

Morro Bay Atascadero Road Hotel

Draft Transportation Impact Study

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Executive Summary

This study evaluates the potential transportation impacts of a new hotel proposed on Atascadero Road in the City of Morro Bay. The project proposes 82 hotel rooms and related amenities, located on the corner of the SR 1 Southbound Off-Ramp and Atascadero Road.

The following intersections are analyzed during the weekday AM (7-9 AM) and PM (4-6 PM) time periods:

1. Project Driveway/Atascadero Road
2. State Route 1 (SR 1) Southbound Ramp/Atascadero Road
3. Main Street/State Route 41 (SR 41)

The study intersections are evaluated under these scenarios:

1. **Existing Conditions** reflect recent traffic counts and the existing transportation network.
2. **Existing Plus Project Conditions** adds Project generated traffic to Existing Conditions volumes.

The project is expected to generate 670 daily trips, 43 AM peak hour trips, and 49 PM peak hour trips on a typical weekday. Caltrans criteria is applied to identify transportation deficiencies.

Intersection Operations

Two of the study intersections operate below the LOS C/D threshold for vehicles. The addition of project traffic increases average delay by less than two seconds at both locations.

- SR 1 SB Ramp/Atascadero Road (#2): The southbound approach would operate at LOS D during both peak hours with the project. The 95th percentile queues would remain below two vehicles both with and without the project. The intersection would not meet the peak hour signal warrant. Restriping the southbound approach to provide a shared through/right turn lane and designated left turn lane would improve operations slightly but is not recommended due to the very minor delay reduction.
- Main Street/SR 41 (#3): The intersection of Main Street and SR 41 operates at LOS E during the PM peak hour both with and without the project. The City of Morro Bay and Caltrans are pursuing a six-leg roundabout at this intersection. This project is currently in the design stage, with construction tentatively scheduled for 2021. The design stage is funded, and construction is partially funded. Constructing the roundabout would result in acceptable operations.

The remaining intersections and time periods operate at an acceptable service level.

Site Access

The analysis results show no queues on Atascadero Road at the Project Driveway intersection. Therefore, queue spillback to the SR 1 ramp intersections is not expected.

The Project Driveway is proposed adjacent to another driveway serving Morro Bay High School. In consideration of best practices for access management, these driveways should be consolidated if feasible. We recommend that the applicant coordinate with the school district regarding future access improvements that may affect the project.

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Introduction and Background

This study evaluates the potential transportation impacts of a new hotel proposed on Atascadero Road in the City of Morro Bay. The project proposes 82 hotel rooms and related amenities, located on the corner of the SR 1 Southbound Off-Ramp and Atascadero Road.

The project's location, study intersections, lane configurations, and existing traffic volumes are shown on **Figure 1**, while **Figure 2** shows the project site plan, and **Figure 3** shows the project traffic volumes. The following intersections are analyzed during the weekday AM (7-9 AM) and PM (4-6 PM) time periods:

