

Carmel Valley Road Five-Year Traffic Monitoring - 2020

Monterey County, California

Prepared For:

County of Monterey
1441 Schilling Place, 2nd Floor
Salinas, California 93901

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PETERS ENGINEERING GROUP

A CALIFORNIA CORPORATION



Mr. Jose Miguel Sanchez
County of Monterey
1441 Schilling Place, 2nd Floor
Salinas, California 93901

December 10, 2020

Subject: Carmel Valley Road Five-Year Traffic Monitoring - 2020
Monterey County, California

Dear Mr. Sanchez:

1.0 INTRODUCTION

This report presents the results of traffic counts and analyses for the Carmel Valley Road Five-Year Traffic Monitoring program in Monterey County, California. The five-year monitoring was last performed in 2015. It should be noted that stay-at-home orders related to the COVID-19 pandemic were in place during the 2020 monitoring; therefore, the results may not reflect those of a typical year.

2.0 BACKGROUND

The 2010 Monterey County General Plan dated October 26, 2010 contains Area Master Plans, including the Carmel Valley Master Plan (CVMP) under Chapter 9-B for the unincorporated Carmel Valley Area with a Supplemental Policy Amendment dated February 12, 2013 (SPA). Section “2.0 Circulation” of the SPA contains a directive to Public Works related to the care of the following 13 road segments:

Carmel Valley Road

1. East of Holman Road
2. Between Esquiline Road and Holman Road
3. Between Ford Road and Esquiline Road
4. Between Laureles Grade and Ford Road
5. Between Robinson Canyon Road and Laureles Grade
6. Between Schulte Road and Robinson Canyon Road
7. Between Rancho San Carlos Road and Schulte Road
8. Between Rio Road and Rancho San Carlos Road
9. Between Carmel Rancho Boulevard and Rio Road
10. Between SR 1 and Carmel Rancho Boulevard

Carmel Rancho Boulevard

11. Between Carmel Valley Road and Rio Road

Rio Road

12. Between Carmel Rancho Boulevard and Val Verde Drive
13. Between SR 1 and Carmel Rancho Boulevard

The general vicinity of study locations is presented in the attached Figure 1, Site Vicinity Map, following the text of this report. The specific study locations are presented in Figure 2, Study Location Map.

Policy CV-2.17(a) of the SPA requires monitoring by Public Works two times per year (in June and October) of peak-hour traffic volumes and daily traffic volumes on segments 3, 4, 5, 6, 7, and 10 of Carmel Valley Road, with at least one of the annual monitoring periods occurring when local schools are in session.

Policy CV-2.17(b) of the SPA requires that an annual evaluation report be prepared by the Public Works Department in December that shall report on traffic along the six (6) road segments identified in Policy CV-2.17(a). The report shall evaluate traffic using the percent-time-spent-following (PTSF) methodology (or such other methodology as may be appropriate for a given segment in the opinion of the Public Works Department), and the average daily traffic (ADT) methodology. ADT thresholds for each segment as presented in the SPA are presented in Table 1. The Public Works Department is required to annually establish appropriate PTSF or other methodology thresholds for each of the six (6) segments listed above.

Table 1
ADT Thresholds

Segment No.	Road	Segment	ADT Threshold
1	Carmel Valley Road	East of Holman Road	8,487
2	Carmel Valley Road	Between Esquiline Road and Holman Road	6,835
3	Carmel Valley Road	Between Ford Road and Esquiline Road	9,065
4	Carmel Valley Road	Between Laureles Grade and Ford Road	11,600
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	12,752
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	15,499
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	16,340
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road	48,487
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	51,401
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	27,839
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	33,495
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	6,416
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	33,928

Reference: CVMP Supplemental Policy Amendment dated February 12, 2013

Bold type indicates road segments currently included in the annual monitoring report.

Policy CV-2.17(c) of the SPA requires that a public hearing before the Board of Supervisors be held in January immediately following the December report if the ADT on a segment is within 100 trips of the threshold, or where the PTSF (or other methodology) for a segment exceeds or is within one percent (1%) of the value that would cause a decrease in the LOS.

Policy CV-2.17(d) of the SPA requires that, at five-year intervals, the County shall monitor all segments listed in Policy CV-2.17(a) and the annual report described in Policy CV-2.17(b) shall include a report on all segments. Any segment not previously part of the annual

report that is found to have an ADT within twenty percent (20%) of the ADT threshold shall thereafter be included in the annual monitoring and reporting.

Policy CV-2.17(e) of the SPA makes reference to Level of Service (LOS). The Transportation Research Board *Highway Capacity Manual*, 2010, (HCM2010) defines LOS as, “A quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler’s perspective and LOS F the worst.” Automobile mode LOS characteristics for both unsignalized and signalized intersections are presented in Tables 2 and 3.

Table 2
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Average Vehicle Delay (seconds)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

Table 3
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Vehicle Delay (seconds)
A	Volume-to-capacity ratio is low. Progression is exceptionally favorable or the cycle length is very short.	≤10
B	Volume-to-capacity ratio is low. Progression is highly favorable or the cycle length is very short.	>10-20
C	Volume-to-capacity ratio is no greater than 1.0. Progression is favorable or cycle length is moderate.	>20-35
D	Volume-to-capacity ratio is high but no greater than 1.0. Progression is ineffective or cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35-55
E	Volume-to-capacity ratio is high but no greater than 1.0. Progression is unfavorable and cycle length is long. Individual cycle failures are frequent.	>55-80
F	Volume-to-capacity ratio is greater than 1.0. Progression is very poor and cycle length is long. Most cycles fail to clear the queue.	>80

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

Automobile LOS characteristics for roadways are described in Table 4. Table 4 also presents the PTSF range corresponding to each LOS for Class II two-lane highways.

Table 4
Level of Service Characteristics for Road Segments

Level of Service	Description	PTSF - Class II Highways
A	High operating speeds with a small amount of platooning.	≤40
B	Speed reductions are present and platooning is noticeable.	>40-55
C	Most vehicles traveling in platoons with speeds noticeably curtailed.	>55-70
D	Platooning increases significantly.	>70-85
E	Demand approaching capacity. Speeds seriously curtailed.	>85
F	Demand exceeds capacity and heavy congestion exists.	Not defined

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

Policy CV-2.17(e) requires that, at five-year intervals, the County shall examine the degree to which estimated changes in LOS in the Carmel Valley Master Plan Area may be occurring earlier than predicted in the General Plan Environmental Impact Report (EIR). If the examination indicates that LOS are likely to fall to a lower letter grade than predicted for 2030, then the County shall consider adjustments to the cap on new residential units established in Policy CV-1.6, adjustments to the cap on new visitor-serving units established in Policy CV-1.15, or other measures that may reduce the impacts.

Policy CV-2.17(f) of the SPA specifies the traffic standards (LOS as measured by peak-hour conditions) for the CVMP Area shall be as follows:

- 1) Signalized intersections: LOS of C is the acceptable condition.
- 2) Unsignalized intersections: LOS of F or meeting of any traffic signal warrant are defined as unacceptable conditions.
- 3) Carmel Valley Road segment operations:
 - a. LOS of C and ADT below the threshold specified in Policy CV-2.17(a) for Segments 1, 2, 8, 9, 10, 11, 12 and 13 is an acceptable condition;
 - b. LOS of D and ADT below the threshold specified in Policy CV-2.17(a) for Segments 3, 4, 5, 6, and 7 is an acceptable condition.

3.0 TRAFFIC COUNTS

Stay-at-home orders were in place as a result of the COVID-19 pandemic; however, counts were performed as required by the SPA. Carmel Unified School District was not in session during the June counts, and the district was utilizing distance learning (students not attending campuses in person) when the October counts were performed. All Saint’s Day School, with an enrollment of approximately 165 students, was not in attendance during the June counts

but was holding in-person classes during the October counts. Most special events in Carmel Valley and Laguna Seca were cancelled in 2020. No large special events were held while the counts were being performed.

To estimate the ADT, 24-hour road segment volumes were determined by installing video cameras on the 13 study road segments and manually counting vehicles during observation of the video. The results are presented in Table 5 and the data sheets are presented in Appendix A.

Table 5
2020 ADT

Segment No.	Road	Segment	2020 ADT	
			June	October
1	Carmel Valley Road	East of Holman Road	3,084	2,791
2	Carmel Valley Road	Between Esquiline Road and Holman Road	3,211	2,926
3	Carmel Valley Road	Between Ford Road and Esquiline Road	8,058	7,913
4	Carmel Valley Road	Between Laureles Grade and Ford Road	9,196	9,064
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	9,732	9,551
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	13,072	13,279
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	13,513	13,649
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road	18,013	18,205
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	18,173	18,326
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	18,698	18,962
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	12,122	12,522
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	902	875
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	6,965	6,980

Bold type indicates road segments currently included in the annual monitoring report.

Traffic counts were performed at the following study locations on Thursday, June 18, 2020 and on Thursday, October 8, 2020, except as noted:

1. State Route (SR) 1 / Carmel Valley Road (signalized)
2. Carmel Rancho Boulevard / Carmel Valley Road (signalized)
3. Rio Vista Drive / Carmel Valley Road (one-way stop)
4. Carmel Middle School / Carmel Valley Road (signalized)
5. Rio Road / Carmel Valley Road (one-way stop)
6. Via Mallorca / Carmel Valley Road (signalized, counted on June 30, 2020)
7. Rancho San Carlos Road / Carmel Valley Road (signalized)
8. Schulte Road / Carmel Valley Road (one-way stop)
9. Robinson Canyon Road / Carmel Valley Road (left-turns yield)
10. Robinson Canyon Road / Carmel Valley Road off ramp (one-way stop)
11. Laureles Grade / Carmel Valley Road (one-way stop)
12. Ford Road / Carmel Valley Road (one-way stop)
13. Esquiline Road / Carmel Valley Road (one-way stop)
14. Holman Road / Carmel Valley Road (one-way stop)
15. SR 1 / Rio Road (signalized)
16. Crossroads Boulevard / Rio Road (signalized)
17. Carmel Rancho Boulevard / Rio Road (two-way stop)

Existing peak-hour traffic volumes at the study intersections (including automobiles, heavy vehicles, pedestrians, and bicycles) were determined by performing manual turning-movement counts of video recordings between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The existing peak-hour vehicle turning movement volumes are presented in Figure 3, Existing Peak-Hour Traffic Volumes – June 2020 and Figure 4, Existing Peak-Hour Traffic Volumes – October 2020. The data sheets are presented in Appendix A.

4.0 LANE CONFIGURATIONS AND INTERSECTION CONTROL

The lane configurations and intersection control at the study intersections as of the June traffic counts are presented in Figure 5, Existing Lane Configurations and Intersection Control. For purposes of these analyses, Carmel Valley Road is considered to run in the east-west direction at all locations.

5.0 OPERATIONAL ANALYSES

5.1 – Road Segment Levels of Service and Time Spent Following

The LOS and PTSF on the study road segments were determined using McTrans HCS7 Two Lane software, which is based on the Highway Capacity Manual procedures for calculating road segment LOS. The road segment analysis sheets are presented in Appendix B.

According to the HCM, Class I two-lane highways are highways where motorists expect to travel at high speeds and that are typically major inter-city routes, primary connectors of major traffic generators, daily commuter routes, or major links in state or national highway networks.

Class II two-lane highways are highways where motorists do not necessarily expect to travel at high speeds. These highways typically function as access routes to Class I highways,

scenic or recreational routes (not primary arterials), or passing through rugged terrain where high-speed operation would be impossible. Class II facilities most often serve relatively short trips, the beginning or ending portions of longer trips, or trips for which sightseeing plays a significant role.

Class III two-lane highways are highways serving moderately-developed areas and may be portions of Class I or Class II highways that pass through small towns or developed recreation areas. On such segments, local traffic often mixes with through traffic and the density of unsignalized roadside access points is noticeable higher than in a purely rural area. Class III highways may also be longer segments passing through more spread-out recreational areas, also with increased roadside densities. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.

For purposes of these analyses, the two-lane study road segments were assumed to be Class II two-lane highways with relatively level terrain. It should be noted that PTSF criteria do not apply to Class III highways in terms of defining LOS, and PTSF criteria are not utilized for multi-lane highways.

Tables 6 and 7 present the results of the road segment analyses. The calculations are directional and consider the volume of opposing traffic. The governing LOS is presented for each scenario.

5.2 – Intersection Levels of Service and Traffic Signal Warrants

The levels of service at the study intersections were determined using the computer program Synchro 11, which is based on HCM procedures for calculating levels of service.

The California State Transportation Agency and California Department of Transportation *California Manual on Uniform Traffic Control Devices, 2014 Edition (Revision 5 effective March 27, 2020)* (CMUTCD) presents various criteria (warrants) for determining the need for traffic signals. The CMUTCD states that an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location. For purposes of this study, Warrant 3, Peak Hour, was analyzed at the unsignalized intersections (with the exception of the intersection of Laureles Grade and Carmel Valley Road, which is currently in design to be converted to a roundabout).

