Appendix D Traffic Analysis

DRAFT

City of Huntington Beach

BEACH-EDINGER CORRIDOR SPECIFIC PLAN AREA
Traffic Analysis For Beach-Warner Project

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BEACH-EDINGER CORRIDOR SPECIFIC PLAN AREA
Traffic Analysis For Beach-Warner Project

This report presents a traffic analysis for the Beach-Warner Project located within the Beach Boulevard and Edinger Avenue Corridor Specific Plan (SP) area. It is intended to supplement the information contained in the original traffic study and Environmental Impact Report (EIR) for the SP.

BACKGROUND AND SCOPE

The SP area extends along Beach Boulevard from Edinger Avenue to just south of Atlanta Avenue, and along Edinger Avenue from Goldenwest Street to Beach Boulevard. Figure 1 illustrates the area covered by the SP. At buildout, the SP as approved in 2010 will allow for 4,500 residential units, approximately 739,000 square feet of commercial uses, 112,000 square feet of office uses and 200 hotel rooms.

The SP area includes the Beach-Warner Project, which is illustrated in Figure 2. It is a 9.4-acre site, which will have an additional 279 dwelling units, 6,000 square feet of restaurants and 29,600 square feet of retail use when fully developed. It is located within the Neighborhood Boulevard area of the SP.

The following analysis provides an evaluation of the trip generation characteristics for the proposed project, and a project level impact analysis is performed for the proposed project. The resulting change in ADT volumes is presented in tabular format for the impacted roadway segments, followed by a discussion of the resulting impact in the AM and PM peak hours. A discussion of the project's participation in the SP mitigation program is then provided, followed by a site access evaluation. Finally, the results of an accident survey and traffic impact on the local neighborhood roadways are discussed.

TRIP GENERATION ANALYSIS

The Beach-Warner project is located on the southwest corner of Beach Boulevard and Warner Avenue on an L-shaped parcel. It is bounded by Warner Avenue to the north, Beach Boulevard to the east, by Cypress Avenue and Sycamore Avenue to the south, and by Elm Street and Ash Street to the west.

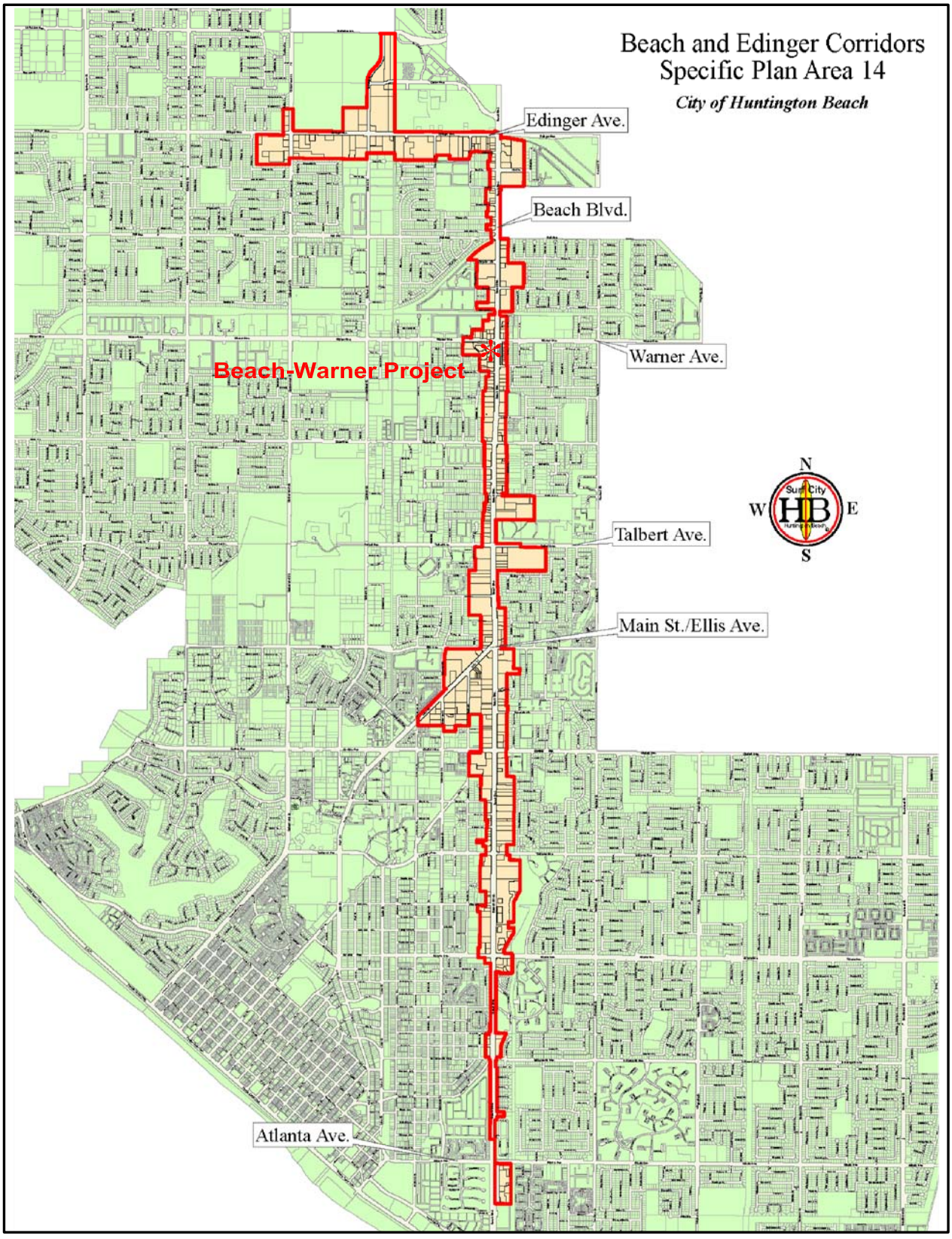


Figure 1

BEACH-EDINGER SPECIFIC PLAN

Legend	Figure 2
Beach-Warner Project Location	BEACH-WARNER PROJECT LOCATION

Table 1 summarizes the land use and trip generation for the proposed project and provides a comparison against the existing land uses. The project will add 279 dwelling units (DU), and 35,600 square feet of mixed-use commercial land uses (comprising 29,600 square feet of retail and 6,000 square feet of restaurant). The residential land uses will replace 99,270 square feet of existing commercial land uses. The project proposes to retain the existing 15-story office tower at the northeast corner of the site, the 18,000 square foot retail building along Warner Avenue, the 7,000 square foot restaurant on Beach Boulevard, and the six story parking garage.

The added land uses for the proposed project result in an eight percent decrease in trip generation for the PM peak hour and a seven percent decrease in the daily trips. The AM peak hour shows a 13 percent increase due to the outbound residential trips.

COMPARISON WITH APPROVED SPECIFIC PLAN

The proposed project will generate 8,210 daily trips, with 700 trips occurring in the AM peak hour and 829 trips occurring in the PM peak hour as discussed in the previous section. The approved SP assumed 272 residential units (versus the 279 for the proposed project) and 35,600 square feet of additional commercial land uses (the same as for the proposed project). Table 2 summarizes the trip generation differences for the proposed project and the approved SP. As shown, the proposed project represents a six percent decrease in the AM peak hour trips, a 22 percent decrease in PM peak hour trips, and a 46 percent decrease in daily trips. Thus, the proposed project is not expected to result in a change to the traffic impacts identified in the EIR. For the approved SP, conservative assumptions were made regarding the level of development that could occur under the General Plan zoning for this site. The land use designations were generic rather than specific, and the emphasis was on commercial (i.e., retail) uses. The proposed project as defined here uses detailed land uses due to the refined project information that is available for this specific project. The potential impacts of these differences are discussed later in this report.