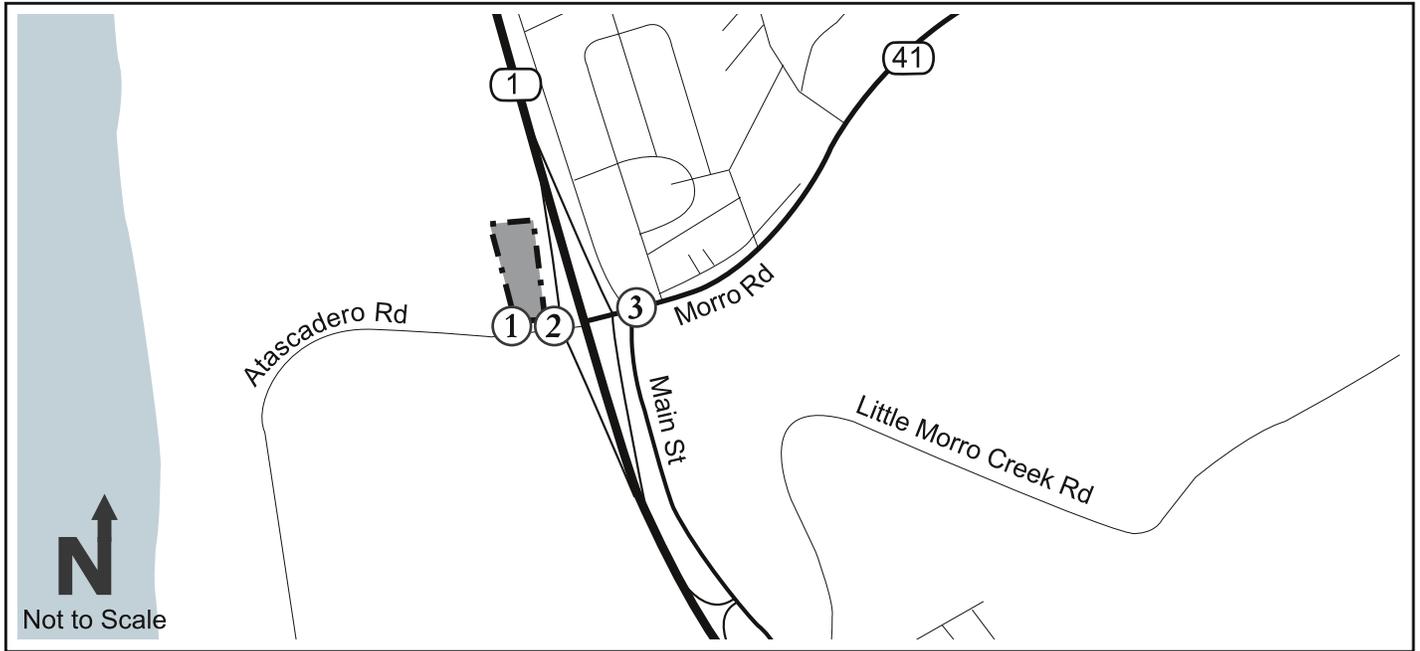
1. Project Driveway/Atascadero Road
2. State Route 1 (SR 1) Southbound Ramp/Atascadero Road
3. Main Street/State Route 41 (SR 41)

The study intersections are evaluated under these scenarios:

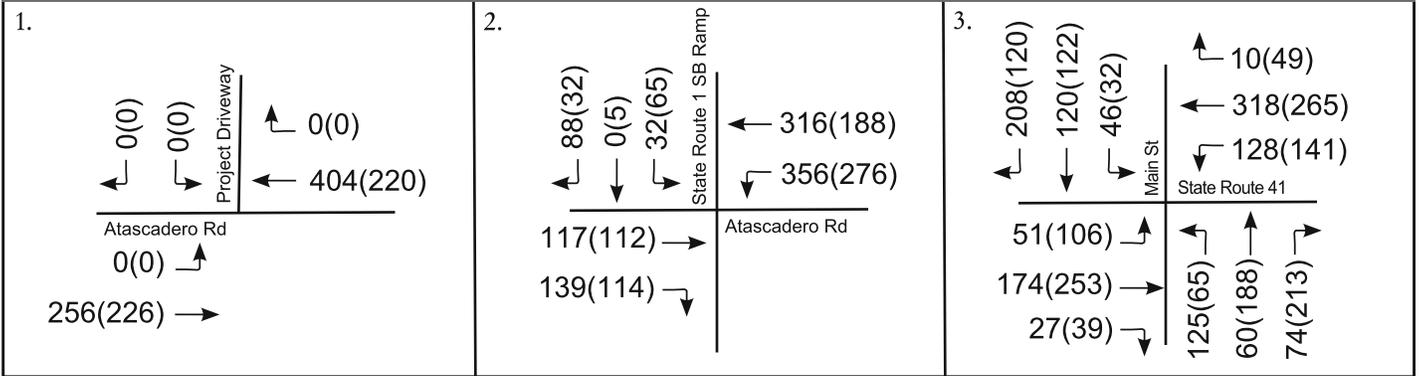
1. **Existing Conditions** reflect recent traffic counts and the existing transportation network.
2. **Existing Plus Project Conditions** adds Project generated traffic to Existing Conditions volumes.