Tables 8 and 9 present the results of the intersection operational analyses. Levels of service worse than the target LOS, and the corresponding delays, are indicated in bold type and are underlined. The results of the peak-hour traffic signal warrants analyses at the unsignalized study intersections are also presented. The intersection analysis sheets, including the peak-hour traffic signal warrants output, are presented in Appendix C.

Table 6
Road Segment PTSF and LOS Summary – June 2020

Segment No.	Road	Segment	A.M. Peak Hour		P.M. Peak Hour	
			PTSF	LOS	PTSF	LOS
1	Carmel Valley Road	East of Holman Road	52.2	B	54.1	B
2	Carmel Valley Road	Between Esquiline Road and Holman Road	49.3	B	55.0	B
3	Carmel Valley Road	Between Ford Road and Esquiline Road	67.3	C	69.9	C
4	Carmel Valley Road	Between Laureles Grade and Ford Road	74.2	D	75.7	D
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	71.9	D	83.6	D
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	75.7	D	81.3	D
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	77.8	D	82.1	D
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road (two-lane portion)	76.5	D	82.4	D
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	N/A	A	N/A	A
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	N/A	A	N/A	A
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	N/A	A	N/A	A
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	37.6	A	35.9	A
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	N/A	A	N/A	A

Bold type indicates road segments currently included in the annual monitoring report.
 N/A: Not applicable. PTSF methodology is not applicable to multi-lane roadways.

Table 7
Road Segment PTSF and LOS Summary – October 2020

Segment No.	Road	Segment	A.M. Peak Hour		P.M. Peak Hour	
			PTSF	LOS	PTSF	LOS
1	Carmel Valley Road	East of Holman Road	54.4	B	55.9	C
2	Carmel Valley Road	Between Esquiline Road and Holman Road	54.4	B	56.9	C
3	Carmel Valley Road	Between Ford Road and Esquiline Road	69.0	C	66.9	C
4	Carmel Valley Road	Between Laureles Grade and Ford Road	72.2	D	75.0	D
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	76.8	D	81.3	D
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	76.5	D	81.5	D
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	77.9	D	82.6	D
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road (two-lane portion)	78.9	D	84.3	D
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	N/A	A	N/A	A
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	N/A	A	N/A	A
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	N/A	A	N/A	A
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	33.3	A	35.4	A
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	N/A	A	N/A	A

Bold type indicates road segments currently included in the annual monitoring report.
 N/A: Not applicable. PTSF methodology is not applicable to multi-lane roadways.

Table 8
Intersection LOS and Peak-Hour Warrant Summary – June 2020

Intersection	Control	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
SR 1 / Carmel Valley	Signals	4.7	A		6.8	A	
Carmel Rancho Blvd / Carmel Valley	Signals	15.4	B		20.5	C	
Rio Vista Drive / Carmel Valley	One-way stop	16.6	C	Not met	19.5	C	Not met
Carmel Middle School / Carmel Valley	Signals	7.5	A		7.0	A	
Rio / Carmel Valley	One-way stop	19.0	C	Not met	29.4	D	Not met
Via Mallorca / Carmel Valley	Signals	2.1	A		2.2	A	
Rancho San Carlos / Carmel Valley	Signals	2.7	A		2.7	A	
Schulte / Carmel Valley	One-way stop	17.6	C	Not met	25.6	D	Not met
Robinson Canyon / Carmel Valley	Yield	9.8	A	Not met	12.9	B	Not met
Robinson Canyon / Carmel Valley off ramp	One-way stop	8.7	A	Not met	8.8	A	Not met
Laureles Grade / Carmel Valley	One-way stop*	20.9	C		52.2	F	
Ford / Carmel Valley	One-way stop	11.1	B	Not met	11.4	B	Not met
Esquiline / Carmel Valley	One-way stop	11.1	B	Not met	11.8	B	Not met
Holman / Carmel Valley	One-way stop	9.9	A	Not met	9.7	A	Not met
SR 1 / Rio Road	Signals	17.1	B		21.3	C	
Crossroads Blvd / Rio Road	Signals	5.2	A		5.4	A	
Carmel Rancho Blvd / Rio Road	Two-way stop	12.5	B	Not met	16.2	C	Not met

* Peak-hour warrants not analyzed - roundabout planned.

Table 9
Intersection LOS and Peak-Hour Warrant Summary – October 2020

Intersection	Control	A.M. Peak Hour			P.M. Peak Hour		
		Delay (sec)	LOS	Warrant	Delay (sec)	LOS	Warrant
SR 1 / Carmel Valley	Signals	4.8	A		7.0	A	
Carmel Rancho Blvd / Carmel Valley	Signals	16.2	B		19.7	B	
Rio Vista Drive / Carmel Valley	One-way stop	18.0	C	Not met	21.5	C	Not met
Carmel Middle School / Carmel Valley	Signals	7.4	A		11.7	B	
Rio / Carmel Valley	One-way stop	23.1	C	Not met	29.4	D	Not met
Via Mallorca / Carmel Valley	Signals	6.7	A		6.7	A	
Rancho San Carlos / Carmel Valley	Signals	7.4	A		7.8	A	
Schulte / Carmel Valley	One-way stop	20.4	C	Not met	29.0	D	Not met
Robinson Canyon / Carmel Valley	Yield	10.1	A	Not met	13.0	B	Not met
Robinson Canyon / Carmel Valley off ramp	One-way stop	8.9	A	Not met	8.9	A	Not met
Laureles Grade / Carmel Valley	One-way stop*	19.8	C		51.0	F	
Ford / Carmel Valley	One-way stop	11.2	B	Not met	11.7	B	Not met
Esquiline / Carmel Valley	One-way stop	11.8	B	Not met	11.9	B	Not met
Holman / Carmel Valley	One-way stop	9.6	A	Not met	9.5	A	Not met
SR 1 / Rio Road	Signals	16.5	B		21.8	C	
Crossroads Blvd / Rio Road	Signals	9.9	A		11.2	B	
Carmel Rancho Blvd / Rio Road	Two-way stop	11.5	B	Not met	11.9	B	Not met

* Peak-hour warrants not analyzed - roundabout planned.

6.0 EVALUATION AND DISCUSSION

Policy CV-2.17(a) was addressed by performing traffic counts in June and October 2020, with the analyses presented in the following sections of this report.

Policies CV-2.17(b), CV-2.17(c), and CV-2.17(d) have been addressed by performing road segment operational analyses to determine the PTSF and by comparing both ADT and PTSF to threshold values. Table 10 presents a comparison of the 2020 ADT values with the threshold values. Table 11 presents a comparison of the 2020 PTSF values with the threshold values.

With respect to Policy CV-2.17(c), no road segments previously subject to annual monitoring are within 100 trips of the threshold, and the PTSF for those road segments is not within the 1% threshold. Therefore, a public hearing is not triggered with respect to Policy CV-2.17(c).

With respect to Policy CV-2.17(d), none of the five-year monitoring segments is within the 20% threshold. Therefore, no new road segments are required to be added to the annual monitoring program.

Policy CV-2.17(e) requires a judgment as to whether changes in the LOS may be occurring earlier than previously predicted. Table 12 presents a comparison of the General Plan EIR baseline and cumulative conditions with available LOS and ADT data presented in the 2008 and 2015 volume reports, as well as the new 2020 counts and analyses. The data presented in Table 12 is presented in graphical form for each road segment in Figures 6 through 18. The results provide no evidence that LOS changes are occurring earlier than predicted in the General Plan EIR.

With respect to Policy CV-2.17(f), all of the study intersections and all but one of the study road segments are operating at, or better than, the specified LOS. Peak-hour traffic signal warrants are not met at the unsignalized study intersections. A majority of Segment 8 (Carmel Valley Road between Rio Road and Ranch San Carlos Road) is a four-lane highway; however, the easternmost portion of the segment is approximately 2,000 feet long and is a two-lane highway. The two-lane portion of Segment 8 operates at LOS D with a worst-case PTSF of 84.3, which is worse than the LOS threshold C for the segment established in Policy CV-2.17(f).

It should be noted that LOS F was calculated for the intersection of Laureles Grade and Carmel Valley Road, and the County has initiated design and construction of a roundabout at that intersection.

Table 10
ADT Comparisons

Segment No.	Road	Segment	ADT Threshold	June 2020			October 2020		
				ADT	Percent of Threshold	Difference	ADT	Percent of Threshold	Difference
1	Carmel Valley Road	East of Holman Road	8,487	3,084	36%	5,403	2,791	33%	5,696
2	Carmel Valley Road	Between Esquiline Road and Holman Road	6,835	3,211	47%	3,624	2,926	43%	3,909
3	Carmel Valley Road	Between Ford Road and Esquiline Road	9,065	8,058	89%	1,007	7,913	87%	1,152
4	Carmel Valley Road	Between Laureles Grade and Ford Road	11,600	9,196	79%	2,404	9,064	78%	2,536
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	12,752	9,732	76%	3,020	9,551	75%	3,201
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	15,499	13,072	84%	2,427	13,279	86%	2,220
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	16,340	13,513	83%	2,827	13,649	84%	2,691
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road	48,487	18,013	37%	30,474	18,205	38%	30,282
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	51,401	18,173	35%	33,228	18,326	36%	33,075
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	27,839	18,698	67%	9,141	18,962	68%	8,877
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	33,495	12,122	36%	21,373	12,522	37%	20,973
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	6,416	902	14%	5,514	875	14%	5,541
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	33,928	6,965	21%	26,963	6,980	21%	26,948

Bold type indicates road segments currently included in the annual monitoring report.

Table 11
PTSF Comparisons

Segment No.	Road	Segment	LOS Required	PTSF Threshold	June 2020		October 2020	
					Worst-Case PTSF	Difference	Worst-Case PTSF	Difference
1	Carmel Valley Road	East of Holman Road	C	70	54.1	15.9	55.9	14.1
2	Carmel Valley Road	Between Esquiline Road and Holman Road	C	70	55.0	15.0	56.9	13.1
3	Carmel Valley Road	Between Ford Road and Esquiline Road	D	85	69.9	15.1	69.0	16.0
4	Carmel Valley Road	Between Laureles Grade and Ford Road	D	85	75.7	10.3	75.0	10.0
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	D	85	83.6	1.4	81.3	3.7
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	D	85	81.3	3.7	81.5	3.5
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	D	85	82.1	2.9	82.6	2.4
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road (two-lane portion)	C	70	82.4	-12.4	84.3	-14.3
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	C	N/A	N/A	N/A	N/A	N/A
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	C	N/A	N/A	N/A	N/A	N/A
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	C	N/A	N/A	N/A	N/A	N/A
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	C	70	35.9	34.1	35.4	34.6
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	C	N/A	N/A	N/A	N/A	N/A

Bold type indicates road segments currently included in the annual monitoring report.
 N/A: Not applicable. PTSF methodology is not applicable to multi-lane roadways.

Table 12
Volume and LOS Comparison

No.	Road	Segment	2008		2015+		2020				General Plan (Cumulative)	
			ADT*	LOS*	June	October	June		October		ADT	LOS
					ADT	ADT	ADT	LOS	ADT	LOS		
1	Carmel Valley Road	East of Holman Road	3,235	A	3,128	3,048	3,084	B	2,791	C	10,400	D
2	Carmel Valley Road	Between Esquiline Road and Holman Road	3,673	A	3,536	3,436	3,211	B	2,926	C	6,100	D
3	Carmel Valley Road	Between Ford Road and Esquiline Road	10,816	B/C	8,216	8,206	8,058	C	7,913	C	13,200	F
4	Carmel Valley Road	Between Laureles Grade and Ford Road	-	C	10,740	11,061	9,196	D	9,064	D	22,600	F
5	Carmel Valley Road	Between Robinson Canyon Road and Laureles Grade	11,521	C/D	11,015	11,364	9,732	D	9,551	D	27,400	F
6	Carmel Valley Road	Between Schulte Road and Robinson Canyon Road	14,163	D	14,255	14,400	13,072	D	13,279	D	33,200	F
7	Carmel Valley Road	Between Rancho San Carlos Road and Schulte Road	15,984	D	14,642	16,067	13,513	D	13,649	D	36,600	F
8	Carmel Valley Road	Between Rio Road and Rancho San Carlos Road	19,655	A	19,076	19,117	18,013	D**	18,205	D**	35,800	F
9	Carmel Valley Road	Between Carmel Rancho Boulevard and Rio Road	24,655	A/B	23,941	24,767	18,173	A	18,326	A	41,800	F
10	Carmel Valley Road	Between SR 1 and Carmel Rancho Boulevard	23,160	A/B	22,413	22,510	18,698	A	18,962	A	40,200	F
11	Carmel Rancho Boulevard	Between Carmel Valley Road and Rio Road	11,015	-	10,076	9,728	12,122	A	12,522	A	18,600	D
12	Rio Road	Between Carmel Rancho Boulevard and Val Verde Drive	-	-	658	702	902	A	875	A	-	-
13	Rio Road	Between SR 1 and Carmel Rancho Boulevard	12,270	-	11,528	11,437	6,965	A	6,980	A	18,100	D

Bold type indicates road segments currently included in the annual monitoring report.