2030 ADT VOLUMES

The 2030 ADT volumes with the proposed project are summarized below for the four roadway segments close to the project, and a comparison is provided against the approved SP volumes:

Table 1

TRIP GENERATION COMPARISON FOR BEACH-WARNER

Land Use	Units	AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	ADT
Existing Land Uses								
General Commercial[1]	13.41 TSF	8	5	13	25	25	50	576
High-Turnover Restaurant[2]	18.32 TSF	110	101	211	121	84	205	2,329
Office Tower[3]	196 TSF	267	37	304	49	243	292	2,158
Single Story Office[4]	24.2 TSF	29	6	35	7	24	31	309
Health/Fitness Club[5]	42.34 TSF	26	32	58	85	64	149	1,394
Movie Theater[6]	26.73 TSF	0	0	0	155	10	165	2,087
Sub-Total	**321 TSF**	**440**	**181**	**621**	**442**	**450**	**892**	**8,853**
Added by Proposed Project								
General Commercial	29.6 TSF	18	12	30	54	56	110	1,271
High-Turnover Restaurant	6 TSF	36	33	69	40	27	67	763
Mixed-Use Residential[7]	279 DU	28	114	142	112	61	173	1,875
Sub-Total	**35.6 TSF 279 DU**	***82***	***159***	***241***	***206***	***144***	***350***	***3,909***
Retained Existing Land Uses								
Office Tower	196 TSF	267	37	304	49	243	292	2,158
General Commercial	13.41 TSF	8	5	13	25	25	50	576
High-Turnover Restaurant	12.32 TSF	74	68	142	81	56	137	1,567
Sub-Total	**221.73 TSF**	***349***	***110***	***459***	***155***	***324***	***479***	***4,301***
Total for Proposed Project								
General Commercial	43.01 TSF	26	17	43	79	81	160	1,847
High-Turnover Restaurant	18.32 TSF	110	101	211	121	83	204	2,330
Office Tower	196 TSF	267	37	304	49	243	292	2,158
Mixed-Use Residential[7]	279 DU	28	114	142	112	61	173	1,875
Grand Total	**279 DU 257.33 TSF**	***431***	***269***	***700***	***361***	***468***	***829***	***8,210***
Net Change (from Existing)		**-9**	**88**	**79**	**-81**	**18**	**-63**	**-643**
% Difference				***13%***			***-8%***	***-7%***
Trip Rate (ITE Code) – 8th Edition								
[1]General Commercial (820)	TSF	0.61	0.39	1.00	1.83	1.90	3.73	42.94
[2]High-Turnover Restaurant (932)	TSF	5.99	5.53	11.52	6.58	4.57	11.15	127.15
[3]General Office (710)	TSF	1.36	0.19	1.55	0.25	1.24	1.49	11.01
[4]Business Park (770)	TSF	1.20	0.23	1.43	0.30	0.99	1.29	12.76
[5]Health/Fitness Club (492)	TSF	0.62	0.76	1.38	2.01	1.52	3.53	32.93
[6]Movie Theater without Matinee (443)	TSF	0.00	0.00	0.00	5.79	0.37	6.16	78.06
[7]Apartments (220)	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.72

Table 2

TRIP GENERATION COMPARISON
- PROPOSED PROJECT VERSUS APPROVED SPECIFIC PLAN

Land Use	Units	AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	ADT
Approved SP Land Use								
Mixed-Use Residential[1]	272 DU	27	112	139	109	60	169	1,828
Mixed-Use Commercial[2]	15 TSF	14	13	27	19	20	40	602
General Commercial[3]	242.34 TSF	308	274	582	419	434	853	12,965
Grand Total	**272 DU 257.34 TSF**	***349***	***399***	***748***	***547***	***514***	***1,062***	***15,395***
Proposed Project								
General Commercial	43.01 TSF	26	17	43	79	81	160	1,847
High-Turnover Restaurant	18.32 TSF	110	101	211	121	83	204	2,330
Office Tower	196 TSF	267	37	304	49	243	292	2,158
Mixed-Use Residential	279 DU	28	114	142	112	61	173	1,875
Grand Total	**279 DU 257.33 TSF**	***431***	***269***	***700***	***361***	***468***	***829***	***8,210***
Net Change (from EIR)		***82***	***-130***	***-48***	***-186***	***-46***	***-233***	***-7,185***
% Difference				***-6%***			***-22%***	***-46%***
Trip Rates for Approved Specific Plan								
[1]Mixed-Use Residential	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.72
[2]Mixed-Use Commercial*	TSF	0.95	0.85	1.80	1.28	1.34	2.64	40.13
[3]General Commercial	TSF	1.27	1.13	2.40	1.73	1.79	3.52	53.50

* Derived from Shopping Center, General Office and High-Turnover Restaurant

ADT VOLUME SUMMARY			
Link Location	**2030 Specific Plan ADT Volume**	**2030 ADT Volume with Proposed Project**	**% Change**
Beach Blvd north of Warner Ave	66,000	63,845	-3%
Beach Blvd south of Warner Ave	64,000	62,060	-3%
Warner Ave west of Beach Blvd	40,000	38,707	-3%
Warner Ave east of Beach Blvd	43,000	41,204	-4%

As shown all segments are projected to have minor decreases in daily traffic volumes as the percentage change is four percent or less. Hence, the proposed project does not have a significant change in ADT volumes. The next section discusses the corresponding impact on the peak hour volumes.

PEAK HOUR ANALYSIS

The 2030 ICU values and level of service (LOS) for the approved SP are summarized in the table below for intersections immediately adjacent to the proposed project:

2030 ICU SUMMARY				
	AM PEAK HOUR		**PM PEAK HOUR**	
Intersection	**ICU**	**LOS**	**ICU**	**LOS**
47. Beach Blvd & Warner Ave	.78	C	.95	E
54. Beach Blvd & Slater Ave	.86	D	.90	D

As shown, the intersection of Beach Boulevard at Warner Avenue shows a PM deficiency (LOS "E") and Beach Boulevard at Slater Avenue operates at an acceptable LOS (LOS "D"). The PM reduction in trips due to the proposed project is too small (compared to the SP) to result in a change to the LOS. The finding is that the deficiency identified at Beach Boulevard and Warner Avenue still requires mitigation as part of the overall SP, but the mitigation is not a project responsibility since the proposed project results in a decrease in PM peak hour trip generation. As noted previously, the AM peak hour will have an additional 82 inbound trips. However, the impact of these additional trips is not expected to change the LOS for this time period.

