

Engineering and Traffic Survey (E&TS)

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I. BACKGROUND

This Engineering and Traffic Survey (E&TS) was conducted on State Route 1 (SR-1, Pacific Coast Highway), from north of Hillworth Avenue (PM 14.289) to Vista Del Mar (PM 18.131) in the City of Torrance. The purpose of this E&TS is to update or revise the established speed limits as appropriate; the previous E&TS for the limits was conducted in February 2008.

This E&TS consists of obtaining vehicle speed samples and field survey data necessary to complete the vehicle speed survey sheets, including recommendation of appropriate speed based upon but not limited to field observations, critical speed and accident history.

II. EXISTING CONDITIONS

A. GENERAL

Pacific Coast Highway (PCH) between Hillworth Avenue and Vista Del Mar is in an urban area and traverses through retail, commercial, industrial, and residential areas in the City of Torrance. Since the 2008 E&TS, there have been new housing developments and businesses along PCH.

B. TYPE OF FACILITY

PCH from Hillworth Avenue (PM 14.289) to Neece Avenue (PM 16.111) is a six-lane conventional highway with striped medians and raised concrete berms separating the northbound (NB) and southbound (SB) lanes. This segment of the highway has numerous driveways and alleys with a high number of pedestrians. Left turns are allowed within the striped median area and no curb parking is permitted throughout this segment of PCH.

PCH from Neece Avenue (PM 16.111) to Vista Del Mar (18.131) is a four-lane conventional highway with raised median islands separating the NB and SB lanes. This segment of roadway has numerous driveways and alleys with a high number of pedestrians. There are left turn pockets at all intersections and curb parking is allowed in some segments of PCH during non-peak hours.

C. TRAFFIC

The highway carries a mix of residential, commuter, and through traffic. The 2017 Annual Average Daily Traffic (AADT) ranges from 30,500 to 61,000 vehicles per day.

D. EXISTING SPEED ZONES

The posted speed limits through the section are as follows:

Limits		Speed Limit	
From (Postmile)	To (Postmile)	NB MPH	SB MPH
Hillworth Avenue (PM 14.289)	Anza Avenue (PM 16.440)	45	40
Anza Avenue (PM 16.440)	Calle Mayor (PM 17.211)	40	45
Calle Mayor Avenue (PM 17.211)	Prospect Avenue (PM 17.680)	45	45
Prospect Avenue (PM 17.680)	Palos Verdes Boulevard (PM 18.090)	40	40
Palos Verdes Boulevard (PM 18.090)	Vista Del Mar (PM 18.131)	40	35

MPH – Miles Per hour

E. ACCIDENT RATES

The accident rates from the Traffic Accident Surveillance and Analysis System (TASAS) for the three-year period between, January 1, 2016 to December 31, 2018 for PCH within the survey limits are as follows:

Highway Segment (Postmile)		Accident Rate (Accidents/MVM)		Fatality Rate (Accidents/MVM)	
		Actual	Average	Actual	Average
South of Hillworth Avenue (PM 14.129)	South of Crenshaw Avenue (PM 14.620)	1.62	1.41	0.00	0.011
South of Crenshaw Avenue (PM 14.620)	South of Aero Way (PM 15.407)	1.15	1.25	0.000	0.008
Aero Way (PM 15.408)	Vista Del Mar (PM 18.131)	1.24	1.41	0.027	0.011

MVM = Million Vehicle Miles

F. ENFORCEMENT JURISDICTION

The City of Torrance Police Department is the enforcement agency within the city boundaries; the agency uses radar for speed enforcement.

G. SPEED ZONE FIELD DATA

Speed measurements were taken on March 11, March 12 and March 13, 2018. The results are shown in Attachment A.

III. COMMUNITY INVOLVEMENT

The results of this E&TS were shared with the City of Torrance for review and comment.