+ 2015 LOS not available

* 2008 ADT from 2008 CVMP Volume Report; 2008 ADT from General Plan EIR baseline.

** 2020 LOS is for the two-lane portion of Segment 8. The four-lane portion is operating at LOS A.

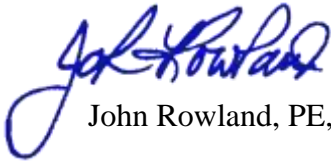
7.0 CONCLUSIONS

This study was performed to fulfill the requirements of the Monterey County General Plan and CVMP Policy CV-2.17 for both annual traffic monitoring and five-year traffic monitoring. Generally-accepted traffic engineering principles and methods were applied to the traffic counts and analyses performed for this study to arrive at the following conclusions:

- Stay-at-home orders related to the COVID-19 pandemic were in place during the 2020 monitoring; however, counts were performed as required by the applicable policies. The traffic volumes counted during 2020 may not reflect those of a typical year.
- Carmel Unified School District was not in session during the June counts, and the district was utilizing distance learning (students not attending campuses in person) when the October counts were performed.
- All Saint's Day School, with an enrollment of approximately 165 students, was not in attendance during the June counts but was holding in-person classes during the October counts.
- Most special events in Carmel Valley and Laguna Seca were cancelled in 2020. No large special events were held while the counts were being performed.
- The counts and analyses reveal that no road segments previously subject to annual monitoring are within 100 trips of the threshold, and the PTSF for those road segments is not within the 1% threshold. Therefore, a public hearing is not triggered with respect to Policy CV-2.17(c).
- None of the five-year monitoring segments is within the 20% threshold; therefore, no new road segments are required to be added to the annual monitoring program.
- In accordance with Policy CV-2.17(e), the required comparisons do not suggest that LOS changes are occurring earlier than predicted in the General Plan EIR.
- With respect to Policy CV-2.17(f), all of the study intersections and all but one of the study road segments are operating at, or better than, the specified LOS. Peak-hour traffic signal warrants are not met at the unsignalized intersections.
- A majority of Segment 8 (Carmel Valley Road between Rio Road and Ranch San Carlos Road) is a four-lane highway; however, the easternmost portion of the segment is approximately 2,000 feet long and is a two-lane highway. The two-lane portion of Segment 8 operates at LOS D with a worst-case PTSF of 84.3, which is worse than the LOS threshold C for the segment established in Policy CV-2.17(f).
- It should be noted that LOS F was calculated for the intersection of Laureles Grade and Carmel Valley Road, and the County has initiated design and construction of a roundabout at that intersection.

Thank you for the opportunity to perform these traffic analyses. Please feel free to contact our office if you have any questions.

PETERS ENGINEERING GROUP



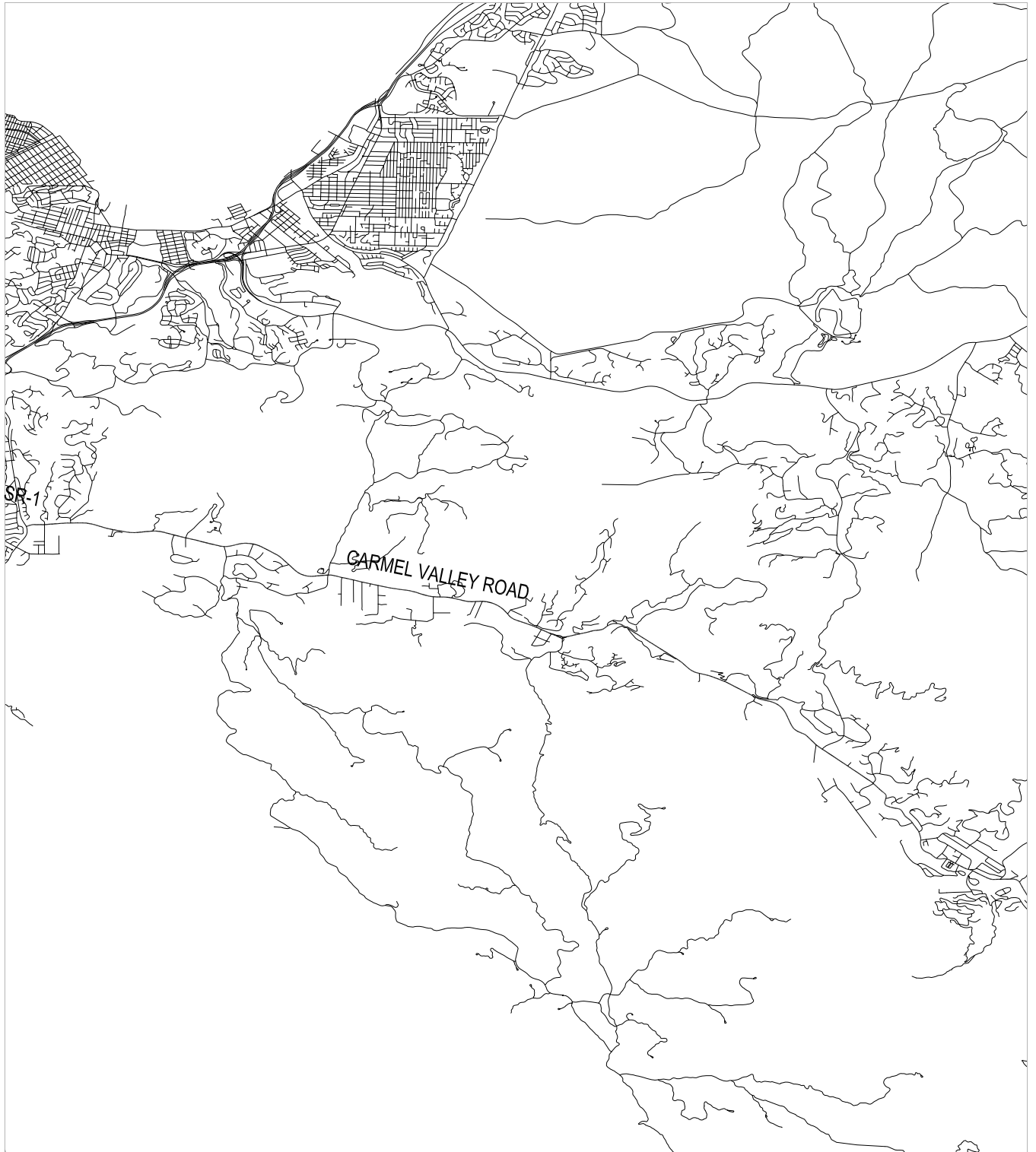
John Rowland, PE, TE



- Attachments: Figures 1 through 18
Appendix A - Traffic Count Data Sheets
Appendix B - Road Segment Analysis Sheets
Appendix C - Intersection Analysis Sheets

FIGURES



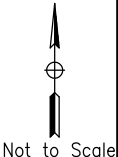


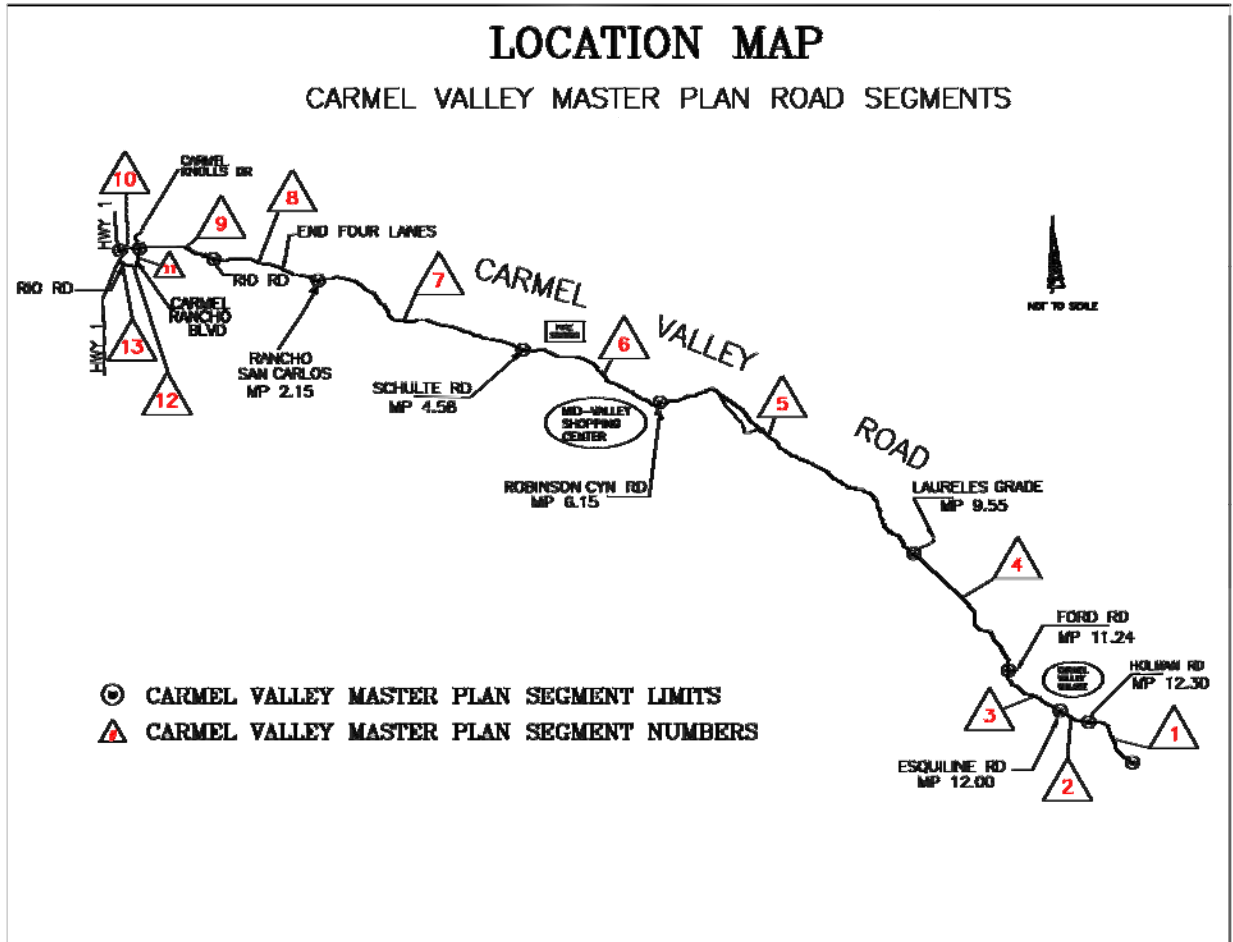
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—— PROJECT AREA

SITE VICINITY MAP

Carmel Valley Road Five-Year Traffic Monitoring - 2020
Monterey County, California



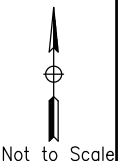


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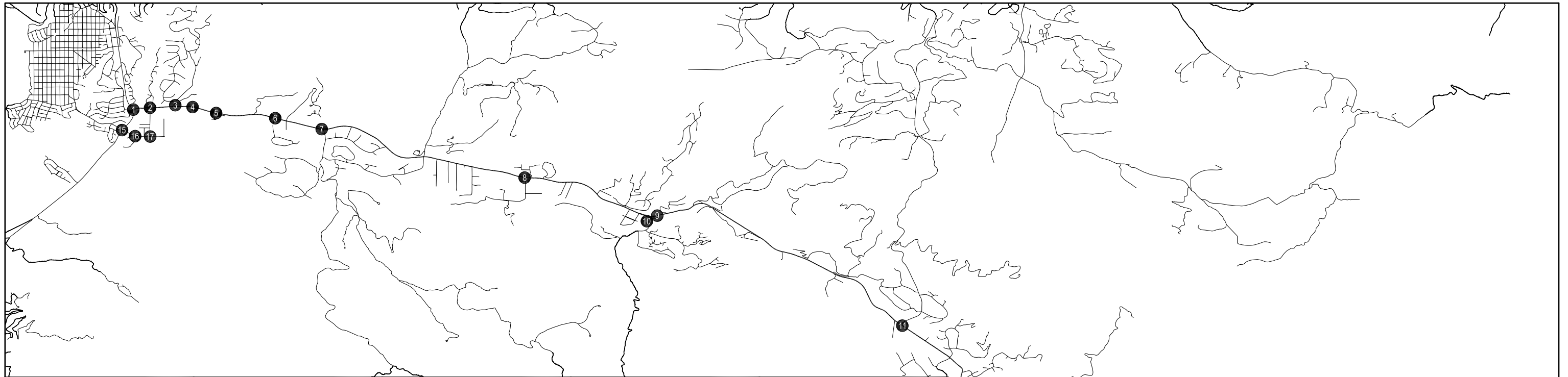
—— PROJECT AREA

