By: ~~MICHAEL BARNES~~, A. SEPI RICHARDSON
Mayor

"OWNER"

IAC SAN FRANCISCO, LLC

By: Jeffrey J. King
Its: Secretary

(CORPORATE ACKNOWLEDGEMENT BY NOTARY PUBLIC MUST BE ATTACHED FOR OWNER'S SIGNATURE)

11612.001.0011.b



STATE OF CALIFORNIA }
COUNTY OF SAN MATEO }
CITY OF BRISBANE }

On this _____ day of _____, 2005, before me, Sheri Marie Schroeder, appeared A. SEPI RICHARDSON, Mayor of the City of Brisbane, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

SHERI MARIE SCHROEDER
City Clerk



STATE OF Washington
COUNTY OF King }

On this 16th day of November, 2004, before me, Elizabeth Anne Whalen, appeared Jeffrey J. King, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Elizabeth Anne Whalen

ELIZABETH ANNE WHALEN NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES 11-20-07

RECORDING FOR THE BENEFIT OF,
REQUESTED BY
AND RETURN TO:

CITY OF BRISBANE
50 PARK PLACE
BRISBANE, CA 94005

EXEMPT FROM FEE PURSUANT TO
GOVERNMENT CODE SECTION 6103/27383

## TRAFFIC IMPROVEMENTS AGREEMENT

This Agreement is made by and between the City of Brisbane, a municipal corporation, 50 Park Place, Brisbane, California ("City"), and IAC San Francisco, LLC ("Owner").

## RECITALS

A. Owner is the owner of property located in the City of Brisbane, County of San Mateo, State of California, at 425 Valley Drive, APN 005-232-010, as more particularly described in Exhibit "A" attached hereto and incorporated herein by reference ("Property").

B. Owner desires to obtain a building permit to construct a new office/warehouse building ("Permit").

C. In order to issue the Permit, a Mitigated Negative Declaration was approved by City for the proposed project that included traffic mitigation measures that were incorporated by Owner into the project.

D. City has agreed to grant the Permit based upon Owner's agreement to perform the conditions set forth herein.

NOW, THEREFORE, in consideration of the recitals and the mutual promises contained herein City and Owner agree as follows:

1. Owner hereby agrees to submit trip distribution data regarding left turn movements at the Valley/South Hill Drive intersection for review and approval by the City traffic consultant prior to issuance of the Permit.

2. Owner hereby agrees to contribute the project's proportional fair share of Valley/South Hill Drive intersection improvements as described in the Kimley-Horn and Associates, Inc., memorandum dated June 7, 2004, based upon the data to be submitted by Owner, prior to issuance of a Certificate of Occupancy for the project. Owner specifically reserves the right to contest the amount of proportional fair share that may be levied under this Agreement.

3. It is the intent of the parties that the covenants contained herein shall run with the land. A properly executed copy of this Agreement shall be recorded in the Office of the San Mateo County Recorder at the time of the issuance of the Permit.





4. This Agreement shall be binding on the heirs, successors and assigns of the parties hereto.

5. This Agreement shall be construed and enforced pursuant to the laws of the State of California. Should any legal action be brought by a party for breach of this Agreement or to enforce any provision of the Agreement, the prevailing party of such action shall be entitled to reasonable attorneys' fees, court costs, and such other costs as may be fixed by the court.

6. If any one or more of the covenants or agreements, or portions thereof, provided in this Agreement shall be held by a court of competent jurisdiction in a final judicial action to be void, voidable or unenforceable, such covenant or covenants, such agreement or agreements, or such portions thereof shall be null and void and shall be deemed separable from the remaining covenants or agreements or portions thereof and shall in no way affect the validity or enforceability of the remaining portions of this Agreement.

7. This Agreement contains the entire understanding between the parties with respect to the subject matter herein. There are no representations, agreements or understandings, whether oral or written, between or among the parties relating to the subject matter of this Agreement which are not fully expressed herein. The drafting and negotiation of this Agreement has been participated in by each of the parties and/or their counsel and for all purposes this Agreement shall be deemed to have been drafted jointly by all parties.