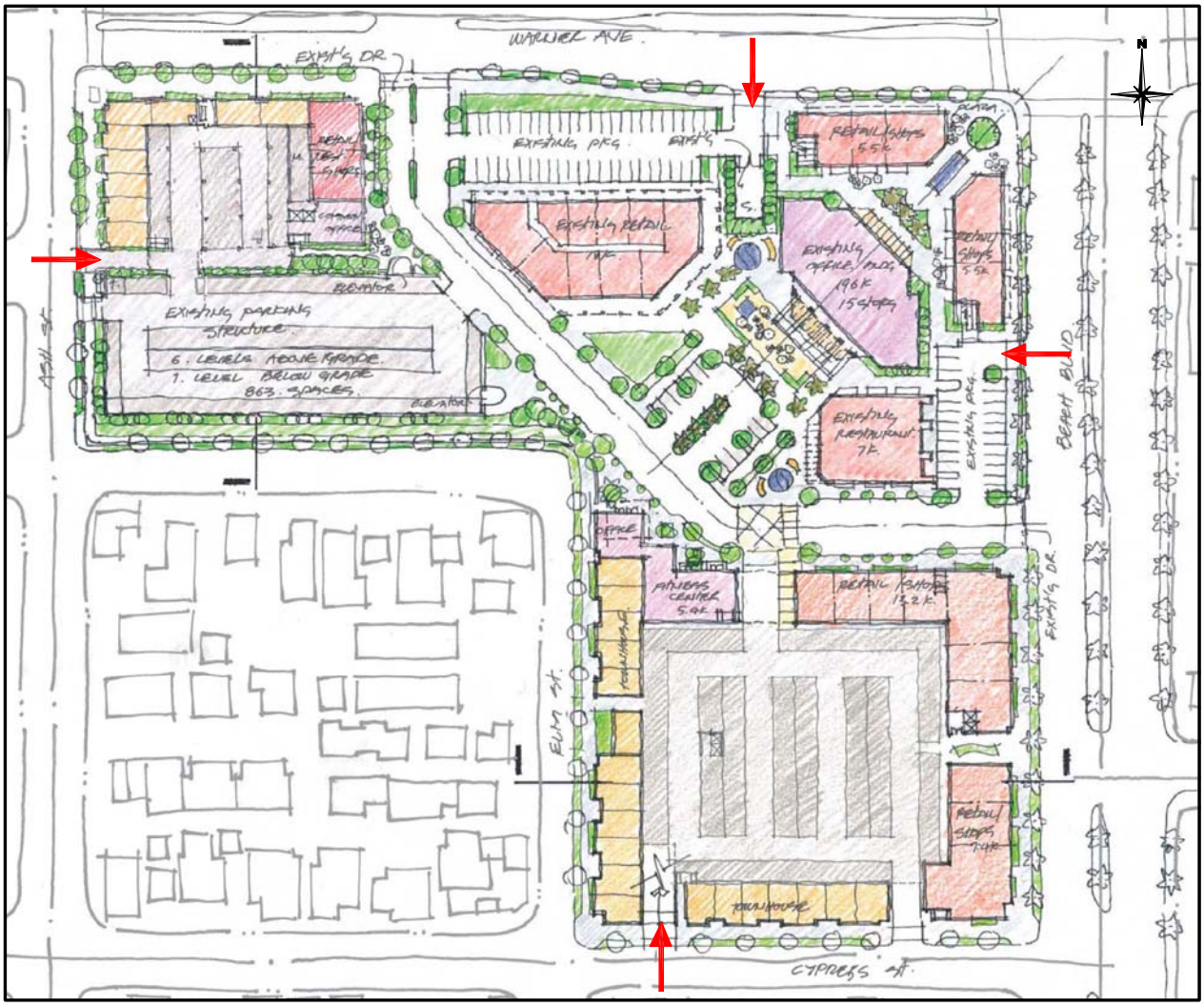
SITE ACCESS ANALYSIS

A project site plan is illustrated in Figure 3. The only changes to the existing access to the project site are to add a limited access driveway on Warner Avenue, one limited access driveway on Beach Boulevard, one access driveway on Ash Street, and one access driveway on Cypress Street. These changes are highlighted in the diagram.

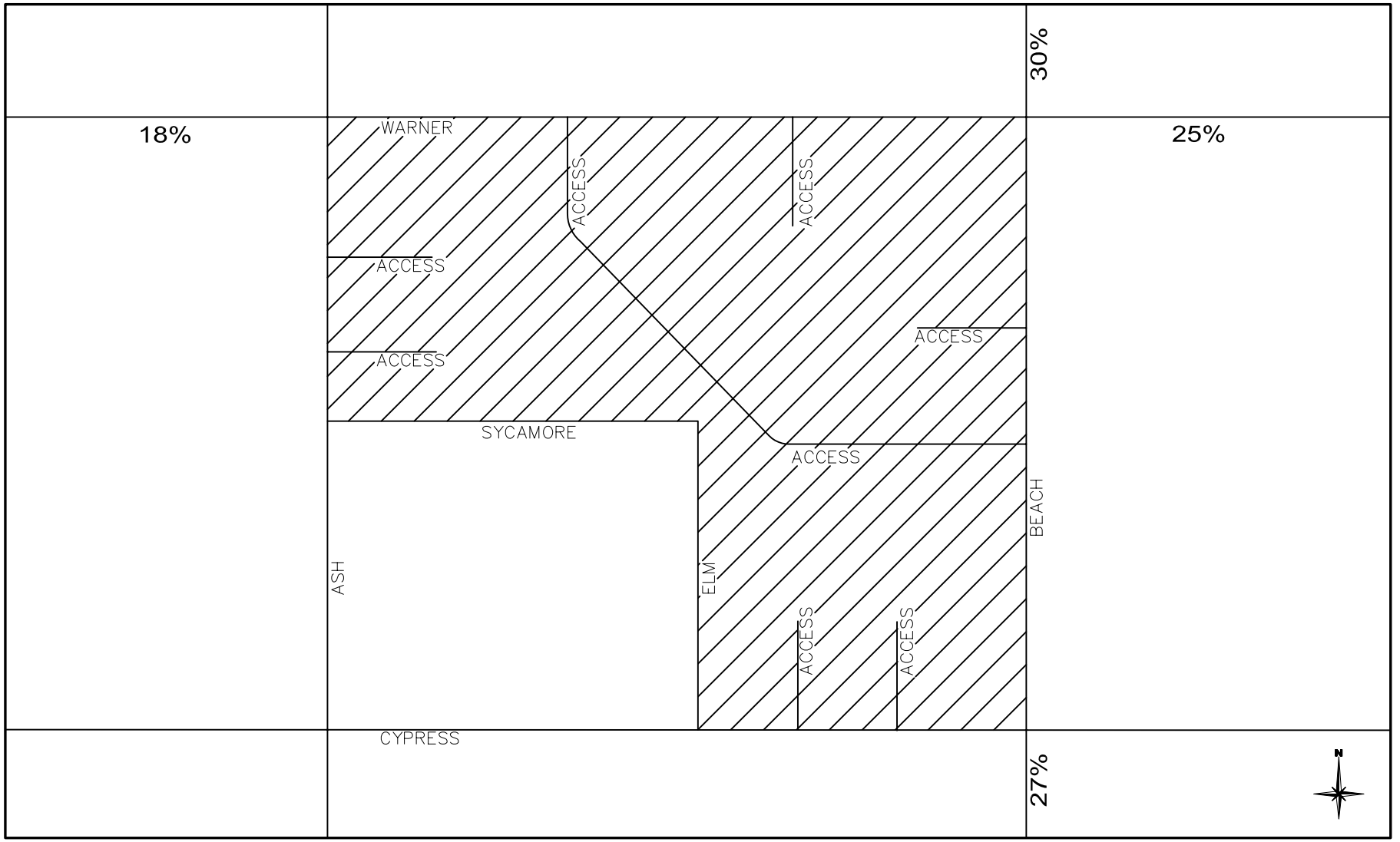
As shown, access to the project site will be available from Beach Boulevard and Warner Avenue, along with an existing internal site roadway that will be realigned as part of the proposed project. Eight access points from Beach Boulevard, Warner Avenue, Cypress Street, and Ash Street would provide direct access to the project site. Three of these driveways would provide direct access to the existing and proposed parking structures. The remaining driveways, located on Beach Boulevard, Warner Avenue, provide access to the existing surface parking located along Beach Boulevard and Warner Avenue, or the proposed surface parking that would be accessed by the internal site roadway.

The access locations on Beach Boulevard and Warner Avenue will have limited access. The two access driveways on Beach Boulevard will be right-turn ingress and egress only. The main entrance on Warner Avenue will allow left-and right-turn ingress, and right-turn egress only. The second Warner Avenue access will have right-turn ingress and egress only. Access to the existing and proposed parking structures would not be available from Beach Boulevard or Warner Avenue. The access locations along Ash Street and Cypress Avenue would allow for full access.

Figure 4 illustrates the trip distribution for the project. Figure 5 illustrates the proposed project peak hour volumes for the site access locations. For comparison purposes, Figure 6 illustrates the existing driveway volumes for the current site. As shown, the 2030 driveway volumes show minimal differences from the existing driveway volumes. Therefore, the eight access driveways are expected to operate at an acceptable LOS.



