

APPENDIX 6 – TRA



HEXAGON TRANSPORTATION CONSULTANTS, INC.

Hotel Durell Development

Traffic Impact Analysis

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Executive Summary

This report presents the results of the traffic impact analysis conducted for the proposed Hotel Durell development in Pacific Grove, CA. The project site is located along the south side of Central Avenue between Grand Avenue and Fountain Avenue.

Project Description

The project site is currently occupied by 17,500 square-feet (s.f.) of retail/restaurant uses and a surface parking lot. The project will consist of the replacement of the existing uses with a 125-room hotel. Parking for the project will be provided by an all valet 55-space ground floor parking garage. An additional 28 valet parking spaces will be provided within an existing off-site surface parking lot located between Fountain Avenue and 15th Street across the street from the project site.

Scope of Study

The purpose of the study is to identify the potential traffic impacts related to the proposed project. The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of Pacific Grove.

The traffic study includes an analysis of AM and PM peak-hour traffic conditions for four unsignalized intersections in the vicinity of the project site. The study intersections were selected based upon the estimated number of project trips added to surrounding intersections (10 or more trips per lane per hour). Any intersections outside of the selected study intersections to which the project would not add 10 or more trips per lane per hour, were not studied because the addition of project traffic would not be a sufficient amount to result in the degradation of intersection levels of service. The study intersections were evaluated using Synchro software and the operations methodology described in the *2010 Highway Capacity Manual*. The study also includes an evaluation of parking and the project's effects on existing bicycle, pedestrian, and transit facilities.

Project Trip Generation

Proposed Project Trip Generation

Through empirical research, data have been collected that quantify the amount of traffic produced by common land uses. 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 added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates by the size of the development. The trip generation rates contained in the Institute of Transportation Engineers (ITE), *Trip Generation, 9th Edition* were used to estimate trips generated by the proposed land use.

Based on the ITE trip generation rates, it is estimated that the proposed hotel would generate 746 daily trips with 66 trips occurring during the AM peak-hour (39 inbound and 27 outbound) and 75 trips occurring during the PM peak-hour (38 inbound and 37 outbound).

Existing Uses Project Trip Generation

Trips associated with the existing uses on the project site are subtracted from the estimated trips to be generated by the proposed project since the site uses were occupied at the time of the collection of traffic counts. Therefore, traffic associated with the existing site uses is included in existing traffic data. It is standard practice to apply a trip credit for existing site uses on a proposed project site. An overestimation of trip generation and impacts to the roadway system would occur were the trip credit not applied. However, it should be noted that there would be no change to LOS results and project impacts reported below if the existing trip credit were not applied.

The existing 17,500 s.f. of retail/restaurant uses on the project site include a martial art studio, a window and door store, a fabric store, an antique store, a treasure shop, and a restaurant. Parking for the existing building is provided within the on-site surface parking lot and an off-site surface parking lot across Fountain Avenue. Trip generation counts were conducted at each of the four driveways of the on-site surface parking lot on June 1st, 2016 for the purpose of estimating the trips generated by the existing uses on -site. Based on the counts, 15 AM peak-hour trips and 32 PM peak-hour trips are generated at the on-site parking lot driveways.

However, site observations indicated that the on-site surface parking lot and an off-site surface parking lot are shared by the existing uses on the project site, Holman Building to the south of the project on Lighthouse Avenue, and Monterey Credit Union on Fountain Avenue adjacent to the off-site parking lot. Site observations also indicated that a portion of the on-site parking lot was being used as a staging area for the construction of Holman Building. Additionally, customers of the existing uses on the project site utilized on-street parking. Due to the shared parking, construction staging, and use of on-street parking, the driveway counts at the on-site parking lot do not accurately reflect the vehicle trips generated by the project. Therefore, the vehicle trips generated by the existing uses on-site were estimated using ITE trip generation rates for specialty retail centers.

Based on the ITE trip rates, the existing site uses are estimated to currently generate 786 daily trips with 20 trips occurring during the AM peak-hour (12 inbound and 8 outbound) and 63 trips occurring during the PM peak-hour (28 inbound and 35 outbound).

Net Project Trip Generation

Based on the application of ITE trip generation rates for hotel uses and credit for existing uses on the project site, it is estimated that the proposed hotel would generate 40 fewer daily trips and a net additional 46 AM peak-hour trips (27 inbound and 19 outbound) and 12 PM peak-hour trips (10 inbound and 2 outbound).

Project Impacts

Existing Plus Project Intersection Level of Service Impacts

The intersection level of service is summarized in Table ES 1. The results of the intersection level of service analysis under existing plus project conditions show that no study intersections would be impacted by the project according to applicable level of service standards.

Cumulative Intersection Level of Service Impacts

The intersection level of service under cumulative conditions is summarized in Table ES 1. The results of the intersection level of service analysis under cumulative conditions indicate that no study intersections would be impacted by the project according to applicable level of service standards.

Traffic Signal Warrants

For unsignalized intersections, an assessment is made of the need for signalization of the intersection. This assessment is made on the basis of the Peak-hour Volume Signal Warrant, Warrant #3 described in the *California Manual on Uniform Traffic Control Devices*, 2012. This method makes no evaluation of intersection level of service, but simply provides an indication whether peak-hour traffic volumes are, or would be sufficient to justify installation of a traffic signal.

The signal warrant analysis showed that the peak-hour volume warrant would not be satisfied at any of the unsignalized study intersections under existing, existing plus project conditions, and cumulative conditions.

Other Transportation Issues

Other issues related to transportation were evaluated to determine if any deficiencies would exist under project conditions that may not be specifically linked to environmental impact reporting. These may not be considered environmental issues, and may not be evaluated in the environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction. The other transportation issues considered are impacts to adjacent neighborhoods, bicycle, pedestrian, transit issues, and site access and on-site circulation issues.

Transit, Pedestrian and Bicycle Analysis

Bicycle and Pedestrian Circulation

The project will result in an increase in pedestrian activity at each of the study intersections along Central Avenue that are used to access the beach front to the north and Downtown to the south. The project will maintain a sidewalk along its frontage on Central Avenue. In addition, the project will include patio spaces and walkways along the building footprint along Central Avenue.

Crosswalks are provided on all approaches at the Fountain Avenue/Lighthouse Avenue and Grand Avenue/Lighthouse Avenue intersections. However, crosswalks are not provided across Grand Avenue at the Grand Avenue/Central Avenue intersection and across Fountain Avenue at the Fountain Avenue/Central Avenue intersection. The missing crosswalks to cross Grand Avenue and Fountain Avenue along Central Avenue should be installed. The implementation of the missing crosswalks would require that the sidewalks at the corners of both the Grand Avenue/Central Avenue and Fountain Avenue/Central Avenue be extended into the intersections. There are no identified plans to implement pedestrian and bicycle improvements along Central Avenue in the immediate project area. Therefore, the implementation of the missing crosswalks would need to be pursued by the proposed project in coordination with City staff and the development of the adjacent parcels at each intersection.

Transit Service

Assuming three percent transit mode share, the project could create up to two new transit riders during the peak hours. These new riders easily could be accommodated by the available capacity of the two local bus routes, which have stops located within walking distance of the site. Pedestrian access between the project site and the nearby bus stops is provided by the existing sidewalks and crosswalks. Thus, no improvements to the existing transit facilities would be needed in conjunction with the proposed project.