Further details for each scenario are provided in subsequent chapters.

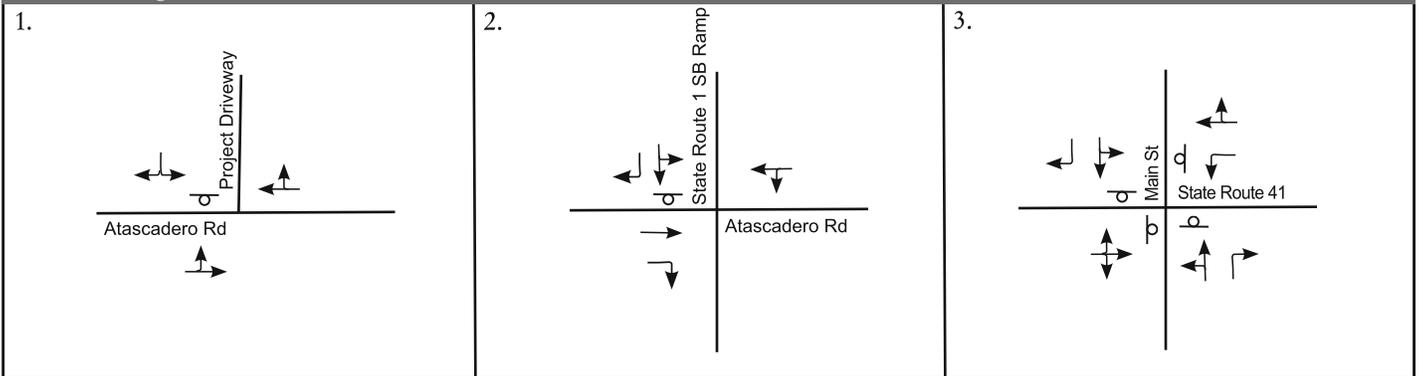
Figure 1: Project and Study Locations, Lane Configurations, and Existing Volumes



Existing Peak Hour Volumes



Lane Configuration



Legend:

- xx(yy) - AM(PM) Peak Hour Traffic Volumes
- Ⓧ - Study Intersection
- ▣ - Project Site
- ⓪ - Stop Sign

Analysis Methods

The analysis approach was developed based on Caltrans standards. The City of Morro Bay does not have a formal LOS policy.

Caltrans Facilities

Caltrans operates SR 41 and SR 1. Caltrans strives to maintain operations at the LOS C/D threshold on state-operated facilities, where LOS C is acceptable, but LOS D is not. If an existing State Highway facility is operating at LOS D, E, or F the existing service level should be maintained.

Level of Service Thresholds

The level of service thresholds for intersections based on the 6th Edition Highway Capacity Manual (HCM) are presented in Table 1.

Table 1: Intersection Level of Service Thresholds	
Stop Sign Controlled¹	
Control Delay (seconds/vehicle)	Level of Service
≤ 10	A
> 10 - 15	B
> 15 - 25	C
> 25 - 35	D
> 35 - 50	E
> 50 or v/c > 1	F

1. Source: Exhibit 20-2 and 21-8 of the 6th Edition Highway Capacity Manual.

The study intersections are analyzed with the Synchro 10 software package applying the 6th Edition HCM methods.

Existing Conditions

This section describes the existing transportation system and current operating conditions in the study area.

EXISTING ROADWAY NETWORK

State Route 1 (SR 1) is a major north-south state highway running along the Pacific coastline of California. It separates from the US 101 on Santa Rosa Street in San Luis Obispo, CA and continues as a four-lane arterial known as the Cabrillo Highway. It is a four-lane freeway in the study area.

State Route 41 (SR 41) is a two-lane, southwest-northeast Caltrans facility. It connects Atascadero to Morro Bay to the southwest and Shandon and State Route 46 to the northeast. It terminates at its junction with SR 1.

Atascadero Road is an east-west major collector with two travel lanes. The project driveway will be connected to this road.