Source	Figure 3
Studio One Eleven at Perkowitz & Ruth Architects → Proposed Entry/Exit	BEACH-WARNER SITE PLAN



Legend

Project Site

Figure 4

PROJECT TRIP DISTRIBUTION

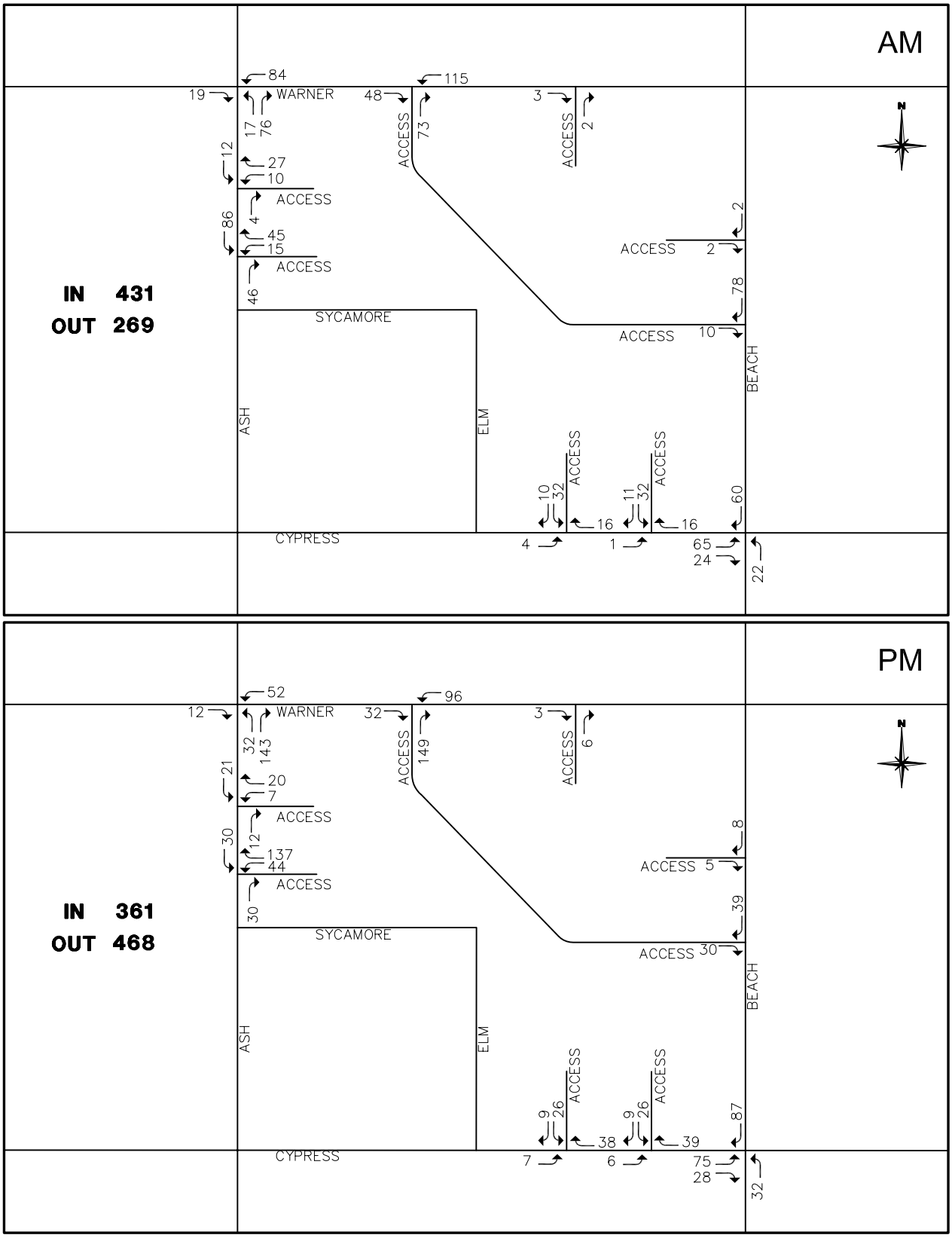
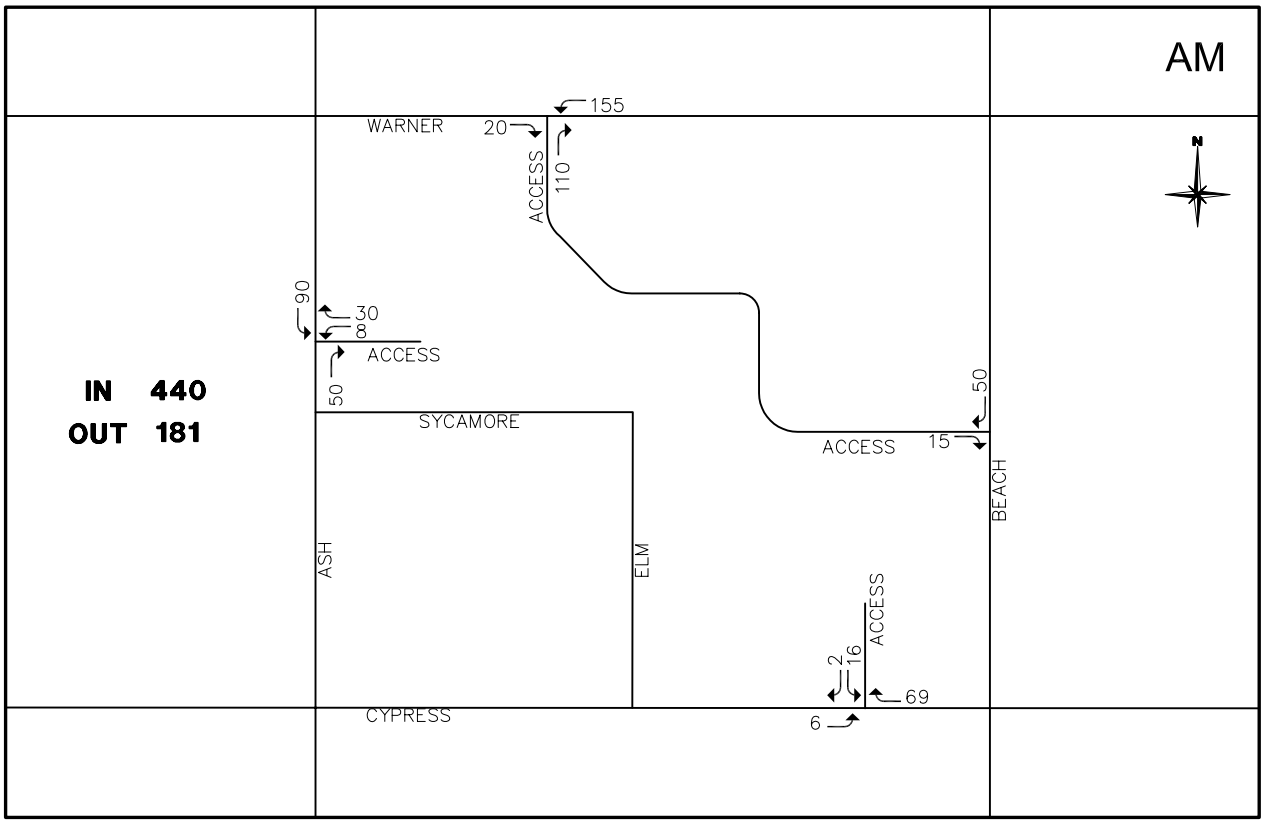