IV. CONCLUSIONS AND RECOMMENDATIONS

Based on field speed measurements, the 85th Percentile and 10 MPH Pace Speeds are shown in the table below:

Location of Speed Measurements	85 th Percentile Speed		10 MPH Pace Speed	
	NB	SB	NB	SB
N/O Pennsylvania Avenue (PM 14.129)	38	32	22-31	24-33
N/O Airport Drive (PM 14.342)	38	40	30-39	30-39
S/O Madison Street (PM 15.787)	45	39	31-40	31-40
N/O Anza Avenue (PM 16.441)	39	47	32-41	35-44
S/O Calle Mayor (PM 17.211)	38	41	29-38	33-42
N/O Robert Road (PM 17.441)	41	-	33-42	-
S/O Camino Delas Colinas (PM 18.041)	41	40	30-39	28-37
S/O Avenue E (PM 18.501)	34	38	27-36	28-37

N/O = North of; S/O = South of

Based on the review of collision history, highway surveillance, traffic analysis, and roadway geometry, the proposed speed limits are shown in the table below:

Limits		Existing Speed Limit		Proposed Speed Limits	
From (Postmile)	To (Postmile)	NB MPH	SB MPH	NB MPH	SB MPH
Hillworth Avenue (PM 14.289)	Anza Avenue (PM 16.440)	45	40	40	40
Anza Avenue (PM 16.440)	Calle Mayor (PM 17.211)	40	45	40	40
Calle Mayor Ave (PM 17.211)	Prospect Avenue (PM 17.680)	45	45	40	40
Prospect Avenue (PM 17.680)	Palos Verdes Blvd (PM 18.090)	40	40	40	40
Palos Verdes Blvd (PM 18.090)	Vista Del Mar (PM 18.131)	40	35	35	35

Hillworth Avenue to Anza Avenue:

The average 85th percentile speed for this segment is 40 MPH in the NB direction and 39 MPH in the SB direction. This section is divided mostly by striped medians and has many commercial driveways on both sides of PCH. Curb parking is not allowed. It is recommended

to retain the existing SB speed limit of 40 MPH and to reduce the NB speed limit from the existing 45 MPH to 40 MPH due to the following factors:

- The 85th percentile average speed is 40 MPH.
- This portion of highway traverses through mostly retail business area with closely spaced traffic signals, minor streets, and driveways, which pose a potential for traffic conflicts.
- There is a vertical curve along the roadway profile with potential vertical sight distance issue at higher speed.
- There are driveways with restricted visibility.
- The roadway widths are narrower (10 feet to 11 feet).
- The accident rate is higher than the average state rate for similar facilities.
- Pedestrian activities in the area may increase potentials for traffic conflicts.
- There is a high school located within this segment of PCH with high student/pedestrian activities.

Anza Avenue to Calle Mayor:

The average 85th percentile speed between Anza Avenue and Calle Mayor Avenue is 38 MPH in the NB direction and 44 MPH in the SB direction. It is recommended that both NB and SB speed limits of 40 MPH be retained for this segment. Even though the 85th percentile speed for SB direction is 44 MPH, it is recommended to retain the existing speed limit of 40 MPH due to similar factors for the previous segment.

Calle Mayor to Prospect Avenue:

The average 85th percentile average speed between Calle Mayor and Prospect Avenue is 39 MPH in the NB direction and 41 MPH in the SB direction. It is recommended that both NB and SB speed limits of 45 MPH be reduced to 40 MPH due to similar factors for the previous segments. In addition to the abovementioned factors, the accident fatality rate within this segment is higher than state average for similar facilities.

Prospect Avenue to Palos Verdes Avenue:

The average 85th percentile average speed between Prospect Avenue and Palos Verdes Avenue is 40 MPH in the NB direction and 41 MPH in the SB direction. It is recommended that the existing NB and SB speed limit of 40 MPH be retained for this segment.

Palos Verdes Avenue to Vista Del Mar:

The average 85th percentile average speed between Palos Verdes Avenue and Vista Del Mar is 37 MPH in the NB direction and 39 MPH in the SB direction. It is recommended that the existing speed limit of 35 MPH be retained for the SB direction and the existing speed of 40 MPH be reduced to 35 MPH for the NB direction due to the following factors:

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- This section is divided mostly by raised medians and has many streets and commercial driveways on both sides of PCH. Peak period curb parking is allowed.
- There are horizontal curves along the roadway that may pose visibility issue at higher speed.
- There are some driveways with restricted visibility.
- The roadway widths are narrower (10 feet to 11 feet).
- The fatality accident rate is higher than state average for similar facilities.
- There are high pedestrian activities in the area which may increase potential for traffic conflicts.

During field review, it was observed that some existing speed limit signs in the field are not consistent with the existing speed limits shown in the E&TS dated February 2008. Sign installation orders will be prepared to replace the existing speed limits signs to reflect the speed limits proposed in this survey.

V. ATTACHMENTS

- A. Vehicle Speed Survey Sheets
- B. Speed Zone Survey Layout Sheets