Parking

Per the City of Pacific Grove Municipal Code (Chapter 23.64.190 Off-street parking, storage), one parking space per 4 rooms is required for hotel uses. The planning commission may require additional parking at a ratio of one space for each 50 square feet of accessory dining area. The proposed hotel will include 125 rooms with 1,600 square feet of dining area. Based on the City's parking requirements, the proposed

project is required to provide 64 off-street parking spaces. The project would meet the City's parking requirement by providing a total of 83 valet parking spaces (55 spaces on-site and 28 off-site spaces). It is recommended that a portion of the 28 off-site spaces be designated for hotel-employees.



Table ES 1
Intersection Level of Service Summary

Study Number	Intersection	LOS Standard	Peak Hour	Existing			Existing Plus Project				Cumulative			
				Avg. Delay ¹	LOS	Warrant Met?	Avg. Delay ¹	LOS	Inc. in Delay	Warrant Met?	Avg. Delay ¹	LOS	Inc. in Delay	Warrant Met?
1	Grand Avenue and Central Avenue	C	AM	10.5	B	No	10.5	B	0.0	No	10.5	B	0.0	No
			PM	10.5	B	No	10.5	B	0.0	No	10.5	B	0.0	No
2	Fountain Avenue and Central Avenue	C	AM	11.9	B	No	12.2	B	0.3	No	12.3	B	0.4	No
			PM	12.5	B	No	12.6	B	0.1	No	12.8	B	0.3	No
3	Fountain Avenue and Lighthouse Avenue	C	AM	10.8	B	No	11.1	B	0.3	No	11.4	B	0.6	No
			PM	13.0	B	No	13.1	B	0.1	No	13.8	B	0.8	No
4	Grand Avenue and Lighthouse Avenue	C	AM	10.6	B	No	10.6	B	0.0	No	10.6	B	0.0	No
			PM	11.1	B	No	11.1	B	0.0	No	11.4	B	0.3	No

Note:
 1. The stop-controlled approach with the highest delay (seconds per vehicle) is reported for minor street stop-controlled intersections.

1.

Introduction

This report presents the results of the traffic impact analysis conducted for the proposed Hotel Durell development in Pacific Grove, California. The project site is located along the south side of Central Avenue between Grand Avenue and Fountain Avenue. The project site location and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

Project Description

The project site is currently occupied by 17,500 square-feet (s.f.) of retail/restaurant uses and a surface parking lot. The project will consist of the replacement of the existing uses with a 125-room hotel. Parking for the project will be provided by an all valet 55-space ground floor parking garage. An additional 28 valet parking spaces will be provided within an existing off-site surface parking lot located between Fountain Avenue and 15th Street across the street from the project site.

Scope of Study

The purpose of the study is to identify the potential traffic impacts related to the proposed project. The potential impacts related to the proposed development were evaluated following the standards and methodologies set forth by the City of Pacific Grove.

The traffic study includes an analysis of AM and PM peak-hour traffic conditions for four unsignalized intersections in the vicinity of the project site. The study intersections were selected based upon the estimated number of project trips added to surrounding intersections (10 or more trips per lane per hour). Any intersections outside of the selected study intersections to which the project would not add 10 or more trips per lane per hour, were not studied because the addition of project traffic would not be a sufficient amount to result in the degradation of intersection levels of service. The study intersections were evaluated using Synchro software and the operations methodology described in the *2010 Highway Capacity Manual*. The study also includes an evaluation of parking and the project's effects on existing bicycle, pedestrian, and transit facilities. The study intersections are identified below:

Study Intersections

1. Grand Avenue and Central Avenue (unsignalized)
2. Fountain Avenue and Central Avenue (unsignalized)
3. Fountain Avenue and Lighthouse Avenue (unsignalized)
4. Grand Avenue and Lighthouse Avenue (unsignalized)

Traffic conditions at all of the study intersections were analyzed for the weekday AM and PM peak hours. The weekday AM peak hour of traffic is generally between 7:00 and 9:00 AM, the weekday PM peak hour



Figure 1
Site Location and Study Intersections

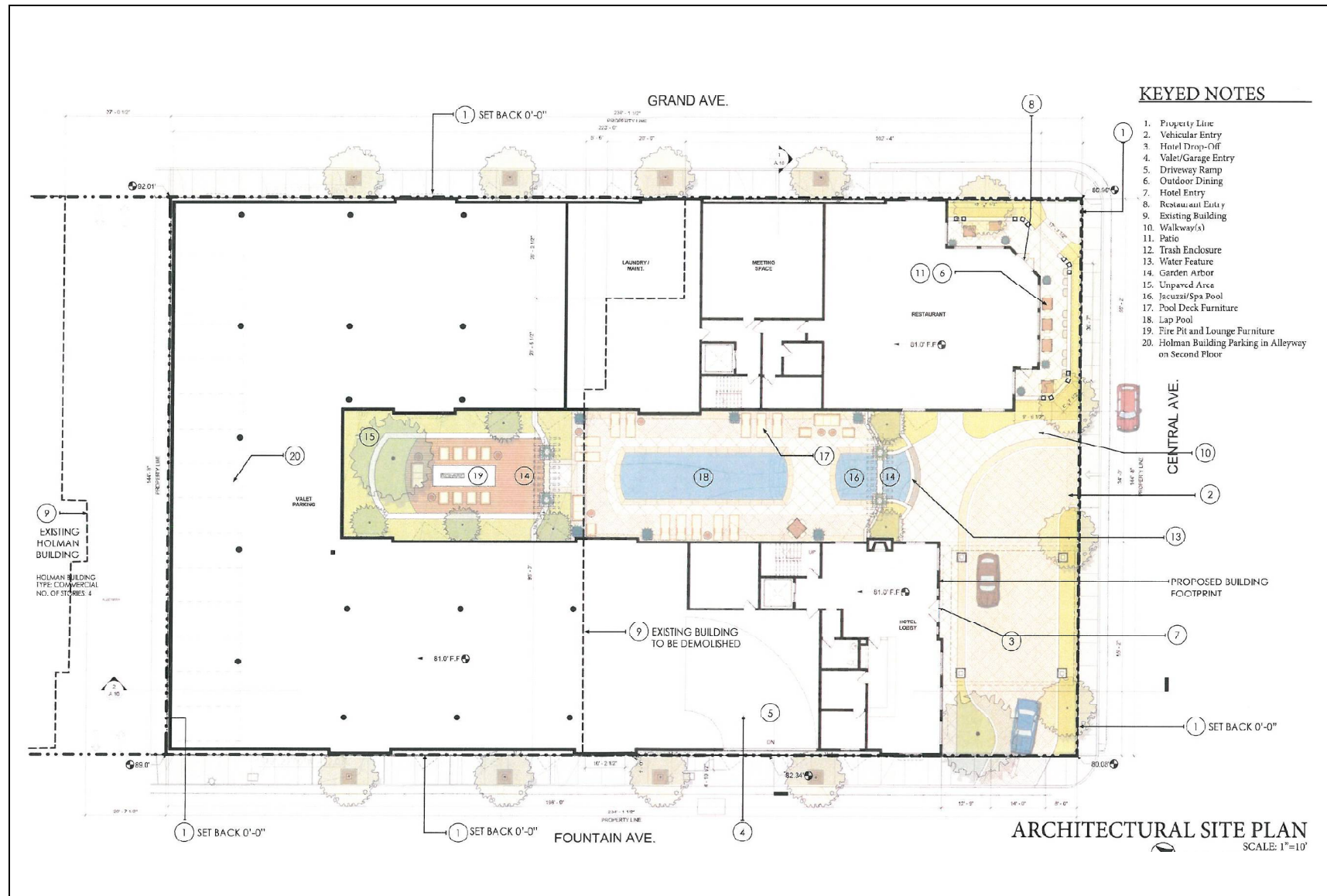


Figure 2
Site Plan

is typically between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on a typical weekday.