STUDY LOCATION MAP

Carmel Valley Road Five-Year Traffic Monitoring - 2020
 Monterey County, California



Not to Scale

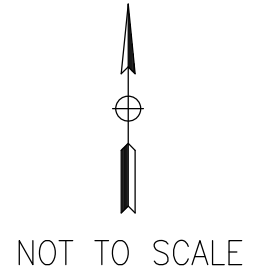


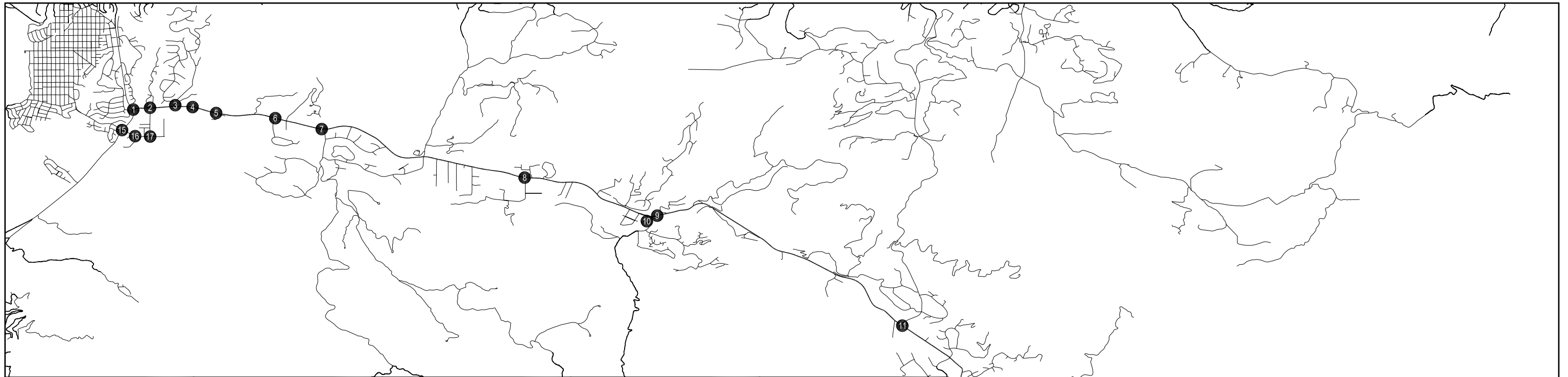
<p>1 Camel Valley / SR-1</p> <p>536(441) ← 630(658) ↓</p> <p>534(781) ↗</p> <p>256(631) ↑ 36(74) ↘</p>	<p>2 Camel Valley / Carmel Ranch</p> <p>20(16) ↓ 18(13) ↘ 6(4) ↙</p> <p>11(5) ↗ 452(489) ← 151(285) ↓</p> <p>1(15) ↗ 443(517) → 236(191) ↓</p> <p>66(246) ↗ 5(19) ↘ 157(392) ↓</p>	<p>3 Camel Valley / Rio Vista</p> <p>69(61) ↓ 7(12) ↘</p> <p>13(22) ↗ 547(705) ←</p> <p>59(83) ↗ 541(838) →</p>	<p>4 Camel Valley / Carmel Middle School</p> <p>547(714) ← 8(8) ↘</p> <p>1(1) ↗ 529(830) → 17(18) ↓</p> <p>2(15) ↗ 2(6) ↘</p>	<p>5 Camel Valley / Rio</p> <p>555(684) ← 9(9) ↘</p> <p>512(809) → 17(21) ↓</p> <p>5(20) ↗ 2(7) ↘</p>		
<p>6 Camel Valley / Via Mallora</p> <p>578(658) ← 4(10) ↘</p> <p>583(758) → 15(35) ↓</p> <p>25(28) ↗ 6(12) ↘</p>	<p>7 Camel Valley / Rancho San Carlos</p> <p>493(513) ← 22(12) ↘</p> <p>375(695) → 128(67) ↓</p> <p>42(128) ↗ 11(34) ↘</p>	<p>8 Camel Valley / Schulte</p> <p>459(430) ← 11(23) ↘</p> <p>314(642) → 24(50) ↓</p> <p>34(60) ↗ 17(23) ↘</p>	<p>9 Carmel Valley(left-turn)/Robinson Canyon</p> <p>395(323) ← 28(26) ↘</p> <p>211(588) →</p> <p>24(32) ↘</p>	<p>10 Carmel Valley(off-ramp)/Robinson Canyon</p> <p>61(109) ↘ 1(3) ↗ 24(30) ↘</p>		
<p>11 Carmel Valley / Laureles Grade</p> <p>97(78) ↓ 118(129) ↘</p> <p>128(201) ↗ 312(217) ←</p> <p>64(196) ↗ 130(369) →</p>	<p>12 Carmel Valley / Ford</p> <p>54(58) ↓ 2(4) ↘</p> <p>7(16) ↗ 302(318) ←</p> <p>29(63) ↗ 204(384) →</p>	<p>13 Carmel Valley / Esquiles</p> <p>131(138) ← 3(9) ↘</p> <p>94(166) → 38(146) ↓</p> <p>108(99) ↗ 4(8) ↘</p>	<p>14 Carmel Valley / Holman</p> <p>1(12) ↓ 6(5) ↘</p> <p>5(3) ↗ 128(127) ←</p> <p>7(11) ↗ 87(153) →</p>	<p>15 Rio / SR-1</p> <p>93(65) ↓ 187(190) ↘ 259(188) ↙</p> <p>120(246) ↗ 97(337) ← 65(122) ↓</p> <p>94(127) ↗ 147(273) → 32(53) ↓</p> <p>25(63) ↗ 81(341) ↘ 50(147) ↓</p>	<p>16 Rio / Crossroads</p> <p>140(342) ← 52(119) ↘</p> <p>43(63) ↗ 241(285) → 87(145) ↓</p> <p>109(298) ↗ 42(125) ↘</p>	<p>17 Rio / Carmel Rancho</p> <p>152(344) ↓ 15(17) ↘</p> <p>14(16) ↗ 10(10) ←</p> <p>171(287) ↗ 20(18) →</p>

LEGEND

- STUDY AREA INTERSECTIONS
- XX (YY) WEEKDAY AM (PM) VOLUMES
- PROJECT AREA

EXISTING PEAK HOUR TRAFFIC VOLUMES (JUNE 2020)
 Carmel Valley Road Five-Year Traffic Monitoring - 2020
 Monterey County, California



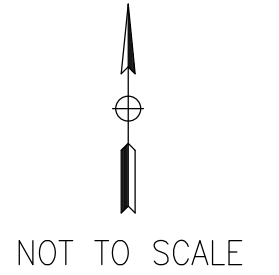


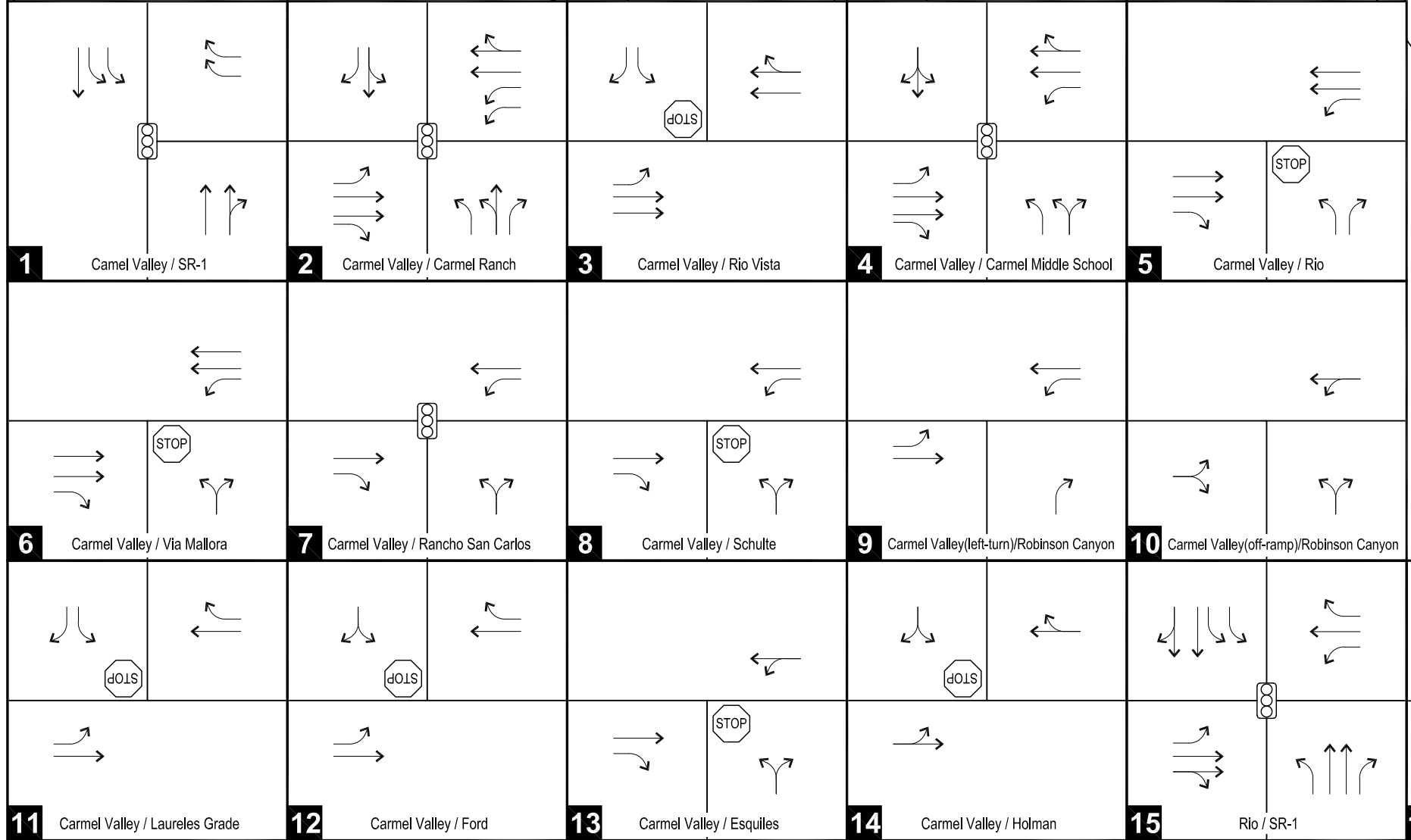
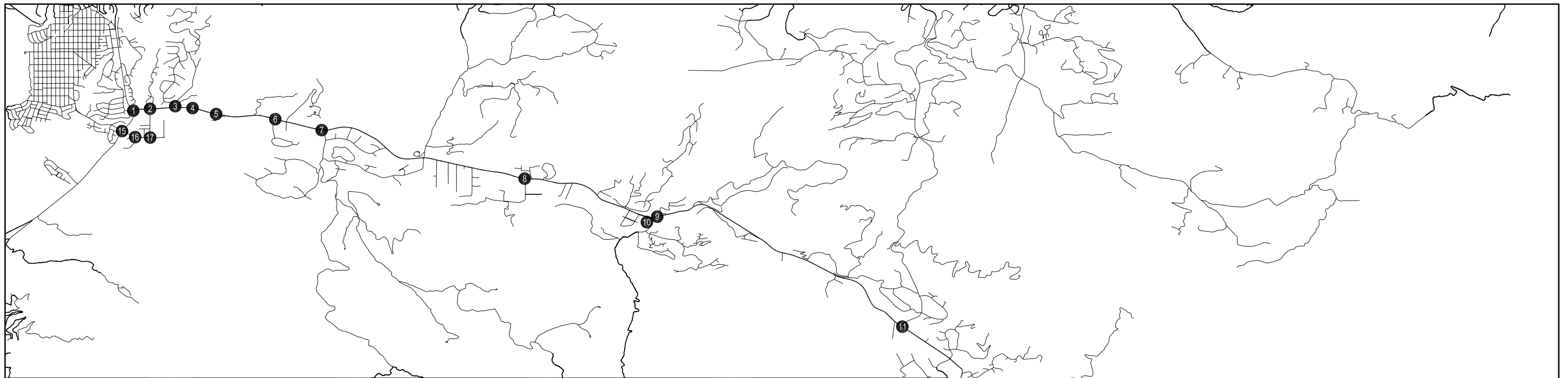
<p>1 Camel Valley / SR-1</p> <p>532(445) ← 816(693) ↓</p> <p>549(892) ↗</p> <p>222(682) ↑ 56(70) ↘</p>	<p>2 Camel Valley / Carmel Ranch</p> <p>15(16) ↓ 13(15) ↓ 2(2) ↓</p> <p>5(7) ↗ 452(634) ← 268(251) ↓</p> <p>12(14) ↗ 575(559) → 266(181) ↓</p> <p>68(222) ↑ 4(9) ↑ 152(356) ↗</p>	<p>3 Camel Valley / Rio Vista</p> <p>74(73) ↓ 14(17) ↓</p> <p>11(12) ↗ 650(813) ←</p> <p>61(79) ↗ 668(851) →</p>	<p>4 Camel Valley / Carmel Middle School</p> <p>0(2) ↓</p> <p>1(1) ↗ 663(855) → 15(16) ↓</p> <p>655(790) ← 10(11) ↓</p> <p>13(28) ↗ 7(7) ↗</p>	<p>5 Camel Valley / Rio</p> <p>641(768) ← 7(7) ↓</p> <p>672(816) → 14(22) ↓</p> <p>3(15) ↗ 2(11) ↗</p>		
<p>6 Camel Valley / Via Mallora</p> <p>619(716) ← 7(11) ↓</p> <p>638(791) → 26(39) ↓</p> <p>28(29) ↗ 3(10) ↗</p>	<p>7 Camel Valley / Rancho San Carlos</p> <p>569(605) ← 18(11) ↓</p> <p>490(692) → 124(95) ↓</p> <p>59(117) ↗ 8(29) ↗</p>	<p>8 Camel Valley / Schulte</p> <p>504(489) ← 21(32) ↓</p> <p>404(658) → 29(52) ↓</p> <p>47(41) ↗ 22(24) ↗</p>	<p>9 Carmel Valley(left-turn)/Robinson Canyon</p> <p>440(371) ← 55(26) ↓</p> <p>256(575) →</p> <p>18(35) ↗</p>	<p>10 Carmel Valley(off-ramp)/Robinson Canyon</p> <p>2(1) ← 57(25) ↓</p> <p>0(3) → 93(122) ↓</p> <p>1(1) ↗ 16(32) ↗</p>		
<p>11 Carmel Valley / Laureles Grade</p> <p>136(66) ↓ 134(136) ↓</p> <p>145(193) ↗ 298(255) ←</p> <p>77(186) ↗ 180(378) →</p>	<p>12 Carmel Valley / Ford</p> <p>63(74) ↓ 4(6) ↓</p> <p>15(10) ↗ 323(314) ←</p> <p>57(75) ↗ 236(360) →</p>	<p>13 Carmel Valley / Esquiles</p> <p>163(131) ← 3(9) ↓</p> <p>110(170) → 37(147) ↓</p> <p>121(84) ↗ 2(6) ↗</p>	<p>14 Carmel Valley / Holman</p> <p>3(10) ↓ 2(4) ↓</p> <p>1(1) ↗ 147(117) ←</p> <p>6(10) ↗ 100(155) →</p>	<p>15 Rio / SR-1</p> <p>86(66) ↓ 212(173) ↓ 226(194) ↓</p> <p>108(267) ↗ 153(249) ← 91(124) ↗</p> <p>79(141) ↗ 174(249) → 28(37) ↓</p> <p>19(60) ↗ 93(356) ↑ 56(104) ↗</p>	<p>16 Rio / Crossroads</p> <p>189(311) ← 57(93) ↓</p> <p>54(50) ↗ 211(255) → 86(116) ↓</p> <p>106(268) ↗ 49(102) ↗</p>	<p>17 Rio / Carmel Rancho</p> <p>230(297) ↓ 14(22) ↓</p> <p>13(23) ↗ 10(19) ↗</p> <p>134(265) ↗ 14(13) →</p>