Main Street is a north-south minor arterial with two travel lanes. It parallels SR 1 from Radcliff Avenue to Zanzibar Street, allowing access to the surrounding residential and commercial areas from the highway.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian facilities include sidewalks, crosswalks, and multi-use paths. Sidewalks are provided along the north and south sides of Atascadero Road with some discontinuous segments. There are marked crossings along the north and south sides of Atascadero Road, as well as several marked crossings connecting the two sides. There is no sidewalk fronting the project site where the driveway will be installed. Main Street has sidewalks running along the east side.

Bicycle facilities consist of separated right-of-way bike paths (Class I) and on-street striped bike lanes (Class II). The City's Bike Map identifies existing Class I bike paths fronting the north and west sides of the project site, which connect the Cloisters Community Park to Atascadero Road; and another bike path running parallel to the SR 1 southbound on-ramp. The City's Bike Map also identifies existing Class II bike lanes on Atascadero Road from the high school pedestrian crossing to the SR 1 intersection, with a dedicated northbound bicycle crossing connecting the Class I bike path running parallel to the SR 1 southbound on-ramp. The Class II bike lanes on Atascadero Road are discontinuous along the on- and off-ramps but continue after the Main Street intersection. Main Street has Class II bike lanes in the north and south directions.

EXISTING TRANSIT SERVICE

The Morro Bay Transit operates fixed route, Call-A-Ride, and trolley services. The fixed route and trolley service both have three bus stops near the project area – two on Atascadero Road and one on Main Street at Errol. The trolley service operates Memorial Day weekend through early October. Call-A-Ride provides curb-to-curb service within the City limits on weekdays and Saturdays. Morro Bay Transit connects with the Regional Transit Authority (RTA) Routes 12 and 15 at City Park. RTA Route 15 runs north-south on SR 1 and north on Main Street.

EXISTING TRANSPORTATION CONDITIONS

Traffic counts for weekday AM and PM peak hour conditions were collected at the study intersections in February and March 2018 when the high school was in session. Traffic count sheets are provided in Appendix A.

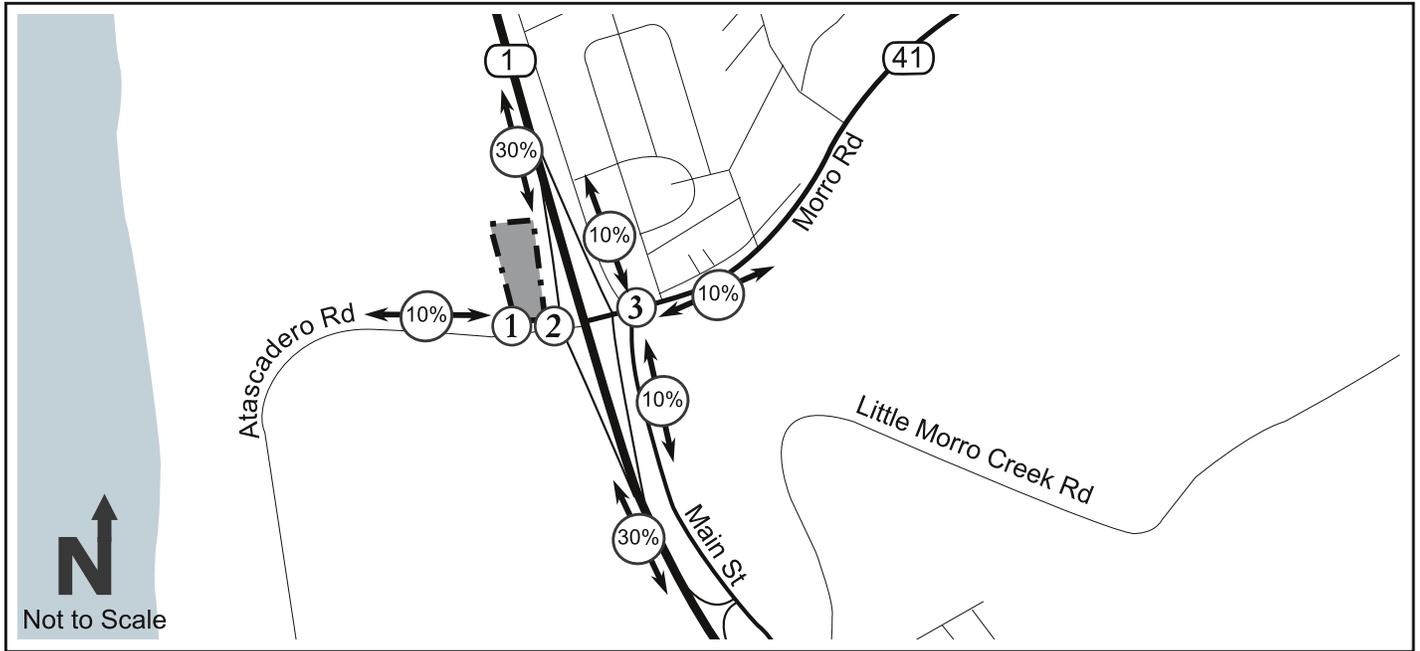
Figure 1 shows the Existing peak hour traffic volumes. Table 2 presents the LOS for the study intersections based on the applicable thresholds, with detailed calculation sheets included in Appendix B.