Traffic conditions were evaluated for the following scenarios:

- Scenario 1:** *Existing Conditions.* Existing conditions were represented by existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from new peak-hour turning-movement counts conducted in June of 2016. The counts collected reflect traffic conditions when schools were in session.
- Scenario 2:** *Existing Plus Project Conditions.* Project-generated traffic volumes were added to existing traffic volumes to estimate existing plus project conditions. Existing plus project conditions were evaluated relative to existing conditions in order to determine the effects the project would have on the existing roadway network.
- Scenario 3:** *Cumulative Conditions.* Cumulative conditions were represented by future traffic volumes, at the date of project occupancy, on the roadway network. Traffic volumes under cumulative conditions were estimated by adding traffic generated by the proposed project and other approved or planned projects to existing traffic volumes at study intersections. This scenario was evaluated in order to fulfill California Environmental Quality Act (CEQA) requirements.

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 previous traffic studies, new counts, and field observations. The following data were collected from these sources:

- existing traffic volumes
- existing intersection control and lane configurations
- approved and planned projects

Analysis Methodologies and Level of Service Standards

Traffic conditions at the study intersections 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 analysis methods are described below.

The City of Pacific Grove General Plan Transportation Element (1994) includes goals and policies regarding the transportation network and acceptable levels of service (LOS) for City of Pacific Grove roadways. According to the Transportation Element, the LOS on arterial and collector streets within the City of Pacific Grove should be no worse than LOS C, but LOS D is acceptable during weekday peak-periods at intersections that are close to or at limits of LOS D (per 1994 conditions) on arterial routes outside the Downtown area. The Transportation Element does not establish guidelines regarding acceptable LOS on roadways within the downtown area. According to the Transportation Element, a level of service analysis of Downtown streets would not be meaningful because congestion and parking problems are expected to occur in the Downtown area. The congestion and parking problems cannot be completely mitigated without destroying the elements that make Downtown desirable. The roads most pertinent to the proposed project, including Central Avenue, Lighthouse Avenue, and Fountain Avenue, are included in the City's list of arterial streets.

Unsignalized Intersections

The intersections were analyzed using Synchro software and the *Highway Capacity Manual* (HCM) 2010 methodology for computing level of service at intersections. All of the study intersection are side-street stop-controlled intersections. For two-way stops or T-intersections, operations are determined by the average control delay for vehicles entering the intersection from the stop-controlled approaches on minor streets or from left-turn approaches on major streets during the peak hour. The level of service is reported based on the average control delay for the worst approach (i.e. the stop-controlled approach with the highest delay). The correlation between average delay and level of service is shown in Table 1.

Table 1
Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (Sec.)
A	Operations with very low delays occurring with favorable progression.	Up to 10.0
B	Operations with low delays occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operation with longer delays due to a combination of unfavorable progression of high V/C ratios.	25.1 to 35.0
E	Operation with high delay values indicating poor progression and high V/C ratios. This is considered to be the limited 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, <i>2010 Highway Capacity Manual</i> . (Washington, D.C., 2010)		

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersection. The need for signalization of unsignalized intersections is assessed based on the Peak Hour Volume Warrant (Warrant 3) described in the *California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD)*, Part 4, Highway Traffic Signals, 2012. This method makes no evaluation of intersection level of service, but simply provides an indication whether peak-hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal.

The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered and further analysis performed when one or more of the warrants are met. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate the effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection as well as at adjacent 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 project impact on the transportation system and describes existing plus project conditions. Chapter 4 presents traffic conditions under Cumulative conditions. Chapter 5 presents the analysis of other transportation related issues, including parking and impacts on transit, bicycle and pedestrian facilities. Chapter 6 presents the conclusions of the traffic impact analysis.

2. Existing Conditions

This chapter describes the existing conditions for all of 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 Highway 1 and Holman Highway. These facilities are described below.

Highway 1 is predominantly a north-south, four-lane highway. Highway 1 extends north and south along the coast of the State of California. It links the Monterey Peninsula to the south and the Cities of Santa Cruz, Half Moon Bay, Pacifica, and San Francisco to the north. Access to and from the project site is provided via its interchanges at Fremont Street and Del Monte Avenue.

Holman Highway (State Route 68) is a north-south, two-lane highway that begins as Asilomar Avenue in the City of Pacific Grove. The highway continues south to an intersection with Sunset Drive, turning east on Sunset Drive to an intersection with Forest Avenue. The highway continues south as Forest Avenue and enters the City of Monterey and becomes Holman Highway until its junction with Highway 1. State Route 68 is concurrent with Highway 1 for 2.5 miles then proceeds east towards the City of Salinas. Access to and from the project site is provided via Forest Avenue.

Local access to the site is provided by Lighthouse Avenue, Central Avenue, Fountain Avenue, and Grand Avenue. These roadways are described below.

Lighthouse Avenue is a two-lane east-west arterial street that begins at its intersection with Sunset Drive and Ocean View Boulevard and extends eastward to David Avenue, where it continues eastward as Hawthorne Street in the City of Monterey. Lighthouse Avenue has on-street parking and sidewalks on both sides of the roadway. There are 15 mph posted speed limits and pavement markings on Lighthouse Avenue in the vicinity of the project site.

Central Avenue is a two-lane east-west arterial street that begins at its intersection with Caledonia Avenue and extends eastward to Eardley Avenue, where it continues eastward as Lighthouse Avenue. Central Avenue has permitted street parking and sidewalks on both sides of the roadway. There are no posted speed limits on Central Avenue in the vicinity of the project site. Central Avenue will provide direct access to the project site via one driveway.

Fountain Avenue is a two-lane north-south roadway that runs along the project site's eastern frontage. Fountain Avenue begins in the north at its intersection with Ocean View Boulevard, where southbound only travel is allowed to its intersection with Park Place. Fountain Avenue continues south as a two-lane roadway to its intersection with Beaumont Avenue. Fountain Avenue provides access to the project site via Central Avenue.

Grand Avenue is a two-lane north-south roadway that runs along the project site's western frontage. Grand Avenue begins as a two-lane roadway at its intersection with Ocean View Boulevard and extends southward to Park Place, where it continues southward as a one-lane roadway where southbound only travel is allowed to its intersection with Lighthouse Avenue. Grand Avenue is a two-lane roadway between Lighthouse Avenue Gibson Avenue to the south. Grand Avenue provides access to the project site via Central Avenue.

Existing Bicycle and Pedestrian Facilities

There are several bicycle facilities in the vicinity of the project site. The existing bicycle facilities within the study area are described below.

Class I Trail or Path is an off-street path with exclusive right-of-way for non-motorized transportation used for commuting as well as recreation. The Monterey Coastal Bike Path is a Class I bikeway that runs along the Monterey County coastline and is shared between pedestrians and bicyclists and separated from motor vehicle traffic. This trail system can be accessed via Ocean View Boulevard in the project vicinity.

Class II Bike Lanes are preferential use areas within a roadway designated for bicycles, typically in the form of striped bike lanes that are marked by signage and pavement markings. There are no Class II bikeways present in the project vicinity.