LEGEND

- STUDY AREA INTERSECTIONS
- XX (YY) WEEKDAY AM (PM) VOLUMES
- PROJECT AREA

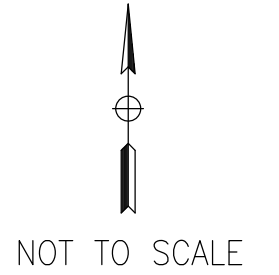
EXISTING PEAK HOUR TRAFFIC VOLUMES (OCTOBER 2020)
 Carmel Valley Road Five-Year Traffic Monitoring - 2020
 Monterey County, California

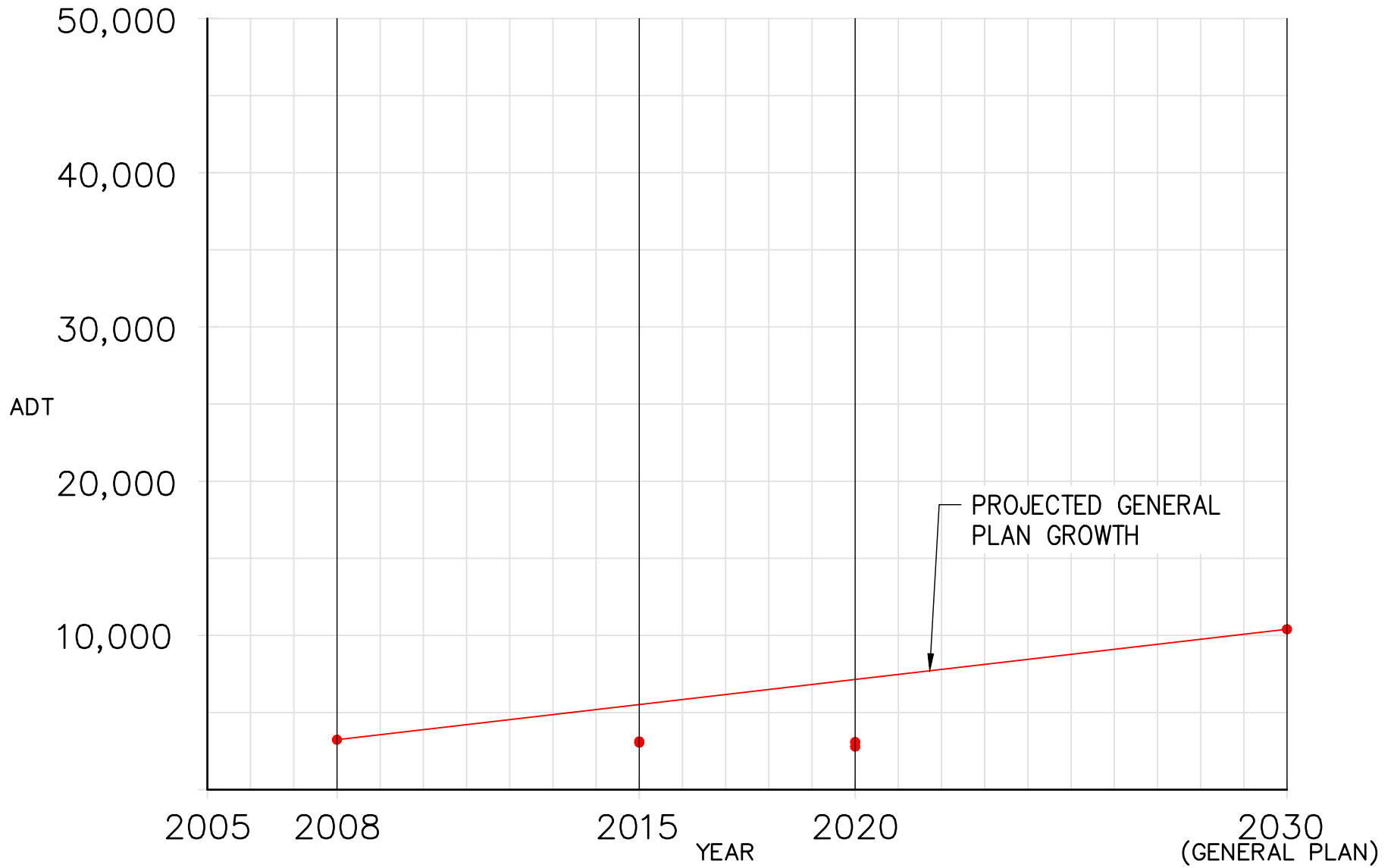




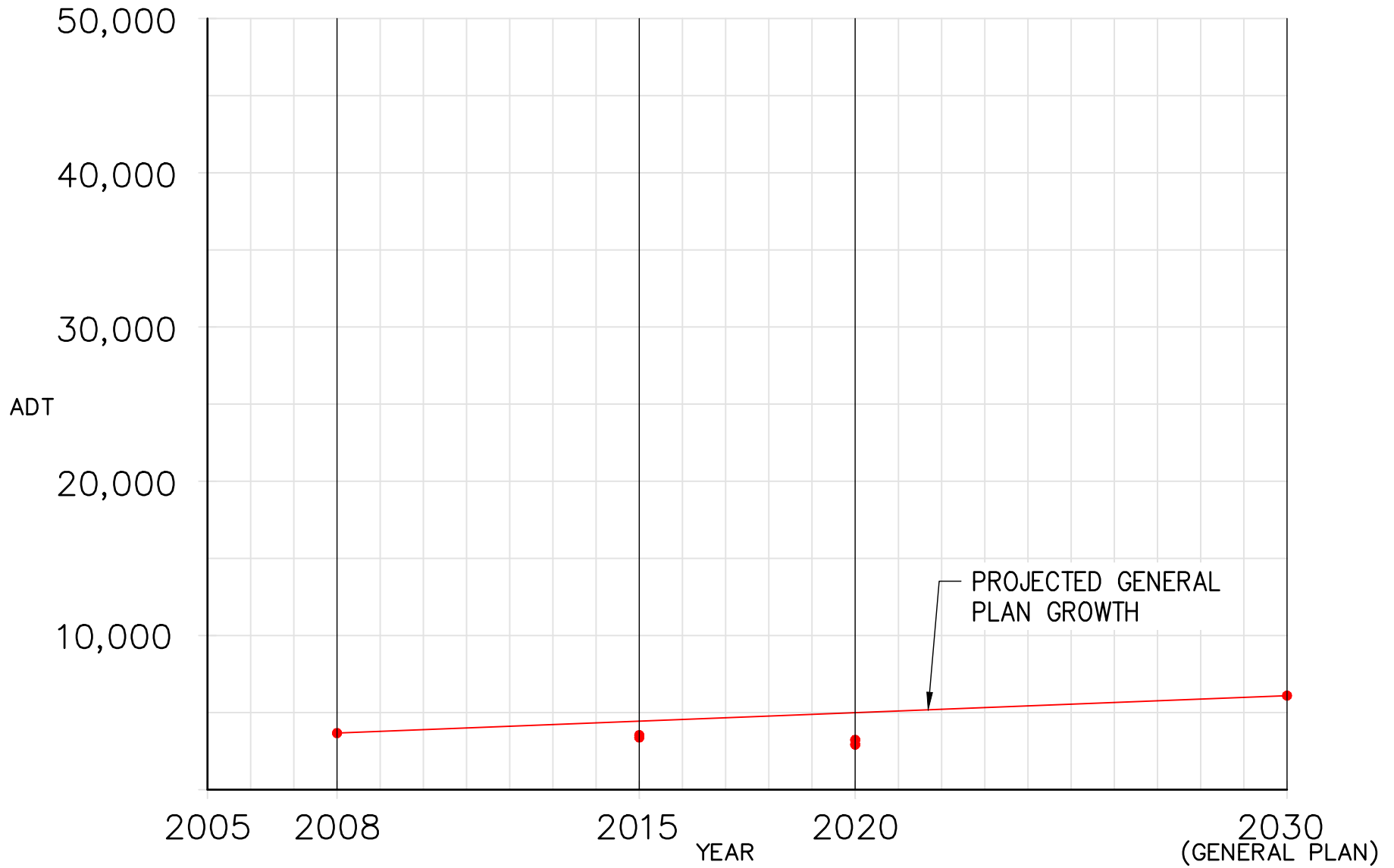
- LEGEND**
- STUDY AREA INTERSECTIONS
 - PROJECT AREA
 - SIGNALIZED INTERSECTION
 - STOP-CONTROLLED INTERSECTION
 - DIRECTION OF TRAVEL

EXISTING LANE CONFIGURATIONS AND INTERSECTION CONTROL
 Carmel Valley Road Five-Year Traffic Monitoring - 2020
 Monterey County, California