Figure 5

PROJECT PEAK HOUR VOLUMES
- PROPOSED PROJECT



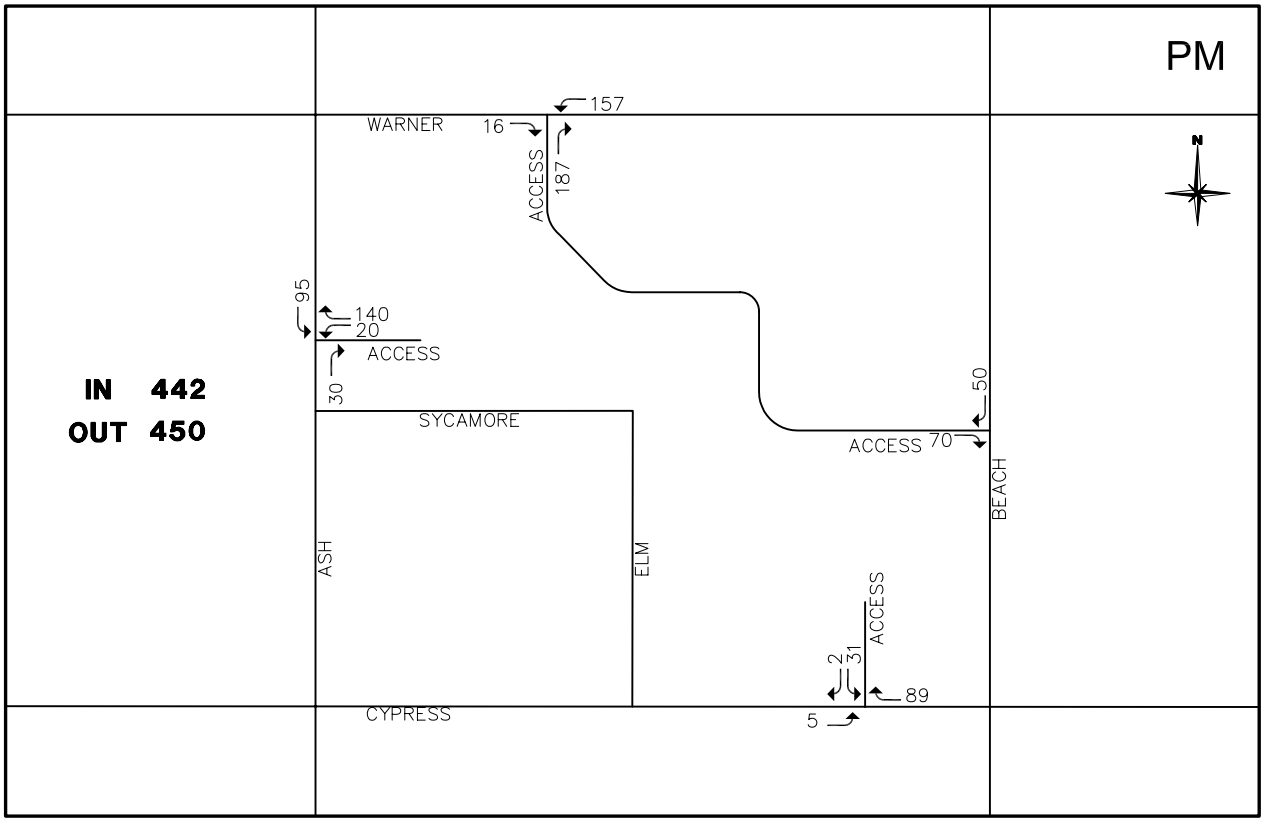


Figure 6

EXISTING PEAK HOUR VOLUMES
- EXISTING LAND USES

ACCIDENT SURVEY FOR BEACH BOULEVARD AND WARNER AVENUE

A survey of vehicle accidents was performed for segments of Beach Boulevard and Warner Avenue adjacent to the proposed project. Appendix A summarizes the accident data and the methodology used in preparing the accident data. The result shows that midblock accident rates for both roadway segments are within the commonly accepted norm (less than 3.5 accidents per million vehicle miles). The majority of collisions on both segments consist of rear-end or sideswipe collisions approaching the Beach Boulevard/Warner Avenue intersection. These collisions may be a result of queuing caused by congestion at this intersection.

A second analysis examined the intersection accident rate for the two local intersections that would be affected by the project as well as the left-turn access driveway on Warner Avenue. The accident rate for all three locations was determined to be well within the accepted norm (less than 1.0 accident per million vehicles) and no significant patterns to accidents were identified that might indicate a need to modify access design or controls.

At the intersection of Ash Street/Millstream Street at Warner Avenue, the majority of collisions consist of right-of-way violations and rear-end or sideswipe collisions on Warner Avenue.

For the intersection of Beach Boulevard at Cypress Avenue, which is controlled by a stop sign on Cypress Avenue, approximately one-third of the total collisions are the result of left-turns from Cypress Avenue onto Beach Boulevard and one-third are rear-end or sideswipe collisions on Beach Boulevard.

In summary, the current site is not a major cause of accidents for adjacent roadways or intersections. As noted previously, the proposed project results in an eight percent decrease in the daily trips and the PM peak hour trips when compared to the existing land uses. The concentration of accidents during the AM and PM peak hours was also reviewed, and the finding is that the vehicular accidents are spread throughout the day rather than concentrated during the peaks. The AM peak hour shows a 13 percent increase in trips, primarily due to 88 outbound trips. As a result, the minor increase in AM peak hour trips (approximately 0.1 percent of the total traffic on Beach Boulevard and 0.11 percent on Warner Avenue) is not expected to cause a significant increase in accidents.

LOCAL IMPACTS ON ASH STREET AND CYPRESS AVENUE

Two local roadways immediately adjacent to the project will be affected by the proposed project, as project trips will have direct access to the parking garages via Ash Street and Cypress Avenue. The following table summarizes the estimated project traffic from the current land uses, and provides a comparison with the proposed project.

	Average Daily Volumes			
Local Roadway	**Existing (2010)**	**2010 with Proposed Project**	**Difference**	**% Difference**
Ash St (500 feet south of Warner Ave)	567	530	-37	-6%
Cypress St (500 west of Beach Blvd)	328	306	-22	-7%

As shown, the local roadways will not experience a significant difference from conditions that exist today.

MITIGATION MEASURES

Two potential mitigation measures were identified in the approved Specific Plan to address the 2030 intersection deficiency at Beach Boulevard and Warner Avenue. The potential mitigation measures are summarized as follows:

Option 1	Add separate westbound right turn lane
Option 2	Add defacto westbound right turn lane Add separate northbound right turn lane

SPECIFIC PLAN MITIGATION PROGRAM

The City of Huntington Beach maintains a Traffic Impact Fee (TIF) program, which funds transportation improvements throughout the City. The TIF program satisfies the AB1600 legislative requirement that development fees are based on a demonstrated relationship between new development and future traffic impacts. Every development project contributes on a fair share basis to these improvements by means of the fee program, which manages the collection of fees and the implementation of improvements. In this way, capacity improvements occur in an orderly and systematic manner, with all future development contributing on a fair share bases.

An update to this program is currently underway including funding for improvements identified in the Beach/Edinger SP. The current TIF program is based on daily trip generation. The updated TIF may use slightly different assessment measures that could result in payment of a TIF despite a net reduction in overall daily trip generation with the proposed project. Participation in the updated TIF will ensure that the Beach Boulevard-Warner Avenue project pays its fair-share contribution to future improvements along with other development in the SP area and the remainder of the City.

ALTERNATIVE PROJECT

The Alternative Project proposes a reduced development of 60 dwelling units and 3,600 square feet of retail uses for the 1.01 acres north of Cypress Avenue, which currently contains a single-level office building on Beach Boulevard and a vacant lot at Elm Street and Cypress Avenue.

Trip Generation – Alternative Project

Table 3 summarizes the land use and trip generation for the Alternative Project and provides a comparison against the existing land uses. The land uses for the Alternative Project include the new development of 17,600 square feet of retail uses, 1,000 square feet of restaurant uses, and 137 residential dwelling units, in addition to the existing uses that are retained. The residential land uses will replace 35,930 square feet of existing commercial land uses. This results in a five percent decrease in daily trips, a two percent decrease in the PM peak hour and 14 percent increase in the AM peak hour. The conclusion from this trip generation analysis is that the Alternative Project will generate fewer trips than the current existing land uses and hence will not result in any additional impacts from trip generation. The slight increase in the AM peak hour is minor and will not have a negative impact.