Class III Bike Routes are signed bike routes that provide a connection through residential, downtown, and rural/hillside areas to Class I and Class II facilities. Bike routes serve as transportation routes within neighborhoods to parks, schools, and other community amenities. In the vicinity of the project area, Fountain Avenue is designated a bike route south of Central Avenue. The route continues on Central Avenue between Fountain Avenue and Forest Avenue, then progresses north on Forest Avenue.

Pedestrian facilities in the project area consist primarily of sidewalks along the roadways in most residential and commercial areas in the vicinity of the project site including Central Avenue, Lighthouse Avenue, Grand Avenue, and Fountain Avenue.

Crosswalks are provided on all approaches at the Fountain Avenue/Lighthouse Avenue and Grand Avenue/Lighthouse Avenue intersections. However, crosswalks are not provided across Grand Avenue at the Grand Avenue/Central Avenue intersection and across Fountain Avenue at the Fountain Avenue/Central Avenue intersection. Crosswalk locations are shown on Figure 3.

Existing Transit Service

Existing transit service to the study area is provided by the Monterey-Salinas Transit (MST). Two bus routes (Routes 1 and 2) serve the vicinity of the project area. The bus stops closest to the project site are located near the Fountain Avenue/Lighthouse Avenue intersection. The transit services are described below and shown on Figure 3.

Route 1 operates between Asilomar and Monterey. Route 1 operates on 20- to 60-minute headways during AM peak hours and 60-minute headways during PM peak hours. In the project vicinity, Route 1 operates on Lighthouse Avenue.

Route 2 operates between Pacific Grove and Carmel. Route 2 operates on 60-minute headways during AM and PM peak hours. In the project vicinity, Route 2 operates on Fountain Avenue.

Pedestrian access between the project site and the nearby bus stops is provided by the existing sidewalks on Lighthouse Avenue, Grand Avenue, and Fountain Avenue and crosswalks at the Fountain Avenue/Lighthouse Avenue and Grand Avenue/Lighthouse Avenue intersections.



Figure 3
Existing Pedestrian and Transit Facilities

Existing Intersection Lane Configurations

The existing lane configurations and control at the study intersections were obtained from field observations. The existing intersection lane configurations and control are shown on Figure 4.

Existing Traffic Volumes

Existing traffic volumes were obtained from new peak-hour intersection turning movement counts completed on June 1st, 2016. Traffic counts were collected in June to capture traffic while schools in the vicinity of the project were in session. The existing peak-hour intersection volumes are shown on Figure 5. Intersection turning-movement counts conducted for this analysis are presented in Appendix A.

Existing Intersection Levels of Service

The results of the level of service and signal warrant analyses under existing conditions are summarized in Table 2. The results indicate that, measured against the City of Pacific Grove level of service standards, all study intersections currently operate at an acceptable LOS B during both the weekday AM and PM peak hours.

The signal warrant analysis showed that the peak-hour volume warrant would not be satisfied at any of the unsignalized study intersections under existing conditions.

The intersection levels of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Table 2
Existing Intersection Levels of Service

Study Number	Intersection	LOS Standard	Existing Control	Peak Hour	Count Date	Avg. Delay ¹	LOS	Warrant Met?
1	Grand Avenue and Central Avenue	C	TWSC	AM	6/1/2016	10.5	B	No
				PM	6/1/2016	10.5	B	No
2	Fountain Avenue and Central Avenue	C	TWSC	AM	6/1/2016	11.9	B	No
				PM	6/1/2016	12.5	B	No
3	Fountain Avenue and Lighthouse Avenue	C	TWSC	AM	6/1/2016	10.8	B	No
				PM	6/1/2016	13.0	B	No
4	Grand Avenue and Lighthouse Avenue	C	TWSC	AM	6/1/2016	10.6	B	No
				PM	6/1/2016	11.1	B	No
<u>Note:</u> 1. The stop-controlled approach with the highest delay (seconds per vehicle) is reported for minor street stop-controlled intersections.								