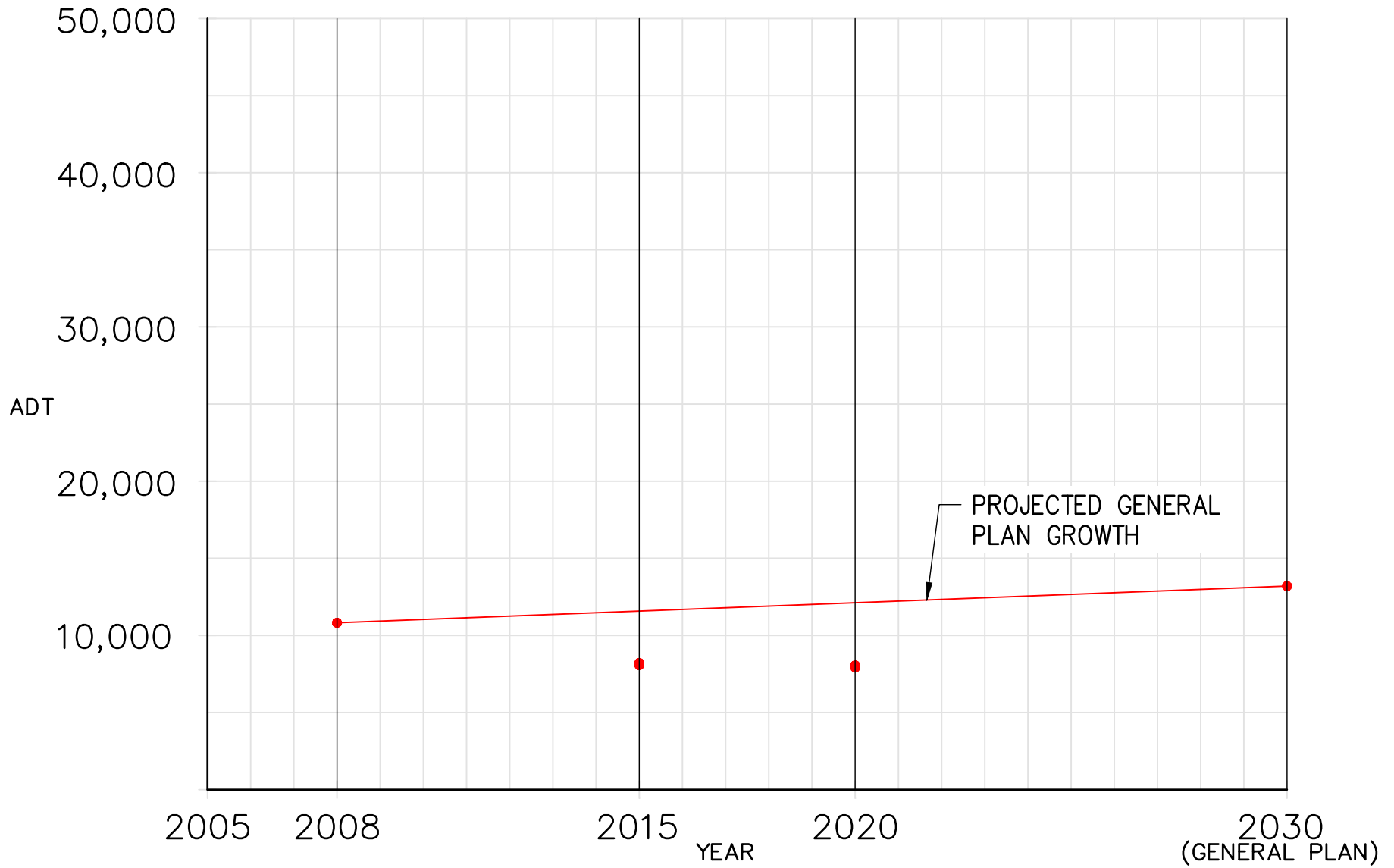




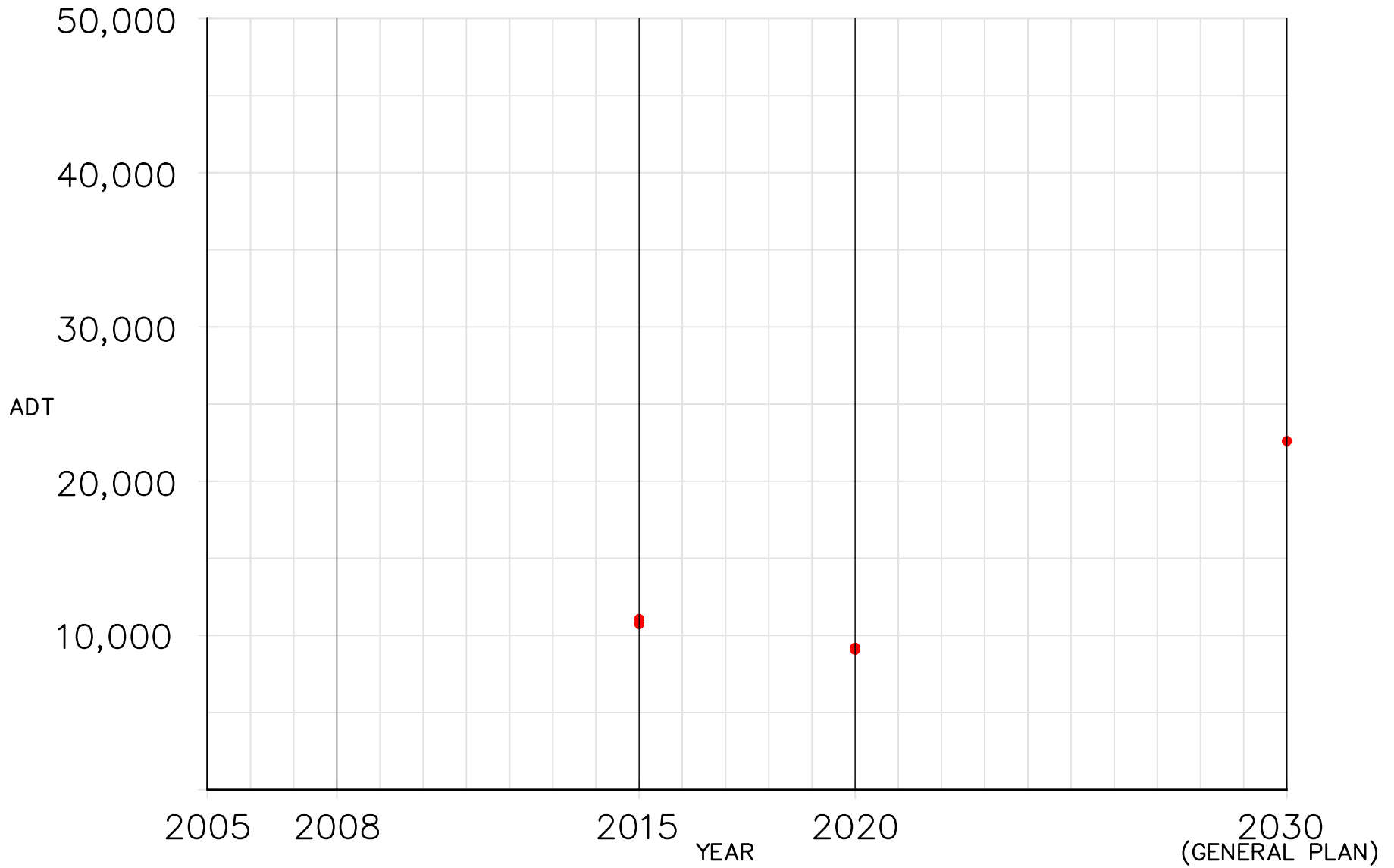
CARMEL VALLEY ROAD
SEGMENT 1 - EAST OF HOLMAN ROAD
MONTEREY COUNTY, CA



CARMEL VALLEY ROAD
SEGMENT 2 - BETWEEN ESQUILINE ROAD AND HOLMAN ROAD
MONTEREY COUNTY, CA

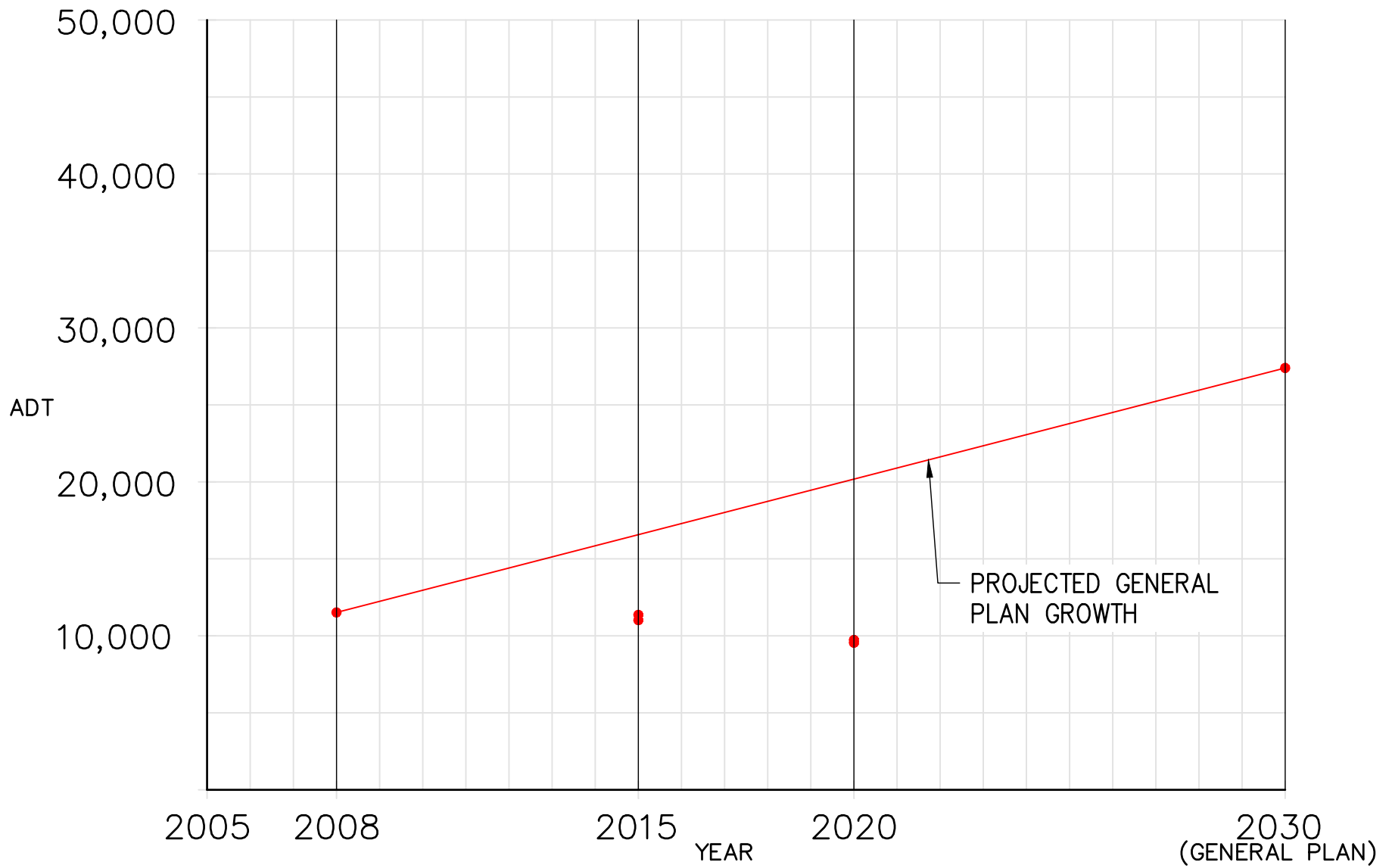


CARMEL VALLEY ROAD
SEGMENT 3 - BETWEEN FORD ROAD AND ESQUILINE ROAD
MONTEREY COUNTY, CA

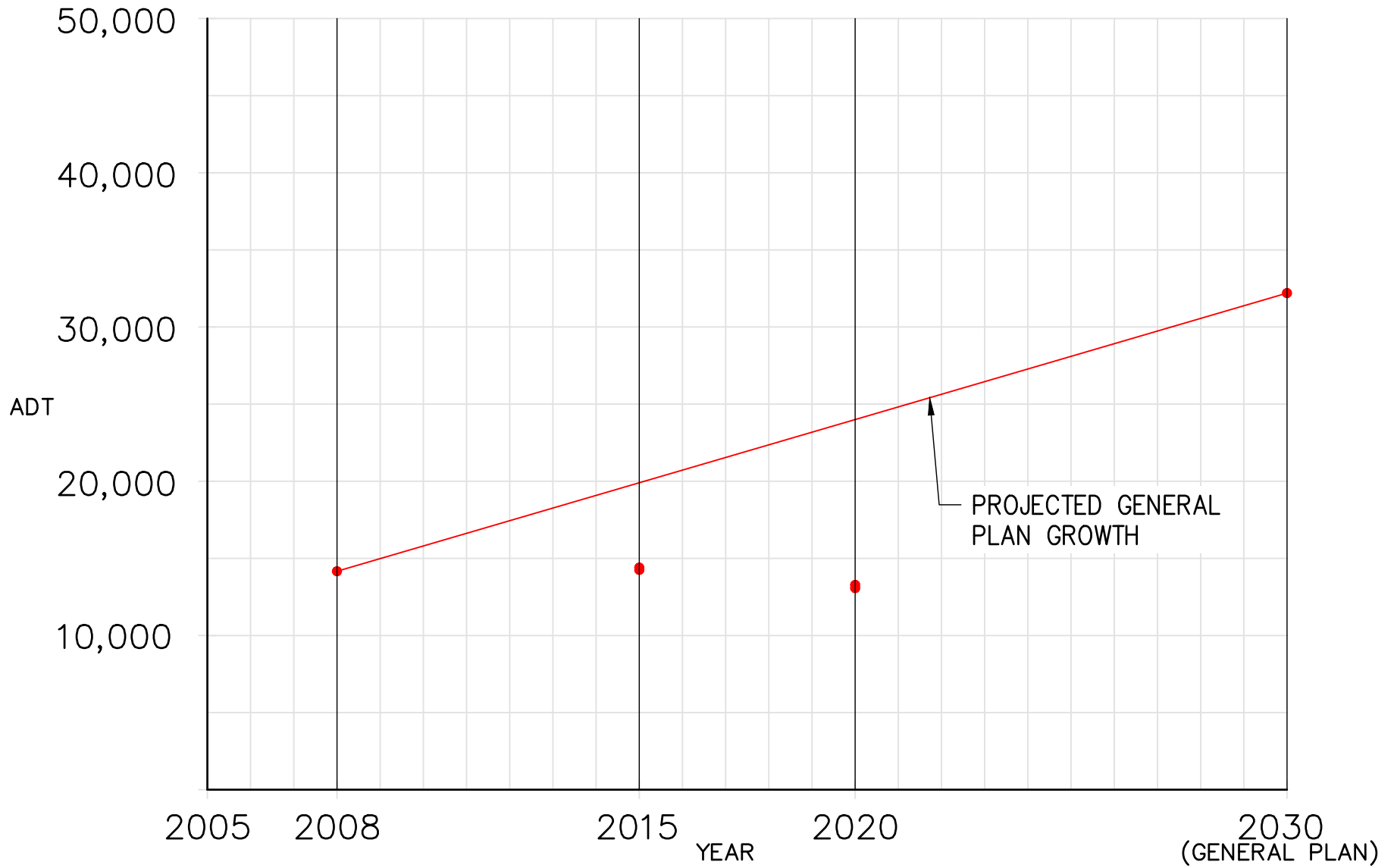


CARMEL VALLEY ROAD