Trip Generation – Comparison with Approved Specific Plan

Table 4 summarizes the land use and trip generation for the Alternative Project and provides a comparison against the approved Specific Plan. The result is a 45 percent decrease in daily trips, a five percent decrease in the AM peak hour and 17 percent decrease in the PM peak hour. The conclusion from this trip generation analysis is that the Alternative Project will generate fewer trips than the approved SP

Table 3

TRIP GENERATION FOR ALTERNATIVE PROJECT

Land Use	Units	AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	ADT
Existing Land Uses								
General Commercial[1]	13.41 TSF	8	5	13	25	25	50	576
High-Turnover Restaurant[2]	18.32 TSF	110	101	211	121	84	205	2,329
Office Tower[3]	196 TSF	267	37	304	49	243	292	2,158
Single Story Office[4]	24.2 TSF	29	6	35	7	24	31	309
Health/Fitness Club[5]	42.34 TSF	26	32	58	85	64	149	1,394
Movie Theater[6]	26.73 TSF	0	0	0	155	10	165	2,087
Sub-Total	**321 TSF**	**440**	**181**	**621**	**442**	**450**	**892**	**8,853**
Added by Alternative Project								
General Commercial	17.6 TSF	11	7	18	32	33	65	756
High-Turnover Restaurant	1 TSF	6	6	12	7	5	12	127
Mixed-Use Residential[7]	137 DU	14	56	70	55	30	85	921
Sub-Total	**18.6 TSF** **137 DU**	***31***	***69***	***100***	***94***	***68***	***162***	***1,804***
Retained Existing Land Uses								
General Commercial	13.41 TSF	8	5	13	25	25	50	576
High-Turnover Restaurant	18.32 TSF	110	101	211	121	84	205	2,329
Office Tower	196 TSF	267	37	304	49	243	292	2,158
Single Story Office	15 TSF	18	3	21	5	15	20	191
Health/Fitness Club	42.34 TSF	26	32	58	85	64	149	1,394
Sub-Total	***285.07 TSF***	***429***	***178***	***607***	***285***	***431***	***716***	***6,648***
Total for Alternative Project								
Mixed-Use Residential	137 DU	14	56	70	55	30	85	921
General Commercial	31.01 TSF	19	12	31	57	58	115	1,332
High-Turnover Restaurant	19.32 TSF	116	107	223	128	89	217	2,456
Office Tower	196 TSF	267	37	304	49	243	292	2,158
Single Story Office	15 TSF	18	3	21	5	15	20	191
Health/Fitness Club	42.34 TSF	26	32	58	85	64	149	1,394
Grand Total		**460**	**247**	**707**	**379**	**499**	**878**	**8,452**
Net Change (from Existing)		**20**	**66**	**86**	**-63**	**49**	**-14**	**-401**
% Difference				***14%***			***-2%***	***-5%***
Trip Rate (ITE Code) – 8th Edition								
[1]General Commercial (820)	TSF	0.61	0.39	1.00	1.83	1.90	3.73	42.94
[2]High-Turnover Restaurant (932)	TSF	5.99	5.53	11.52	6.58	4.57	11.15	127.15
[3]General Office (710)	TSF	1.36	0.19	1.55	0.25	1.24	1.49	11.01
[4]Business Park (770)	TSF	1.20	0.23	1.43	0.30	0.99	1.29	12.76
[5]Health/Fitness Club (492)	TSF	0.62	0.76	1.38	2.01	1.52	3.53	32.93
[6]Movie Theater without Matinee (443)	TSF	0.00	0.00	0.00	5.79	0.37	6.16	78.06
[7]Apartments (220)	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.72

Table 4

TRIP GENERATION COMPARISON
- ALTERNATIVE PROJECT VERSUS APPROVED SPECIFIC PLAN

Land Use	Units	AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	ADT
Approved SP Land Use								
Mixed-Use Residential[1]	272 DU	27	112	139	109	60	169	1,828
Mixed-Use Commercial[2]	15 TSF	14	13	27	19	20	40	602
General Commercial[3]	242.34 TSF	308	274	582	419	434	853	12,965
Grand Total	**272 DU** **257.34 TSF**	***349***	***399***	***748***	***547***	***514***	***1,062***	***15,395***
Alternative Project								
Mixed-Use Residential	137 DU	14	56	70	55	30	85	921
General Commercial	31.01 TSF	19	12	31	57	58	115	1,332
High-Turnover Restaurant	19.32 TSF	116	107	223	128	89	217	2,456
Office Tower	196 TSF	267	37	304	49	243	292	2,158
Single Story Office	15 TSF	18	3	21	5	15	20	191
Health/Fitness Club	42.34 TSF	26	32	58	85	64	149	1,394
Grand Total	**137 DU** **303.67 TSF**	**460**	**247**	**707**	**379**	**499**	**878**	**8,452**
Net Change (from EIR)		***111***	***-152***	***-41***	***-168***	***-15***	***-184***	***-6,943***
% Difference				***-5%***			***-17%***	***-45%***
Trip Rates for Approved Specific Plan								
[1]Mixed-Use Residential	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.72
[2]Mixed-Use Commercial*	TSF	0.95	0.85	1.80	1.28	1.34	2.64	40.13
[3]General Commercial	TSF	1.27	1.13	2.40	1.73	1.79	3.52	53.50

*Derived from Shopping Center, General Office and High-Turnover Restaurant

and hence will not result in any additional impacts from trip generation. The slight increase in the AM peak hour inbound trips (111) is minor and will not have a negative impact.

2030 ADT VOLUMES – ALTERNATIVE PROJECT

The 2030 ADT volumes with the Alternative Project are summarized below for the four roadway segments close to the project, and a comparison is provided against the approved SP volumes:

ADT VOLUME SUMMARY			
Link Location	**2030 Specific Plan ADT Volume**	**2030 ADT Volume with Alternative Project**	**% Change**
Beach Blvd north of Warner Ave	66,000	63,917	-3%
Beach Blvd south of Warner Ave	64,000	62,125	-3%
Warner Ave west of Beach Blvd	40,000	38,750	-3%
Warner Ave east of Beach Blvd	43,000	41,204	-4%

As shown, the percentage change is four percent or less. Hence, the Alternative Project does not have a significant change in ADT volumes. The peak hour LOS also shows results of a similar magnitude, with the change being less than significant.

SITE ACCESS ANALYSIS FOR ALTERNATIVE PROJECT

Figure 7 illustrates the Alternative Project peak hour volumes for the project's driveways. As shown, the volumes are not significantly different from the existing volumes discussed previously. Therefore, the eight access driveways are expected to operate at an acceptable LOS.