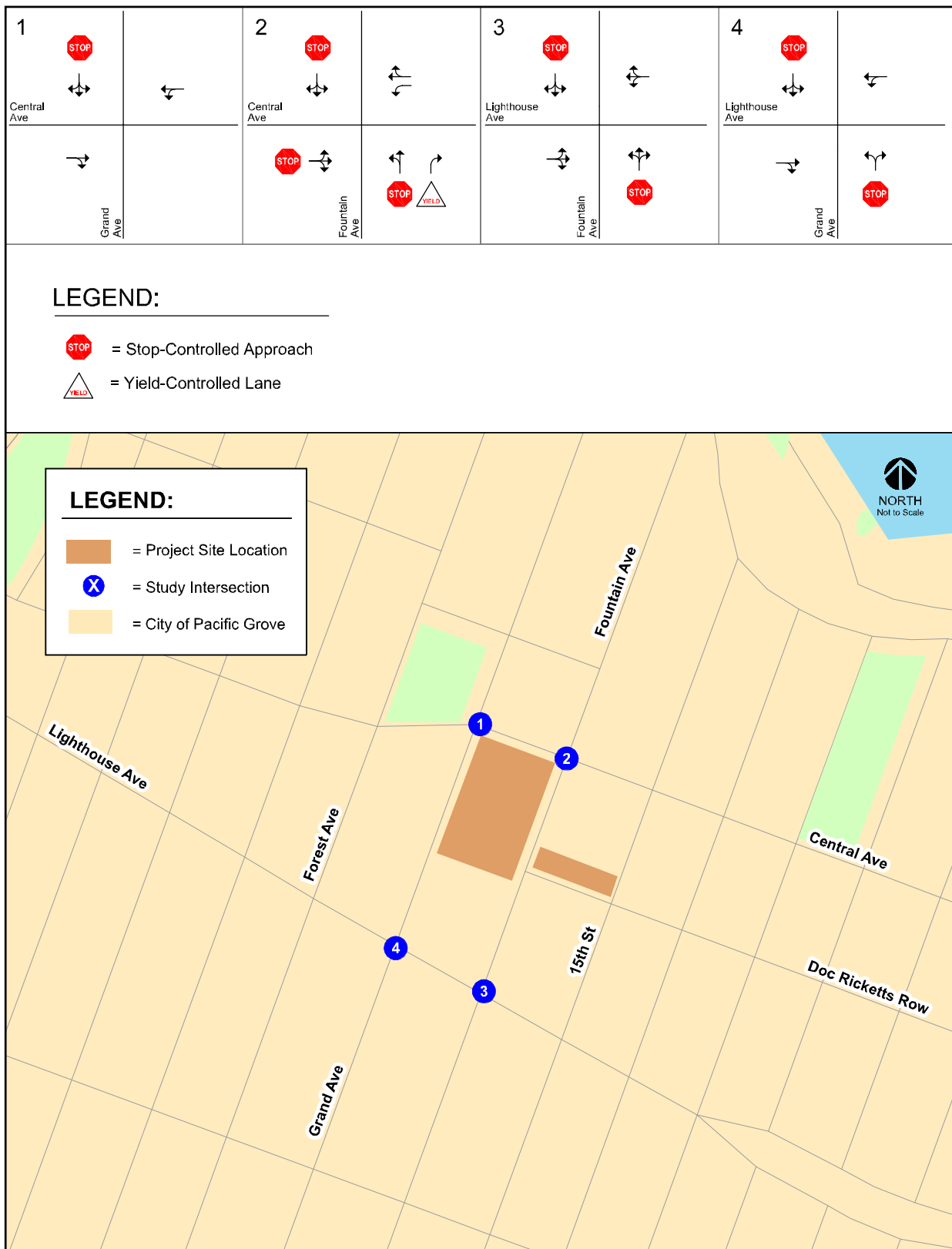


Figure 4
Existing Lane Configurations

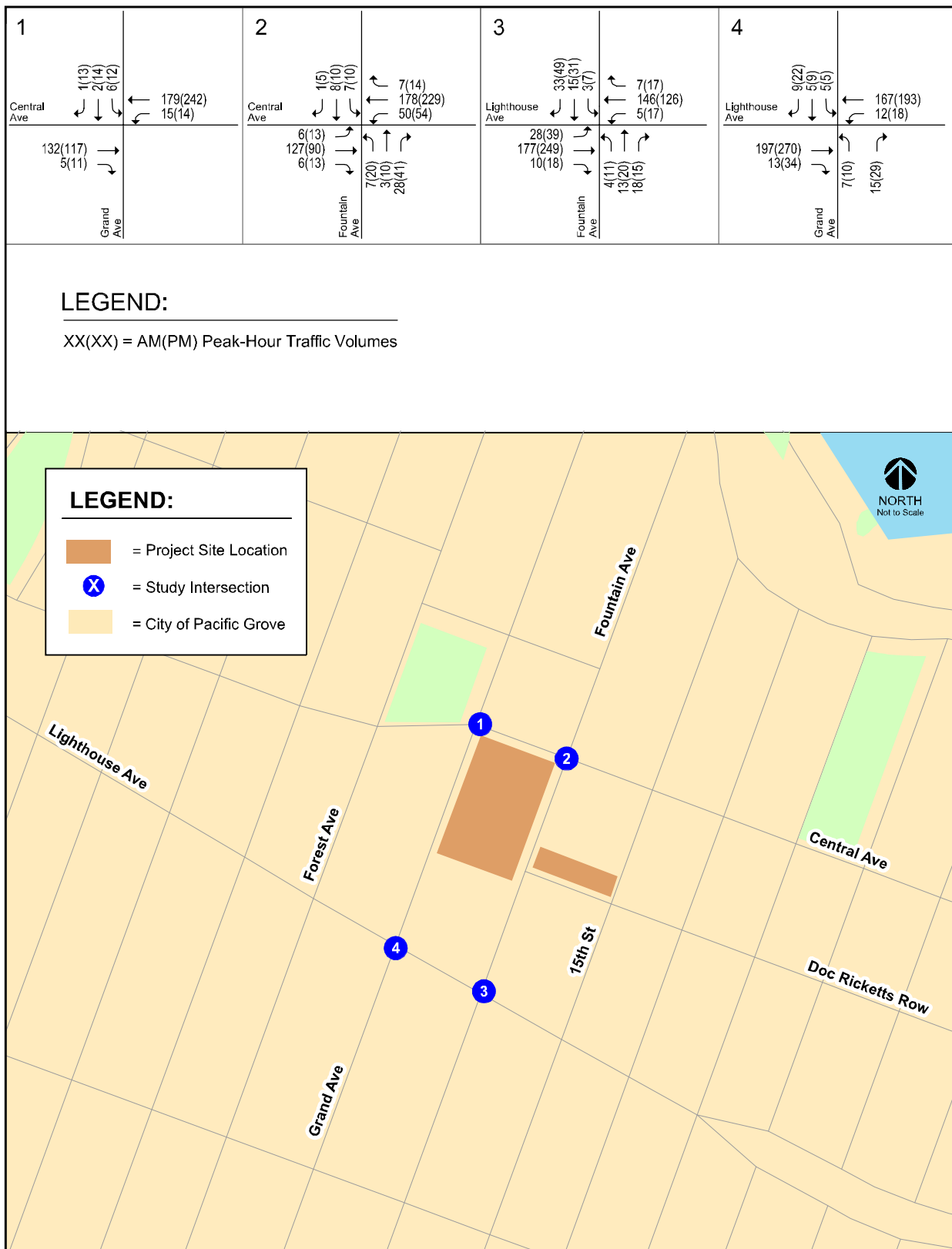


Figure 5
Existing Traffic Volumes

3.

Existing Plus Project Conditions

This chapter describes existing plus project traffic conditions. Included are estimates of project-generated traffic, identification of the impacts, and descriptions of the mitigation measures. Existing plus project conditions are represented by existing traffic conditions with the addition of traffic generated by the proposed project.

Transportation Network under Existing Plus Project Conditions

It is assumed in this analysis that the roadway network and intersection configurations under existing plus 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 peak hours. As part of the project trip distribution step, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment step, the project trips are assigned to specific streets and intersections in the study area. These procedures are described further in the following sections.

Trip Generation

Proposed Project Trip Generation

Through empirical research, data have been collected that quantify the amount of traffic produced by common land uses. 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 added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates by the size of the development. The trip generation rates contained in the Institute of Transportation Engineers (ITE), *Trip Generation, 9th Edition* were used to estimate trips generated by the proposed land use.

Based on the ITE trip generation rates, it is estimated that the proposed hotel would generate 746 daily trips with 66 trips occurring during the AM peak-hour (39 inbound and 27 outbound) and 75 trips occurring during the PM peak-hour (38 inbound and 37 outbound).

Existing Uses Project Trip Generation

Trips associated with the existing uses on the project site are subtracted from the estimated trips to be generated by the proposed project since the site uses were occupied at the time of the collection of traffic counts. Therefore, traffic associated with the existing site uses is included in existing traffic data. It is standard practice to apply a trip credit for existing uses on a proposed project site. An over-estimation of trip generation and impact to the roadway system would occur were the trip credit not applied. However, it should be noted there would be no change to the LOS results and project impacts reported below if the existing trip credit were not applied.

The existing 17,500 s.f. of retail/restaurant uses on the project site include a martial art studio, a window and door store, a fabric store, an antique store, a treasure shop, and a restaurant. Parking for the existing building is provided within the on-site surface parking lot and an off-site surface parking lot across Fountain Avenue. Trip generation counts were conducted at each of the four driveways of the on-site surface parking lot on June 1st, 2016 for the purpose of estimating the trips generated by the existing uses on -site. Based on the counts, 15 AM peak-hour trips and 32 PM peak-hour trips are generated at the on-site parking lot driveways.

However, site observations indicated that the on-site surface parking lot and an off-site surface parking lot are shared by the existing uses on the project site, Holman Building to the south of the project on Lighthouse Avenue, and Monterey Credit Union on Fountain Avenue adjacent to the off-site parking lot. Site observations also indicated that a portion of the on-site parking lot was being used as a staging area for the construction of Holman Building. Additionally, customers of the existing uses on the project site utilized on-street parking. Due to the shared parking, construction staging, and use of on-street parking, the driveway counts at the on-site parking lot do not accurately reflect the vehicle trips generated by the project. Therefore, the vehicle trips generated by the existing uses on-site were estimated using ITE trip generation rates for specialty retail centers.

Based on the ITE trip rates, the existing site uses are estimated to currently generate 786 daily trips with 20 trips occurring during the AM peak-hour (12 inbound and 8 outbound) and 63 trips occurring during the PM peak-hour (28 inbound and 35 outbound).