SEGMENT 4 - BETWEEN LAURELES GRADE AND FORD ROAD
MONTEREY COUNTY, CA

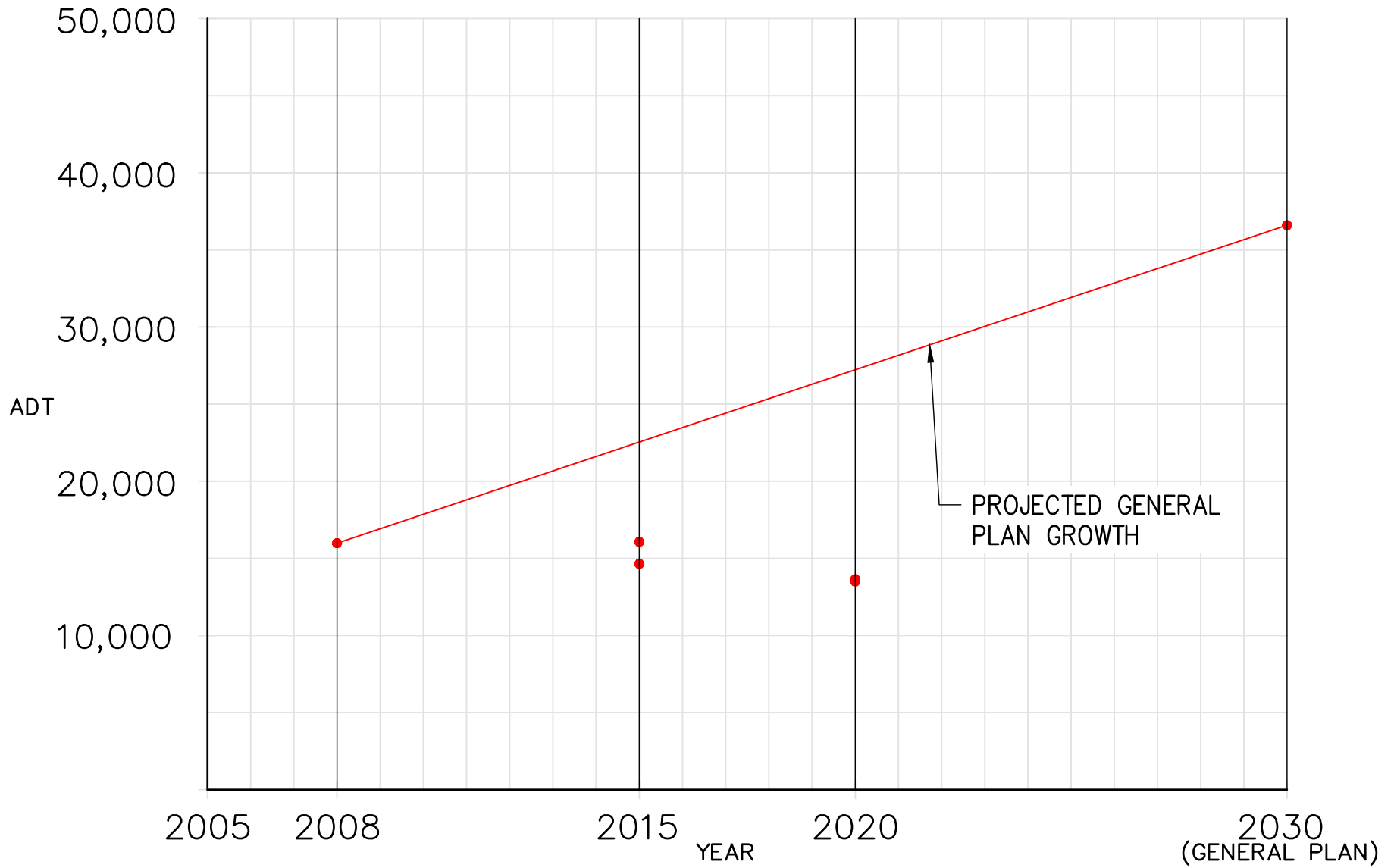
NOTE: 2008 DATA NOT AVAILABLE



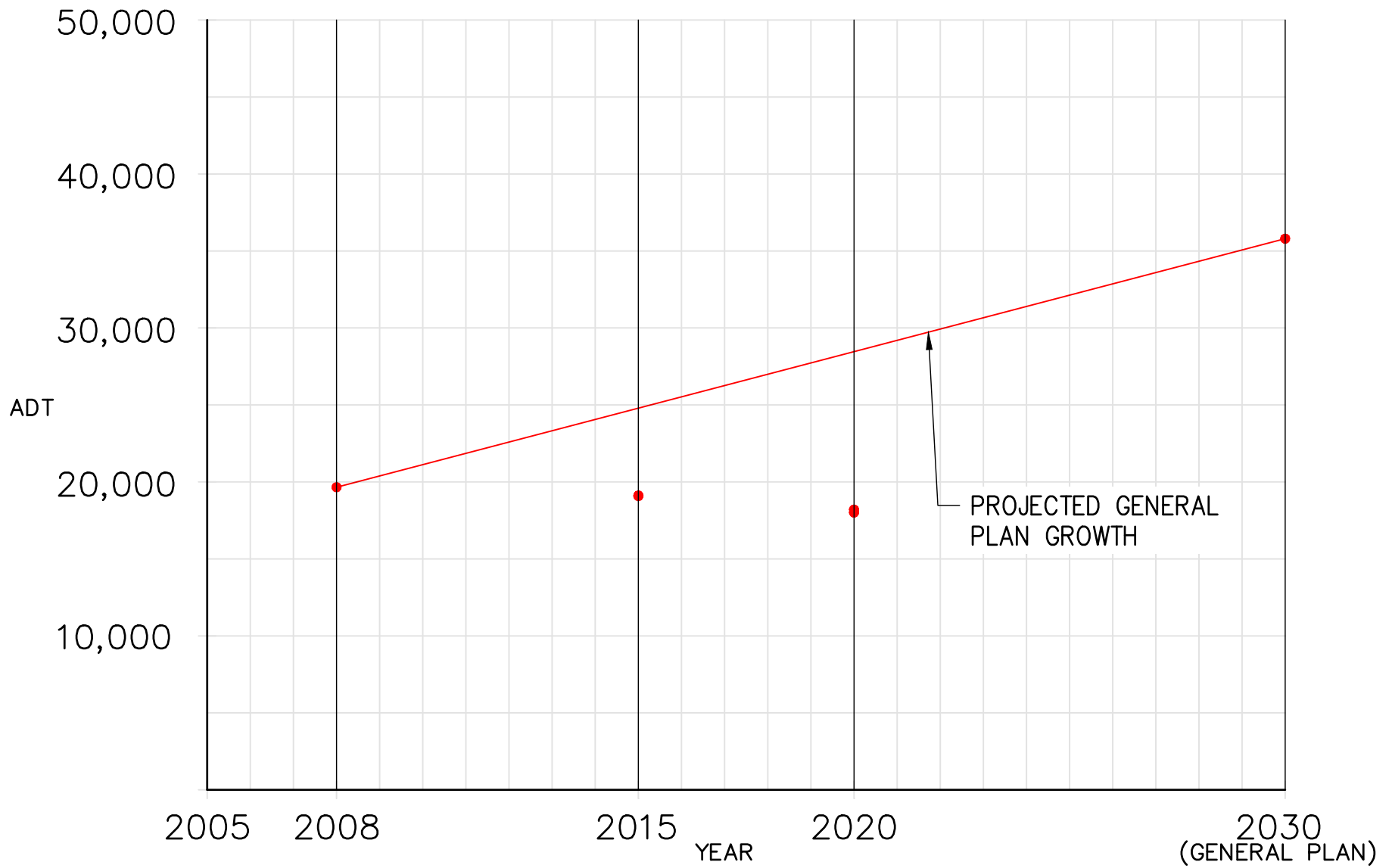
CARMEL VALLEY ROAD
SEGMENT 5 - BETWEEN ROBINSON CANYON ROAD AND LAURELES GRADE
MONTEREY COUNTY, CA



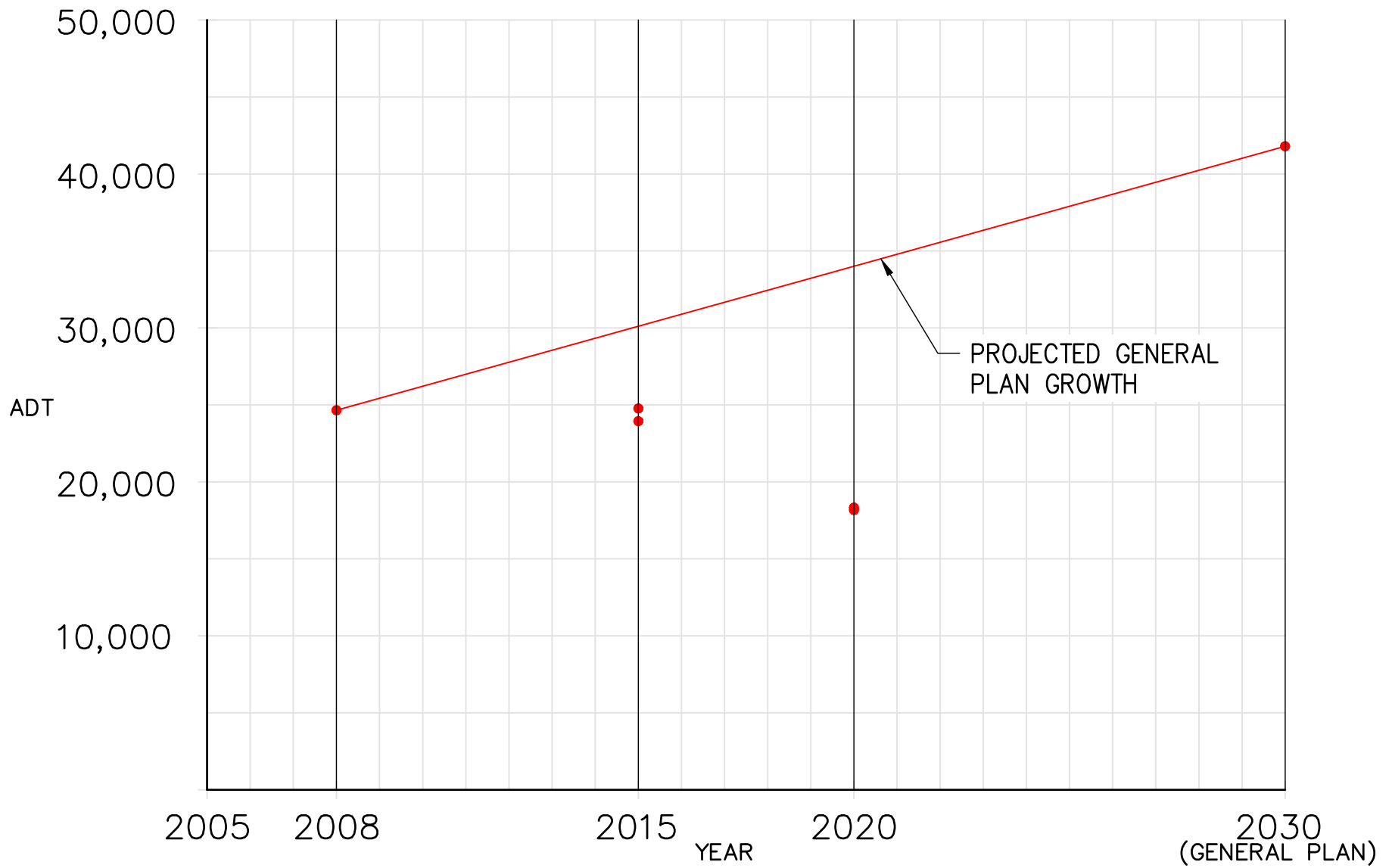
CARMEL VALLEY ROAD
SEGMENT 6 - BETWEEN SCHULTE ROAD AND ROBINSON CANYON ROAD
MONTEREY COUNTY, CA