Table 2: Existing Intersection Auto Levels of Service				
Intersection	Peak Hour	V/C ¹	Delay ² (sec/veh)	LOS
1. Project Driveway/Atascadero Road	AM		N/A	
	PM			
2. SR 1 SB Ramp/Atascadero Road	AM	0.44	6.4 (28.6)	- (D)
	PM	0.36	6.2 (24.8)	- (C)
3. Main Street/SR 41	AM	0.79	22.9	C
	PM	0.98	35.8	E
1. Volume to capacity ratio reported for worst movement. 2. HCM 6th average control delay in seconds per vehicle. For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay. Note: Unacceptable operations shown in bold text.				

The southbound approach to the SR 1 SB Ramp/Atascadero Road (#2) intersection operates at LOS D during the AM peak hour. Main Street/SR 41 (#3) operates at LOS E during the PM peak hour. The intersections operate acceptably during the remaining peak hours.

The Project Driveway/Atascadero Road intersection (#1) does not currently exist.

Figure 3: Trip Distribution, Project Volumes, and Existing Plus Project Volumes



Project Volumes

<p>1.</p>	<p>2.</p>	<p>3.</p>
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Existing Plus Project Volumes

<p>1.</p>	<p>2.</p>	<p>3.</p>
-----------	-----------	-----------



Legend:

- xx(yy) - AM(PM) Peak Hour Traffic Volumes
- (x) - Study Intersection
- Project Site
- Project Trip Distribution Percentage

Existing Plus Project Conditions

This section evaluates the impacts of the proposed project on the surrounding transportation network.

PROJECT TRAFFIC ESTIMATES

The amount of project traffic affecting the study locations is estimated in three steps: trip generation, trip distribution, and trip assignment. Trip generation refers to the total number of trips generated by the site. Trip distribution identifies the general origins and destinations of these trips; and trip assignment specifies the routes taken to reach these origins and destinations.

Trip Generation

The project's trip generation estimate was developed using weekday daily, AM peak hour, and PM peak hour data provided in the Institute of Transportation Engineers' (ITE) Trip Generation Manual. Table 3 shows the estimated trip generation from the proposed project.

Land Use	Size	Unit ¹	Daily	AM			PM		
				In	Out	Total	In	Out	Total
Hotel ¹	82	Rooms	670	25	18	43	25	24	49
		Total Trips	670	25	18	43	25	24	49

1) ITE Land Use Code #310, Hotel. Average rates used.
Source: ITE *Trip Generation Manual*, 9th Edition, 2012; CCTC, 2018.

Trip Distribution and Assignment

Trip distribution and assignment for the project trips were estimated based on observed traffic patterns, the locations of complementary land uses, and knowledge of local traffic patterns.

Figure 3 shows the trip distribution percentages.