Net Project Trip Generation

Based on the application of ITE trip generation rates for hotel uses and credit for existing uses on the project site, it is estimated that the proposed hotel would generate 40 fewer daily trips and a net additional 46 AM peak-hour trips (27 inbound and 19 outbound) and 12 PM peak-hour trips (10 inbound and 2 outbound). The project trip generation estimates are presented in Table 3.

Trip Distribution and Assignment

Peak hour project traffic was distributed to the transportation network based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses. The project trip distribution pattern is shown graphically on Figure 6. The peak-hour trips generated by the project were assigned to the roadway network in accordance with the project trip distribution pattern. Figure 6 also shows the assignment of project traffic on the local transportation network. A tabular summary of project traffic at each study intersection is contained in Appendix B.

Existing Plus Project Traffic Volumes

Project trips, as represented in the above project trip assignment, were added to existing traffic volumes to obtain existing plus project traffic volumes. The existing plus project traffic volumes are shown on Figure 7.

Table 3
Project Trip Generation Estimates

Land Use	ITE Land Use	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
				Rate	Trips	Pk-Hr Rate	Split		In	Out	Total	Pk-Hr Rate	Split		In	Out	Total
							In	Out					In	Out			
Proposed Development																	
Hotel ¹	310 - Hotel	125	room	5.97	746	0.53	59%	41%	39	27	66	0.60	51%	49%	38	37	75
Existing Land Use																	
Retail/Restaurant ²	826 - Special Retail Center	17.50	ksf	-44.91	-786	1.14	62%	38%	-12	-8	-20	3.60	44%	56%	-28	-35	-63
Net Project Trips (Proposed - Existing Land Uses)					-40				27	19	46				10	2	12
Notes:																	
All rates are from: Institute of Transportation Engineers, Trip Generation, 9th Edition																	
1. Fitted curve equation was used for daily trips; average rates were used for AM and PM peak-hour trips because fitted curve equation is not available.																	
2. AM peak-hour trips were calculated based on the shopping center (Land Use 820) trip rate because the AM peak-hour trip rate for specialty retail center is not available.																	
Fitted curve equations were used to calculate daily and peak-hour trips.																	