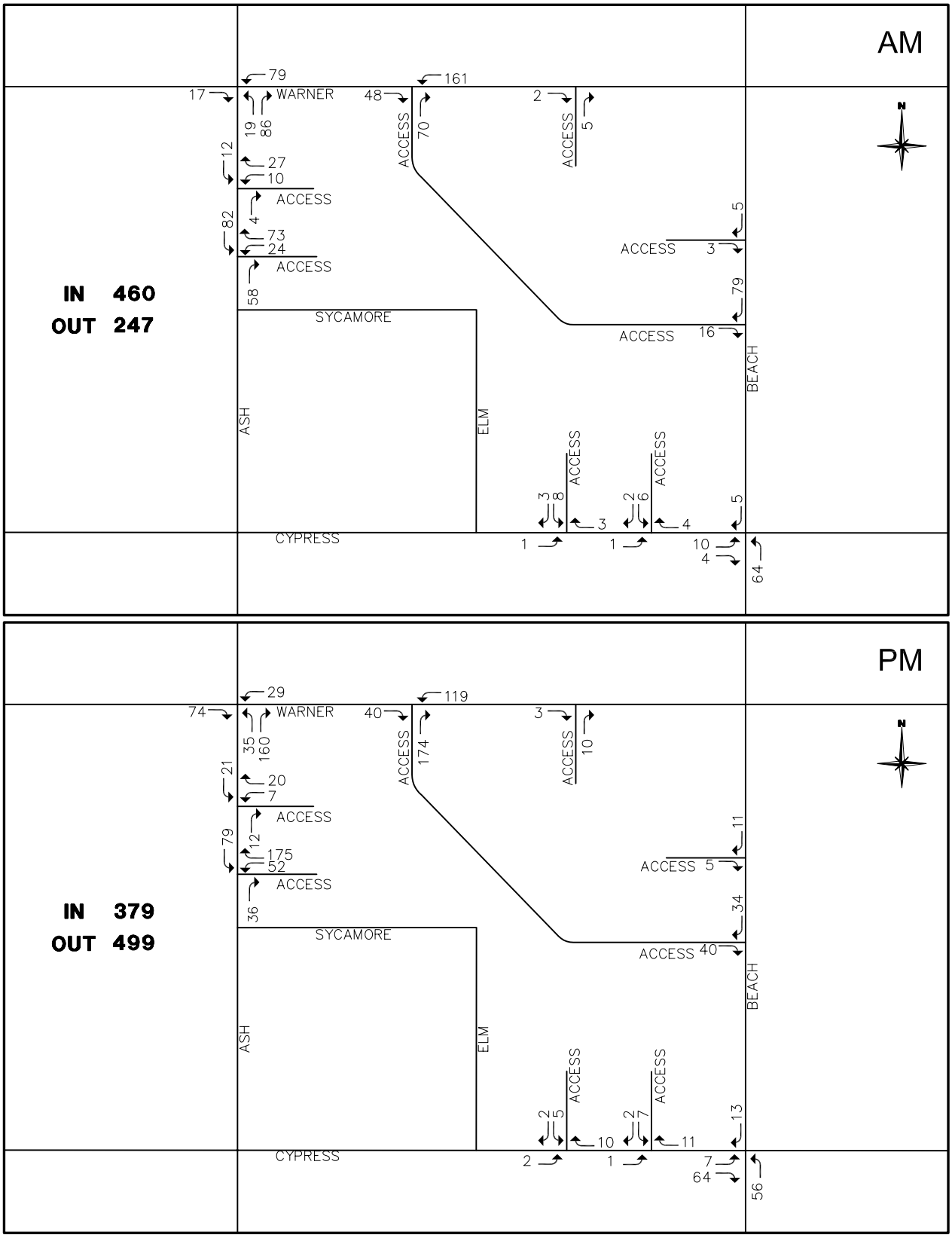


Figure 7

PROJECT ONLY PEAK HOUR VOLUMES
- ALTERNATIVE PROJECT

APPENDIX A

ACCIDENT HISTORY SURVEY

A survey of vehicle accidents was performed for midblock segments and intersections adjacent to the proposed project in the City of Huntington Beach. The midblock accident analysis tabulated accident data for the roadway segments along Beach Boulevard and Warner Avenue that were adjacent to the proposed project. An intersection analysis tabulated accident data for the three local intersections that would be affected by the proposed project.

Table A-1 summarizes the accident data along with the average accident rate for the midblock segment. As shown, the result is that the midblock accident rates are within the commonly accepted norm (3.5 accidents per million vehicle miles).

Table A-2 summarizes the intersection accident data along with the average accident rate. As shown, the result is that the intersection accident rates are within the accepted norm (less than 1.0 accidents per million vehicles) for the intersection of Ash Street at Warner Avenue, Beach Boulevard at Cypress Avenue and Access driveway at Warner Avenue.

Tables A-3 through A-4 summarize the accident history for the midblock locations: Warner Avenue (from Ash Street to Beach Boulevard), and Beach Boulevard (from Warner Avenue to Cypress Avenue). Table A-5 through A-7 summarize the accident history for the three local intersections: Warner Avenue at Ash Street, Beach Boulevard at Cypress Avenue, and Access driveway at Warner Avenue, respectively.

Table A-1

ACCIDENT RATE CALCULATION FOR MIDBLOCK SEGMENTS

Midblock	# Accidents	Years	Distance (mi)	ADT – Main Roadway	Total Accident Rate*
Warner Ave (Ash to 450 ft east of Ash)	31	4.5	.17	39,800	2.79 acc/mvm
Beach Blvd (Warner Ave to Cypress Ave)	23	4.5	.16	63,800	1.37 acc/mvm

*Total Accident Rate = $\frac{\text{Number of accidents x 1,000,000 Vehicle Miles}}{\text{4.5 Years x 365 Days x Two-Way ADT Volume x Segment Length}}$

Abbreviations: acc – accidents
mvm – millions of vehicle miles

Table A-2

ACCIDENT RATE CALCULATION FOR INTERSECTIONS

Midblock	# Accidents	Years	ADT – Main Roadway	ADT – Minor Roadway	Total Accident Rate*
Ash St & Warner Ave	17	4.5	39,800	1,900	0.25 acc/mv
Beach Blvd & Cypress Ave	17	4.5	63,800	1,900	0.16 acc/mv
Access Driveway & Warner Ave	6	4.5	39,800	2,000	0.09 acc/mv

$$\text{Total Accident Rate*} = \frac{\text{Number of Accidents x 1,000,000 Vehicles}}{\text{365 Days x 4.5 Years x ADT Volume (Major St + Minor St)}}$$

Abbreviations: acc – accidents
mv – per million vehicles

Table A-3

MIDBLOCK ACCIDENT HISTORY SURVEY
- Warner Avenue (From Ash Street to Beach Boulevard)

Date	Time	Distance from I/S	Collision Type	Vehicle 1 Direction	Vehicle 2 Direction	Injuries
Warner midblock collisions: Ash-Beach						
1. 7/15/06	9:44	480' w/o Beach	Bike	EBR	WBT	1 inj. Bike
2. 7/28/06	11:26	85' w/o Beach	RE	EBT	WBT	0 inj DUI
3. 8/29/06	12:31	463' w/o Beach	SS	EB	EBT	1 inj
4. 9/8/06	11:55	55' w/o Beach	SS	EB	EB	0 inj
5. 9/26/06	18:04	210' e/o Ash	RE	EB	EBT	0 inj
6. 10/26/06	20:56	400' w/o Beach	--	WB	WB	1 inj
7. 12/1/06	18:02	121' e/o Ash	RE	EBT	EB	0 inj
8. 1/16/07	6:05	325' w/o Beach	Object	WB	--	0 inj
9. 1/20/07	11:28	179' w/o Beach	RE	EBT	EBT	0 inj
10. 1/28/07	13:46	100' w/o Beach	RE	EBT	NB	0 inj
11. 4/11/07	16:01	130' w/o Beach	RE	WBT	WBT	1 inj
12. 5/17/07	17:34	75' e/o Ash	RE	EBT	EBT	0 inj
13. 7/18/07	10:16	120' e/o Ash	SS	WBT	WBT	0 inj
14. 9/3/07	18:11	334' w/o Beach	Object	EBT	--	0 inj
15. 10/16/07	11:47	347' w/o Beach	RE	EBT	EBT	1 inj
16. 2/1/08	9:51	94' e/o Ash	SS	EB	EBT	0 inj
17. 2/10/08	17:10	86' e/o Ash	RE	EBT	EBT	0 inj
18. 3/19/08	15:39	240' w/o Beach	RE	EBT	EBT	0 inj
19. 4/8/08	12:55	250' w/o Beach	RE	T	T	0 inj
20. 8/17/08	4:26	240' w/o Beach	Object	WB	--	0 inj DUI
21. 10/29/08	16:09	120' w/o Beach	RE	WBT	WBT	0 inj
22. 11/12/08	15:14	63' w/o Beach	BS	WBT	NBR	0 inj
23. 12/12/08	19:57	65' w/o Beach	SS	EB	EBT	0 inj
24. 2/16/09	7:40	60' w/o Beach	RE	WBT	EB	1 inj
25. 7/3/09	13:19	420' w/o Beach	RE	EBT	EBT	0 inj
26. 8/5/09	17:32	63' w/o Beach	SS	WB	WBT	0 inj
27. 11/25/09	19:24	556' w/o Beach	--	WB-Backing	EBT	0 inj
28. 2/11/10	8:50	75' w/o Beach	SS	EBT	EBT	0 inj
29. 6/12/10	15:45	287' w/o Beach	SS	WB	WBT	0 inj
30. 9/5/10	13:36	130' w/o Beach	SS	EB	EBT	0 inj
31. 7/12/08	21:27	290' w/o Beach	SS	SBT	SBT	0 inj

Accident Rate = $\frac{31{,}000{,}000}{4.5 \text{ yr} \times 365 \times 39{,}800 \times .17 \text{ mi}}$ = 2.79 acc/mvm

Abbreviations:
w/o – west of
e/o – east of
RE – rear end
SS – sideswipe
BS – broadside