EXISTING PLUS PROJECT IMPACT ANALYSIS

Figure 3 shows the Existing Plus Project peak hour traffic volumes. Table 4 shows the LOS for the study intersections under Existing and Existing Plus Project conditions, with detailed calculation sheets included in Appendix B.

Intersection	Peak Hour	Existing			Existing + Project			
		V/C ¹	Delay ² (sec/veh)	LOS	V/C ¹	Delta	Delay ² (sec/veh)	LOS
1. Project Driveway/Atascadero Road	AM				0.05	N/A	0.4 (14.4)	- (B)
	PM				0.05	N/A	0.6 (12.0)	- (B)
2. SR 1 SB Ramp/Atascadero Road	AM	0.44	6.4 (28.6)	- (D)	0.42	-0.02	6.5 (26.3)	- (D)
	PM	0.36	6.2 (24.8)	- (C)	0.38	0.02	6.1 (25.4)	- (D)
3. Main Street/SR 41	AM	0.79	22.9	C	0.80	0.01	23.8	C
	PM	0.98	35.8	E	0.99	0.01	37.2	E

1. Volume to capacity ratio reported for worst movement.
2. HCM 6th average control delay in seconds per vehicle. For side-street-stop controlled intersections the worst approach's delay is reported in parentheses next to the overall intersection delay.
Note: Unacceptable operations shown in **bold** text.

The following intersections operate below the LOS C/D threshold for vehicles:

- SR 1 SB Ramp/Atascadero Road (#2): The southbound approach would operate at LOS D during both peak hours with the project. During the AM peak hour, average delay for the southbound approach improves with the project due to the addition of southbound right turning traffic, which experience less delay than the southbound left movement. This also decreases the V/C ratio. During the PM peak hour, the addition of project traffic would increase delay for the southbound approach by less than 1 second per vehicle. The 95th percentile queues would remain below two vehicles both with and without the project.
- Main Street/SR 41 (#3): The intersection of Main Street and SR 41 operates at LOS E during the PM peak hour both with and without the project. The project increases delay at the intersection by less than 2 seconds per vehicle.

The remaining intersections and time periods operate at an acceptable service level.

Queue Spillback

The analysis results show no queues on Atascadero Road at the Project Driveway intersection. Therefore, queue spillback to the SR 1 ramp intersections is not expected.

Detailed calculation sheets are provided in Appendix B.

Intersection Mitigations

- SR 1 SB Ramp/Atascadero Road (#2): The intersection would not meet the peak hour signal warrant. The signal warrant analysis sheet is attached as Appendix C. Alternatively, the PM peak hour could be improved beyond its no project condition by restriping the southbound approach to include an exclusive left turn lane and a shared through-right lane. The AM peak hour would not change with this improvement. This improvement is not recommended since it would have a minimal effect on vehicular delay.
- Main Street/SR 41 (#3): The City of Morro Bay and Caltrans are pursuing a six-leg roundabout at this intersection. This project is currently in the design stage, with construction tentatively scheduled for 2021. The design stage is funded, and construction is partially funded.

SITE ACCESS AND ON-SITE CIRCULATION

This section discusses issues related to site access and on-site circulation. On-site circulation deficiencies would occur if project designs fail to meet appropriate standards, fail to provide adequate truck access, or would result in hazardous conditions.

The site plan is shown in **Figure 2**. The proposed landscaping as shown on the site plan should be modified to increase sight distance for vehicles exiting the Project Driveway. Additionally, sidewalk connectivity should be provided along the project's Atascadero Road frontage and bicycle path access should not be obstructed.

The Project Driveway would be located nearly adjacent to another driveway serving Morro Bay High School. In consideration of best practices for access management, these driveways should be consolidated if feasible. We recommend that the applicant coordinate with the school district regarding future access improvements that may affect the project.

References

- American Association of State Highway and Transportation Officials (AASHTO). 2011. A Policy on Geometric Design of Highways and Streets.
- California Department of Transportation. 2002. Guide for the Preparation of Traffic Impact Studies.
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