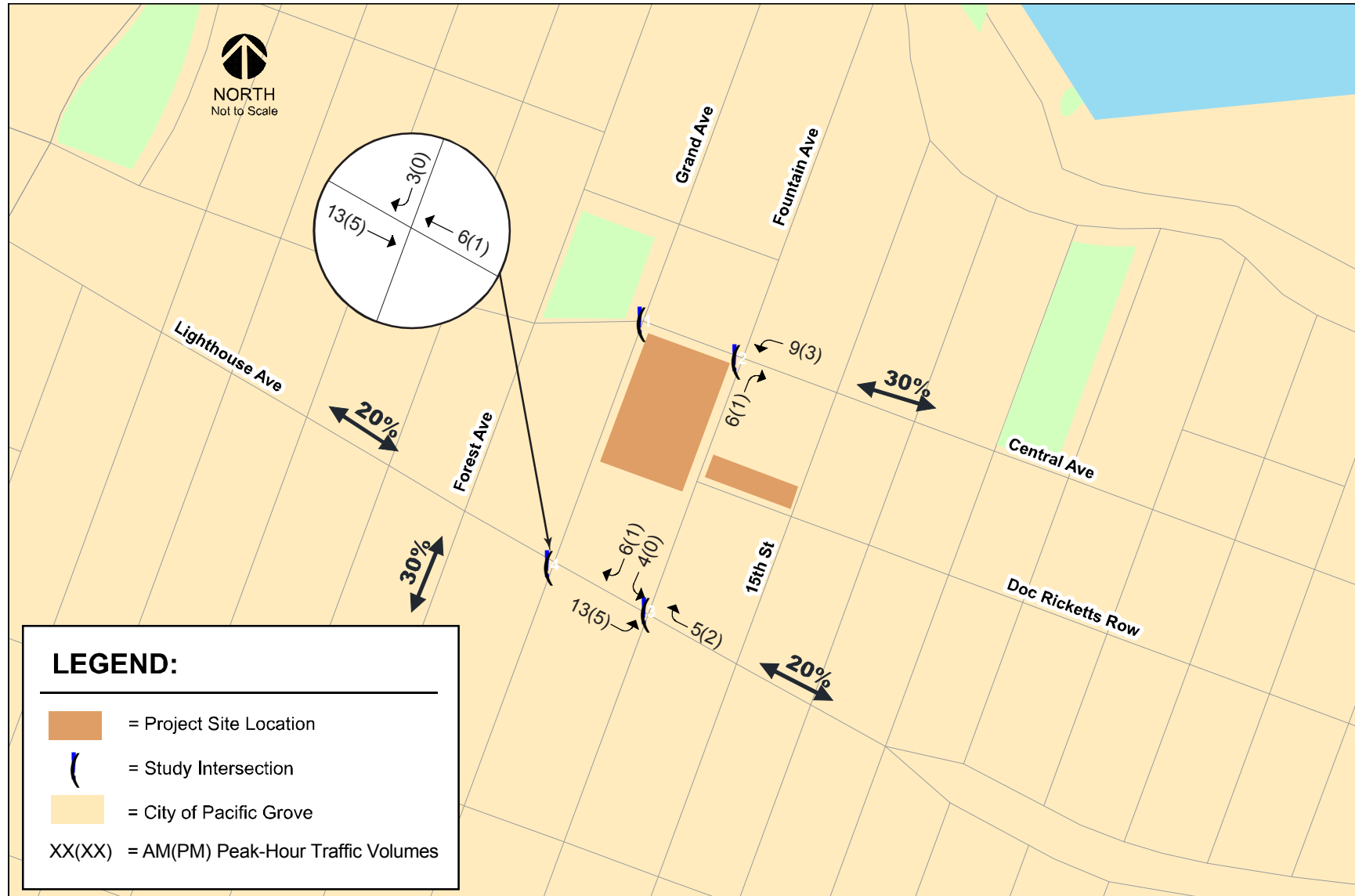


Figure 6
Project Trip Distribution and Trip Assignment

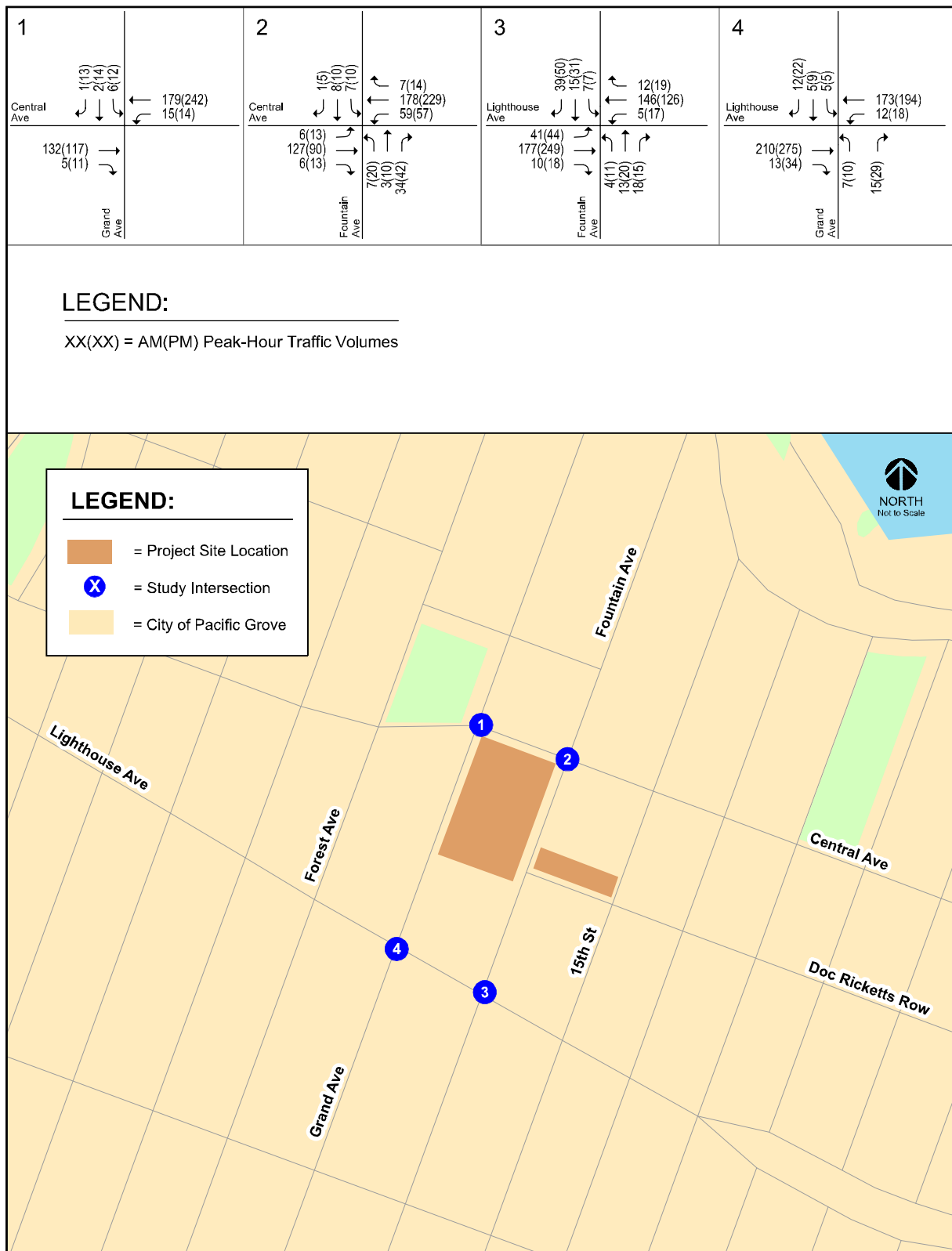


Figure 7
Existing Plus Project Traffic Volumes

Existing Plus Project Intersection Analysis

The results of the intersection level of service and signal warrant analyses under existing plus project conditions are summarized in Table 4. The results of the intersection level of service under existing plus project conditions show that all study intersections are projected to operate at LOS B conditions during both peak hours. The addition of project traffic at each study intersection would not result in the degradation of LOS or increase in average delay on the stop-control approaches by more than 1.0 second during each of the peak hours analyzed. Therefore, the project will have no significant impact on intersections levels of service under existing plus project conditions.

The signal warrant analysis showed that the peak-hour volume warrant would not be satisfied at any of the unsignalized study intersections under existing plus project conditions.

The intersection levels of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Table 4
Existing Plus Project Intersection Levels of Service

Study Number	Intersection	LOS Standard	Peak Hour	Existing		Existing Plus Project			
				Avg. Delay ¹	LOS	Avg. Delay ¹	LOS	Inc. in Delay	Warrant Met?
1	Grand Avenue and Central Avenue	C	AM	10.5	B	10.5	B	0.0	No
			PM	10.5	B	10.5	B	0.0	No
2	Fountain Avenue and Central Avenue	C	AM	11.9	B	12.2	B	0.3	No
			PM	12.5	B	12.6	B	0.1	No
3	Fountain Avenue and Lighthouse Avenue	C	AM	10.8	B	11.1	B	0.3	No
			PM	13.0	B	13.1	B	0.1	No
4	Grand Avenue and Lighthouse Avenue	C	AM	10.6	B	10.6	B	0.0	No
			PM	11.1	B	11.1	B	0.0	No

Note:
1. The stop-controlled approach with the highest delay (seconds per vehicle) is reported for minor street stop-controlled intersections.

4. Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions. Cumulative development typically includes projects that are in the pipeline (pending projects) but are not yet approved. This traffic scenario is evaluated in order to fulfill California Environmental Quality Act (CEQA) requirements.

Transportation Network under Cumulative Conditions

The roadway network under cumulative conditions was assumed to be the same as described under existing conditions.

Intersection Traffic Volumes

Traffic volumes under cumulative conditions were estimated by adding to the existing plus project traffic volumes the trips from approved and pending development projects within the City of Pacific Grove. For pending projects where a traffic impact analysis was not available or a trip assignment was not provided by a public agency, traffic was estimated using rates from the Institute of Transportation Engineer's publication, *Trip Generation Manual, 9th Edition* and assigned to the roadway network based on existing travel patterns and the locations of complementary land uses.

One approved project (Holman Building residential development) and one planned project (Bella Hotel development) in the project vicinity were included in the cumulative conditions analysis. The Holman Building project, currently under construction, would replace the existing vacant commercial space on the upper levels with 25 condominium units and replace the basement space with 33 parking spaces for the residential units. The CEQA compliance analysis prepared for the Holman Building project indicated that the project would generate 11 AM peak-hour trips and 13 PM peak-hour trips. The Project Bella would replace the existing site uses with a 225-room hotel on the site of the American Tin Cannery. Cumulative traffic volumes are shown on Figure 8.

Cumulative Conditions Intersection Analysis

The results of the intersection level of service and signal warrant analyses under cumulative conditions are summarized in Table 5. The intersection levels of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