Table A-4

MIDBLOCK ACCIDENT HISTORY SURVEY
- Beach Boulevard (From Warner Avenue to Cypress Avenue)

Date	Time	Distance from I/S	Collision Type	Vehicle 1 Direction	Vehicle 2 Direction	Injuries
Beach Boulevard midblock: Warner to Cypress						
1. 12/19/05	12:13	406' s/o Warner	RE	NB	NBT	0 inj
2. 12/3/05	16:47	152' s/o Warner	Object	SBL	--	0 inj
3. 1/14/06	7:32	303' n/o Cypress	Bike	NB	EBR	1 inj
4. 6/11/06	12:17	100' s/o Warner	SS	NB	NBT	0 inj
5. 7/4/06	13:59	181' n/o Blaylock	Bike	NB	EBR	1 inj
6. 7/29/06	22:10	100' s/o Warner	SS	NB	NB	1 inj
7. 11/7/06	17:22	530' s/o Warner	RE	NB	NB	1 inj
8. 11/17/06	13:31	407' s/o Warner	SS	SB	SBR	0 inj
9. 12/19/06	18:45	165' n/o Blaylock	RE	NBT	NB	1 inj
10. 2/15/07	13:42	460' s/o Warner	RE	NB	NB	1 inj
11. 3/1/07	10:10	214' s/o Warner	RE	NB	NBT	0 inj
12. 4/17/07	17:07	64' n/o Blaylock	RE	NBT	NB	0 inj
13. 6/12/07	11:12	110' s/o Warner	RE	SBT	SBT	1 inj
14. 9/3/07	17:17	170' s/o Warner	RE	NBT	NB	1 inj
15. 11/12/07	8:53	190' s/o Warner	RE	SBT	SB	0 inj
16. 5/12/08	15:29	105' n/o Blaylock	RE	T	T	0 inj
17. 7/9/08	19:07	150' s/o Warner	RE	EBR	EBR	0 inj
18. 7/12/08	17:51	60' n/o Blaylock	RE	NBT	NB	0 inj
19. 4/8/09	17:22	375' s/o Warner	BS	SBT	SB	0 inj
20. 4/23/09	13:47	317' s/o Warner	RE	NBT	NB	1 inj
21. 7/3/09	16:45	550' s/o Warner	SS	NB	NBT	0 inj
22. 4/1/10	19:42	78' n/o Blaylock	RE	NBT	NB	0 inj
23. 9/29/10	19:11	80' n/o Blaylock	SS	NBT	NB	0 inj

Accident Rate = $\frac{23{,}000{,}000}{4.5 \text{ yr} \times 365 \times 63{,}800 \times .16 \text{ mi}}$ = 1.37 acc/mvm

Abbreviations:
w/o – west of
e/o – east of
RE – rear end
SS – sideswipe
BS – broadside

Table A-5

INTERSECTION ACCIDENT HISTORY SURVEY
- Warner Avenue at Ash Street

Date	Time	Distance from I/S	Collision Type	Vehicle 1 Direction	Vehicle 2 Direction	Injuries
Warner at Ash I/S (within 100') + Millstream						
1. 2/14/06	7:43	I/S	Bike	SBR	EBT	1 inj
2. 6/29/06	11:44	I/S	BS	EBT	NBL	3 inj
3. 5/2/07	22:14	I/S	Ped	SBT	EBT	1 inj
4. 8/27/07	10:50	I/S	BS	EBT	NBT	0 inj
5. 10/11/07	10:01	I/S	Bike	WBT	NBT	0 inj
6. 11/17/07	15:21	35' w/o Ash	RE	EBT	EBT	0 inj
7. 1/23/08	10:17	I/S	BS	WBT	WBT	2 inj
8. 3/15/08	16:01	75' w/o Ash	RE	EBT	EB	0 inj
9. 5/5/08	14:38	27' e/o Ash	RE	T	T	0 inj
10. 6/6/08	18:43	I/S	BS	SBL	EBT	2 inj
11. 10/8/08	13:21	52' e/o Ash	RE	WB	WB	1 inj
12. 11/16/08	11:24	I/S	BS	EBT	NBL	1 inj
13. 10/5/09	18:47	8' e/o Ash	Ped	WBT	NBT	0 inj
14. 10/14/09	7:48	I/S	BS	NBL	WBT	0 inj
15. 12/10/09	16:14	35' w/o Ash	RE	EBT	EB	1 inj
16. 2/11/10	12:33	80' w/o Ash	RE	EBT	EB	0 inj
17. 8/16/10	15:06	100' e/o Ash	RE	WB	WBT	0 inj

Accident Rate = $\frac{17{,}000{,}000}{4.5 \text{ yr} \times 365 \times (39{,}800 + 1{,}900)}$ = .25 acc/mv

Abbreviations:
w/o – west of
e/o – east of
RE – rear end
SS – sideswipe
BS – broadside
I/S - intersection

Table A-6

INTERSECTION ACCIDENT HISTORY SURVEY
- Beach Boulevard at Cypress Avenue

Date	Time	Distance from I/S	Collision Type	Vehicle 1 Direction	Vehicle 2 Direction	Injuries
Beach at Cypress I/S (within 100' of I/S)						
1. 1/2/06	12:14	42' n/o Cypress	Ped	EB	NBL	1 inj
2. 1/31/06	10:11	I/S	BS	EBL	SBT	1 inj
3. 5/1/06	17:57	I/S	RE	SBT	SBR	0 inj
4. 12/12/06	15:31	60' n/o Cypress	Bike	NB	SBR	1 inj
5. 2/7/07	16:51	60' n/o Cypress	Object	NB	--	1 inj
6. 5/21/07	8:57	I/S	BS	EBL	SBT	0 inj
7. 6/23/07	21:40	18' n/o Cypress	Object	NB	NBT	0 inj
8. 11/9/07	15:33	50' s/o Cypress	SS	SB	SB	0 inj
9. 1/9/08	21:25	I/S	BS	EBL	SBT	1 inj
10. 5/6/08	8:10	I/S	BS	T	L	0 inj
11. 6/28/08	2:02	I/S	Object	NBT	--	0 inj
12. 10/28/08	10:57	28' s/o Cypress	RE	SB	SBR	0 inj
13. 6/20/09	9:31	I/S	Bike	EBT	SBT	1 inj
14. 1/15/10	22:36	65' s/o Cypress	RE	NBT	NB	0 inj
15. 2/13/10	13:00	50' s/o Cypress	SS	SB	SBT	0 inj
16. 7/7/10	15:26	I/S	BS	EBL	SBT	2 inj
17. 3/26/10	14:57	105' s/o Blaylock	SS	EBL	NBT	0 inj

Accident Rate = $\frac{17{,}000{,}000}{4.5 \text{ yr} \times 365 \times (63{,}800 + 1{,}900)}$ = .16 acc/mv

Abbreviations:
w/o – west of
e/o – east of
RE – rear end
SS – sideswipe
BS – broadside
I/S - intersection

Table A-7

INTERSECTION ACCIDENT HISTORY SURVEY
- Warner Avenue at Restaurant Driveway

Date	Time	Distance from I/S	Collision Type	Vehicle 1 Direction	Vehicle 2 Direction	Injuries
Collisions at Warner Avenue Driveway (250-300 ft east of Ash)						
1. 5/29/06	16:22	212' e/o Ash	BS	WBL	EBT	3 inj
2. 6/4/06	21:08	354' e/o Ash	BS	SBL	EBT	2 inj
3. 1/7/08	12:05	300' e/o Ash	SS	NBR	NBR	0 inj
4. 2/11/09	17:49	336' e/o Ash	--	SBL	EBT	1 inj
5. 3/12/10	14:47	284' e/o Ash	BS	SBL	EBT	0 inj bike
6. 8/18/10	8:56	280' e/o Ash	BS	SBL	EBT	2 inj

Accident Rate = $\frac{6{,}000{,}000}{4.5 \text{ yr} \times 365 \times 39{,}800}$ = .09 acc/mv

Abbreviations:
w/o – west of
e/o – east of
RE – rear end
SS – sideswipe
BS – broadside