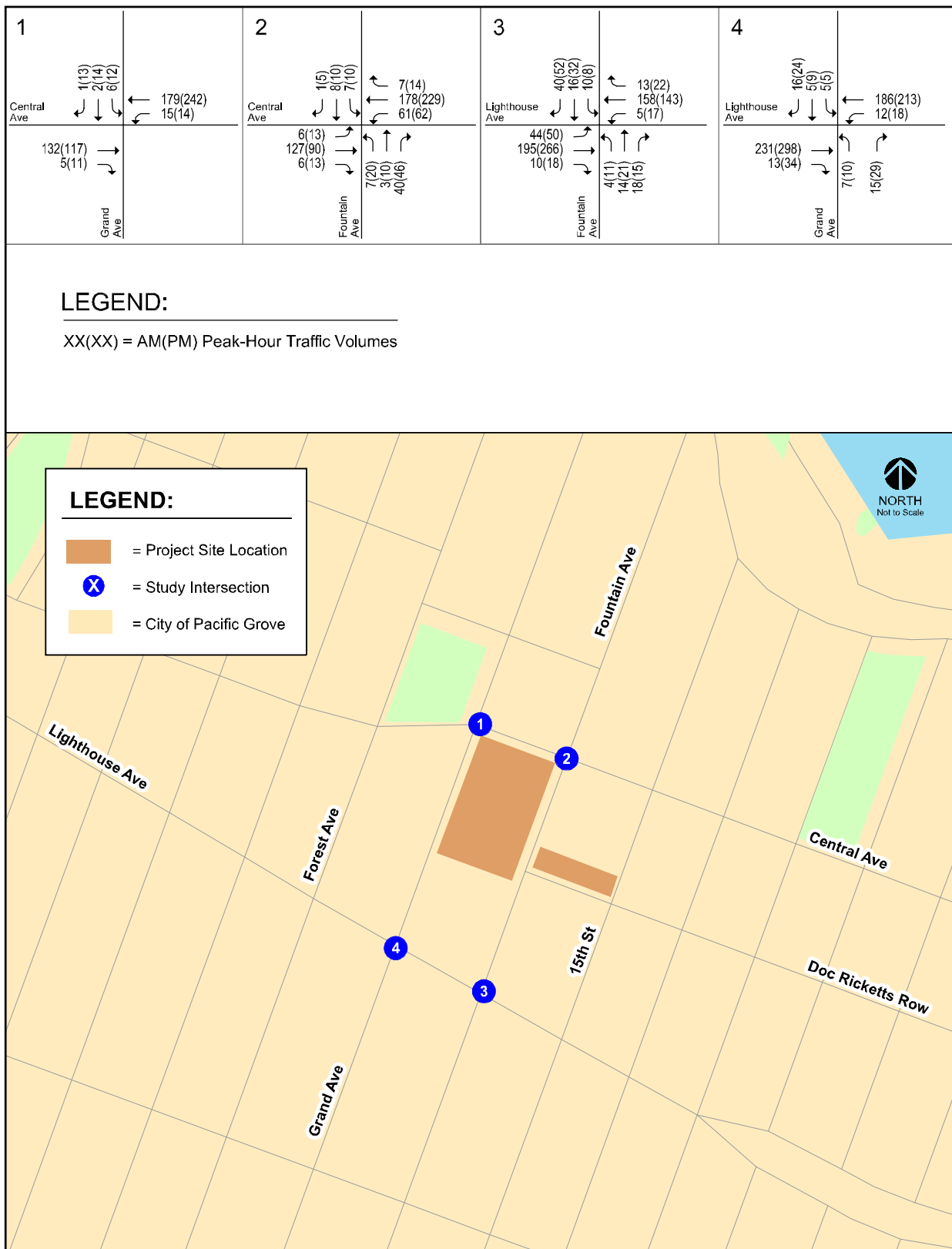


Figure 8
Cumulative Traffic Volumes

The results indicate that the cumulative growth in traffic volumes will not result in the degradation of levels of service at any of the study intersections and each intersection is projected to continue to operate at LOS B conditions during both peak hours under cumulative conditions.

The addition of traffic generated by approved and pending projects to existing conditions would not result in the degradation of LOS or increase in average delay on the stop-control approaches by more than 1.0 second during each of the peak hours analyzed. Therefore, the project will have no significant impact on intersections levels of service under cumulative conditions.

The signal warrant analysis showed that the peak-hour volume warrant would not be satisfied at any of the unsignalized study intersections under cumulative conditions.

The intersection levels of service calculation sheets are included in Appendix C. The peak-hour signal warrant sheets are contained in Appendix D.

Table 5
Cumulative Conditions Intersection Levels of Service

Study Number	Intersection	LOS Standard	Peak Hour	Existing		Cumulative			
				Avg. Delay ¹	LOS	Avg. Delay ¹	LOS	Inc. in Delay	Warrant Met?
1	Grand Avenue and Central Avenue	C	AM	10.5	B	10.5	B	0.0	No
			PM	10.5	B	10.5	B	0.0	No
2	Fountain Avenue and Central Avenue	C	AM	11.9	B	12.3	B	0.4	No
			PM	12.5	B	12.8	B	0.3	No
3	Fountain Avenue and Lighthouse Avenue	C	AM	10.8	B	11.4	B	0.6	No
			PM	13.0	B	13.8	B	0.8	No
4	Grand Avenue and Lighthouse Avenue	C	AM	10.6	B	10.6	B	0.0	No
			PM	11.1	B	11.4	B	0.3	No
<u>Note:</u> 1. The stop-controlled approach with the highest delay (seconds per vehicle) is reported for minor street stop-controlled intersections.									

5. Other Transportation Issues

This chapter presents an analysis of other transportation issues associated with the project site, including:

- Potential impacts to bike, pedestrian and transit facilities;
- Parking

Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Transit, Pedestrian and Bicycle Analysis

Bicycle and Pedestrian Circulation

The project will result in an increase in pedestrian activity at each of the study intersections along Central Avenue that are used to access the beach front to the north and Downtown to the south. The project will maintain a sidewalk along its frontage on Central Avenue. In addition, the project will include patio spaces and walkways along the building footprint along Central Avenue.

Crosswalks are provided on all approaches at the Fountain Avenue/Lighthouse Avenue and Grand Avenue/Lighthouse Avenue intersections. However, crosswalks are not provided across Grand Avenue at the Grand Avenue/Central Avenue intersection and across Fountain Avenue at the Fountain Avenue/Central Avenue intersection. The missing crosswalks to cross Grand Avenue and Fountain Avenue along Central Avenue should be installed. The implementation of the missing crosswalks would require that the sidewalks at the corners of both the Grand Avenue/Central Avenue and Fountain Avenue/Central Avenue be extended into the intersections. There are no identified plans to implement pedestrian and bicycle improvements along Central Avenue in the immediate project area. Therefore, the implementation of the missing crosswalks would need to be pursued by the proposed project in coordination with City staff and the development of the adjacent parcels at each intersection.

Transit Service

Assuming three percent transit mode share, the project could create up to two new transit riders during the peak hours. These new riders easily could be accommodated by the available capacity of the two local bus routes, which have stops located within walking distance of the site. Pedestrian access between the project site and the nearby bus stops is provided by the existing sidewalks and crosswalks. Thus, no improvements to the existing transit facilities would be needed in conjunction with the proposed project.

Parking

Per the City of Pacific Grove Municipal Code (Chapter 23.64.190 Off-street parking, storage), one parking space per 4 rooms is required for hotel uses. The planning commission may require additional parking at a ratio of one space for each 50 square feet of accessory dining area. The proposed hotel will include 125 rooms with 1,600 square feet of dining area. Based on the City's parking requirements, the proposed project is required to provide 64 off-street parking spaces. The project would meet the City's parking requirement by providing a total of 83 valet parking spaces (55 spaces on-site and 28 off-site spaces). It is recommended that a portion of the 28 off-site spaces be designated for hotel-employees.

6. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Pacific Grove. Project impacts on other transportation facilities, such as pedestrian facilities, bicycle facilities and transit, were determined on the basis of engineering judgment.

Project Impacts

Existing Plus Project Intersection Level of Service Impacts

The results of the intersection level of service analysis under existing plus project conditions show that no study intersections would be impacted by the project according to applicable level of service standards.

Cumulative Intersection Level of Service Impacts

The results of the intersection level of service analysis under cumulative conditions indicate that no study intersections would be impacted by the project according to applicable level of service standards.

Traffic Signal Warrants

The signal warrant analysis showed that the peak-hour volume warrant would *not* be satisfied at any of the unsignalized study intersections under existing, existing plus project conditions, and cumulative conditions.

Other Transportation Issues

Other issues related to transportation were evaluated to determine if any deficiencies would exist under project conditions that may not be specifically linked to environmental impact reporting. These may not be considered environmental issues, and may not be evaluated in the environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction.

Transit, Pedestrian and Bicycle Analysis

Bicycle and Pedestrian Circulation

The project will result in an increase in pedestrian activity at each of the study intersections along Central Avenue that are used to access the beach front to the north and Downtown to the south. The project will maintain a sidewalk along its frontage on Central Avenue. In addition, the project will include patio spaces and walkways along the building footprint along Central Avenue.

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