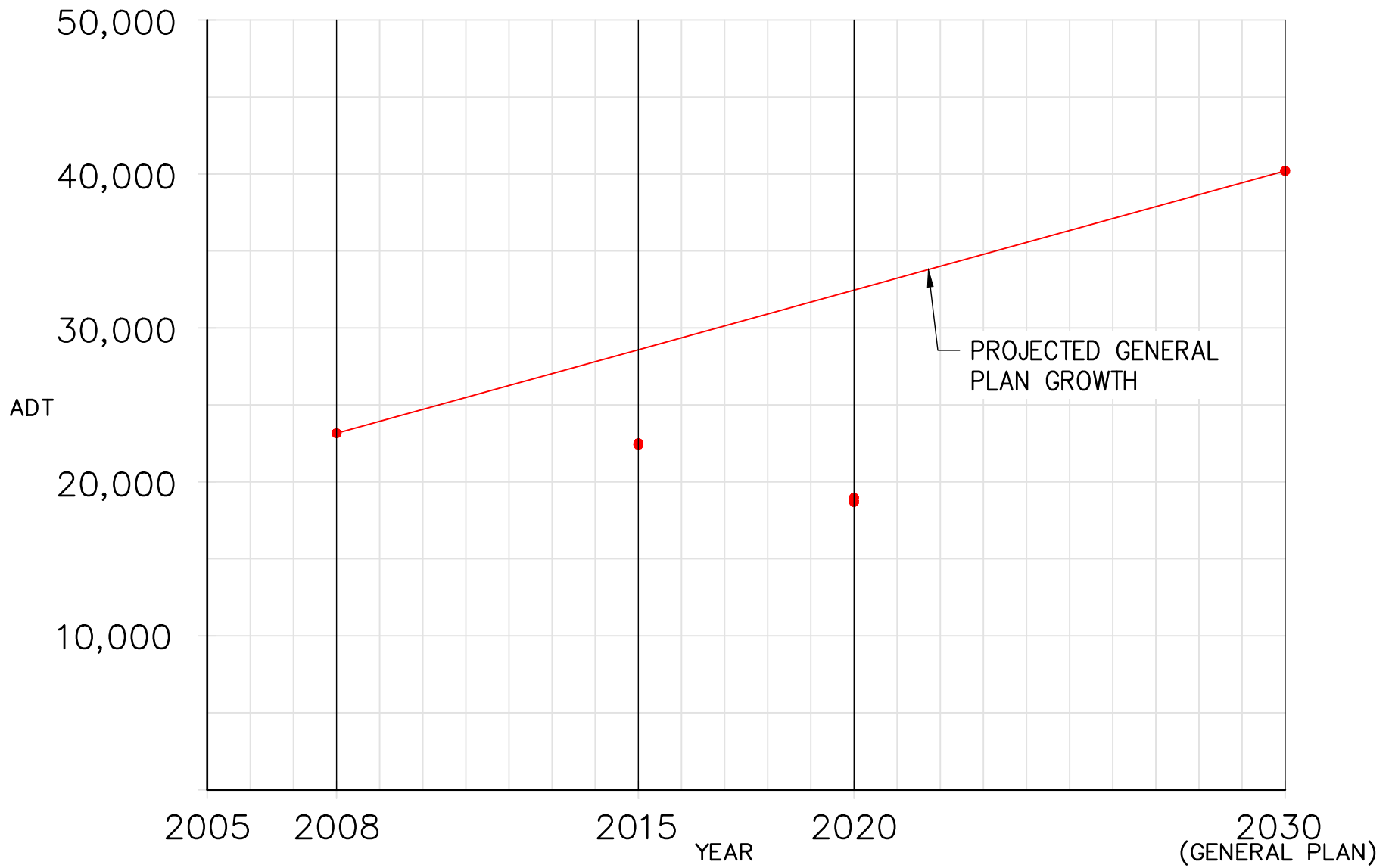
CARMEL VALLEY ROAD
SEGMENT 7 - BETWEEN RANCHO SAN CARLOS ROAD AND SCHULTE ROAD
MONTEREY COUNTY, CA



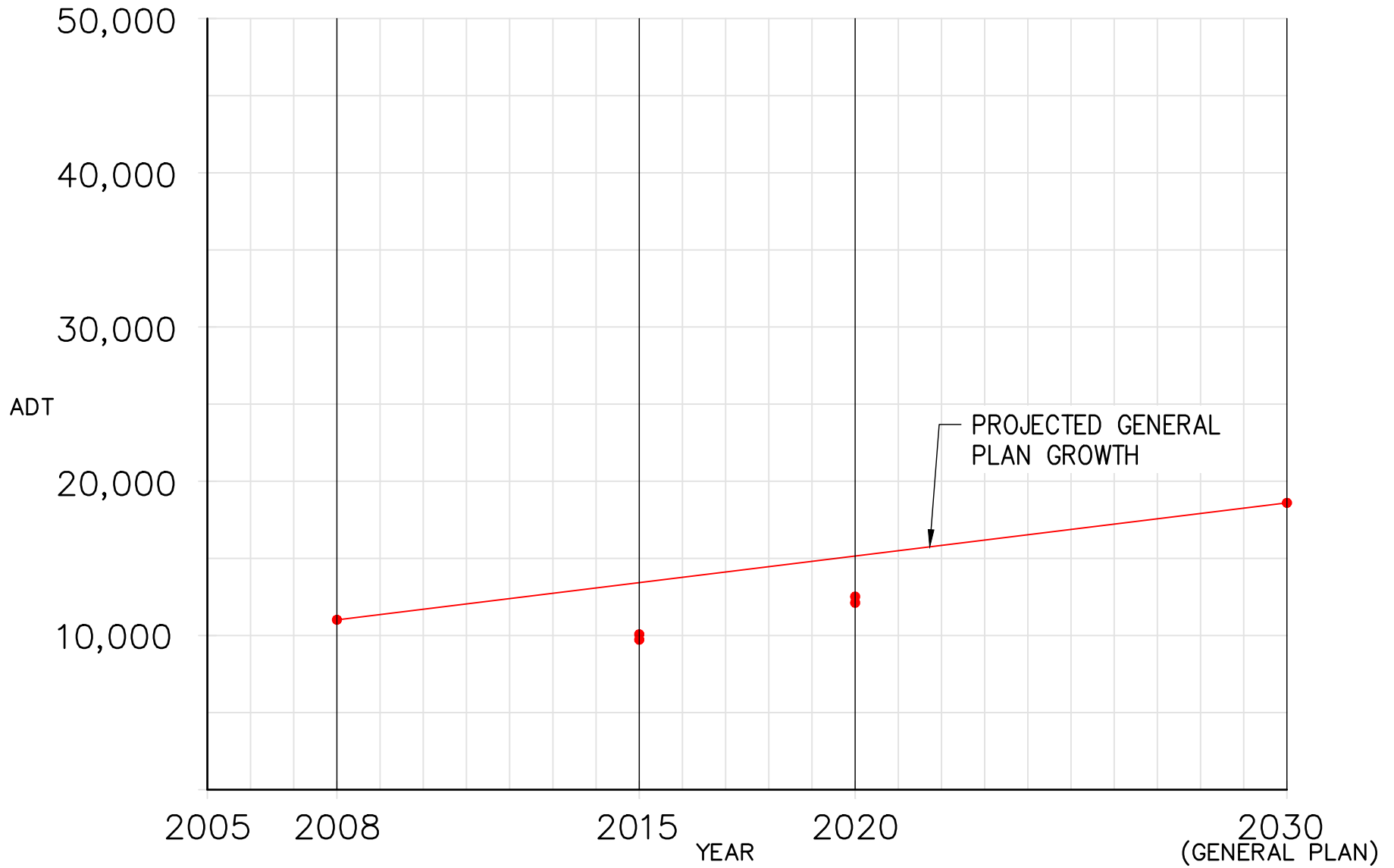
CARMEL VALLEY ROAD
SEGMENT 8 - BETWEEN RIO ROAD AND RANCHO SAN CARLOS ROAD
MONTEREY COUNTY, CA



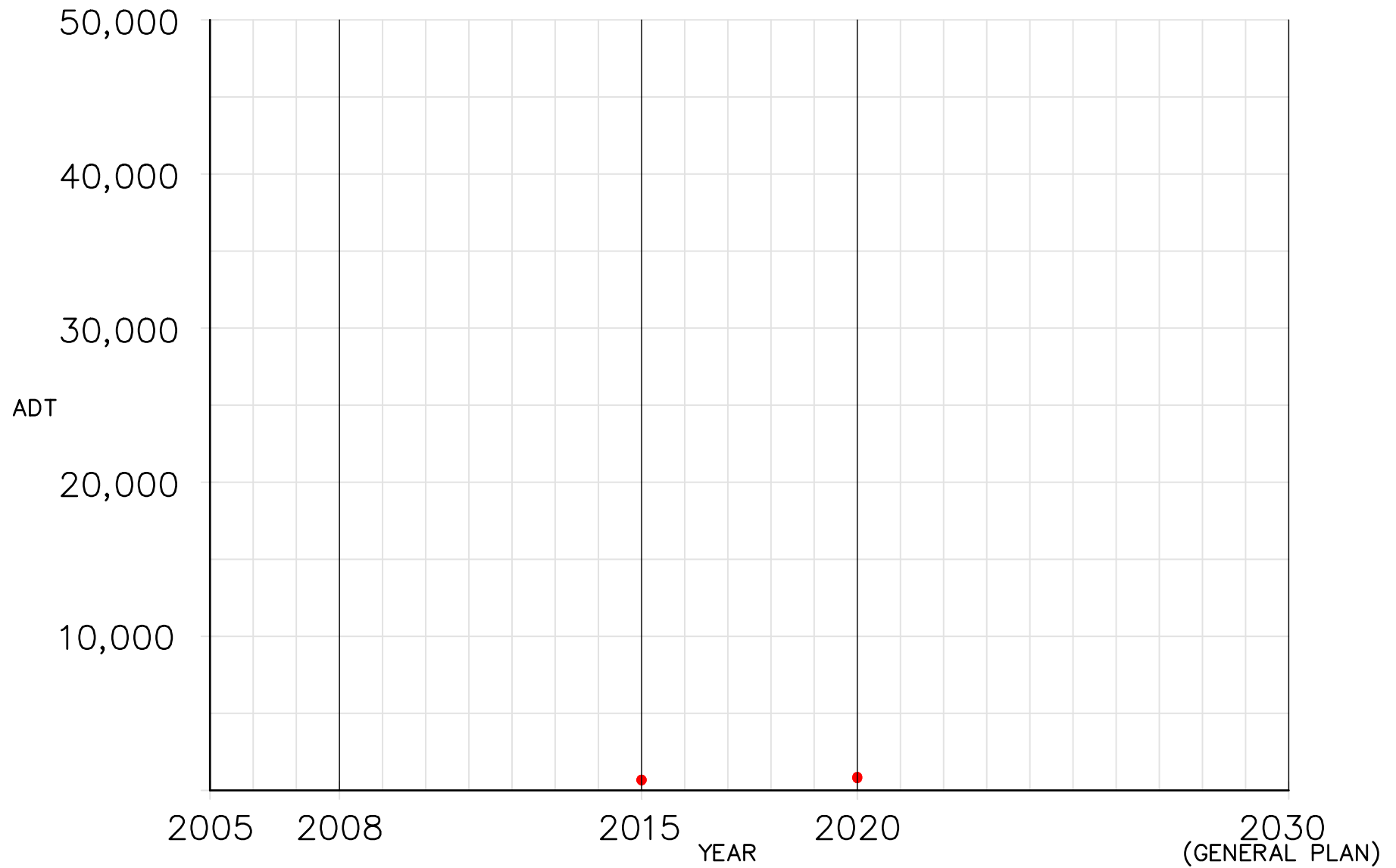
CARMEL VALLEY ROAD
SEGMENT 9 - BETWEEN CARMEL RANCHO BOULEVARD AND RIO ROAD
MONTEREY COUNTY, CA



CARMEL VALLEY ROAD
SEGMENT 10 - BETWEEN SR 1 AND CARMEL RANCHO BOULEVARD
MONTEREY COUNTY, CA

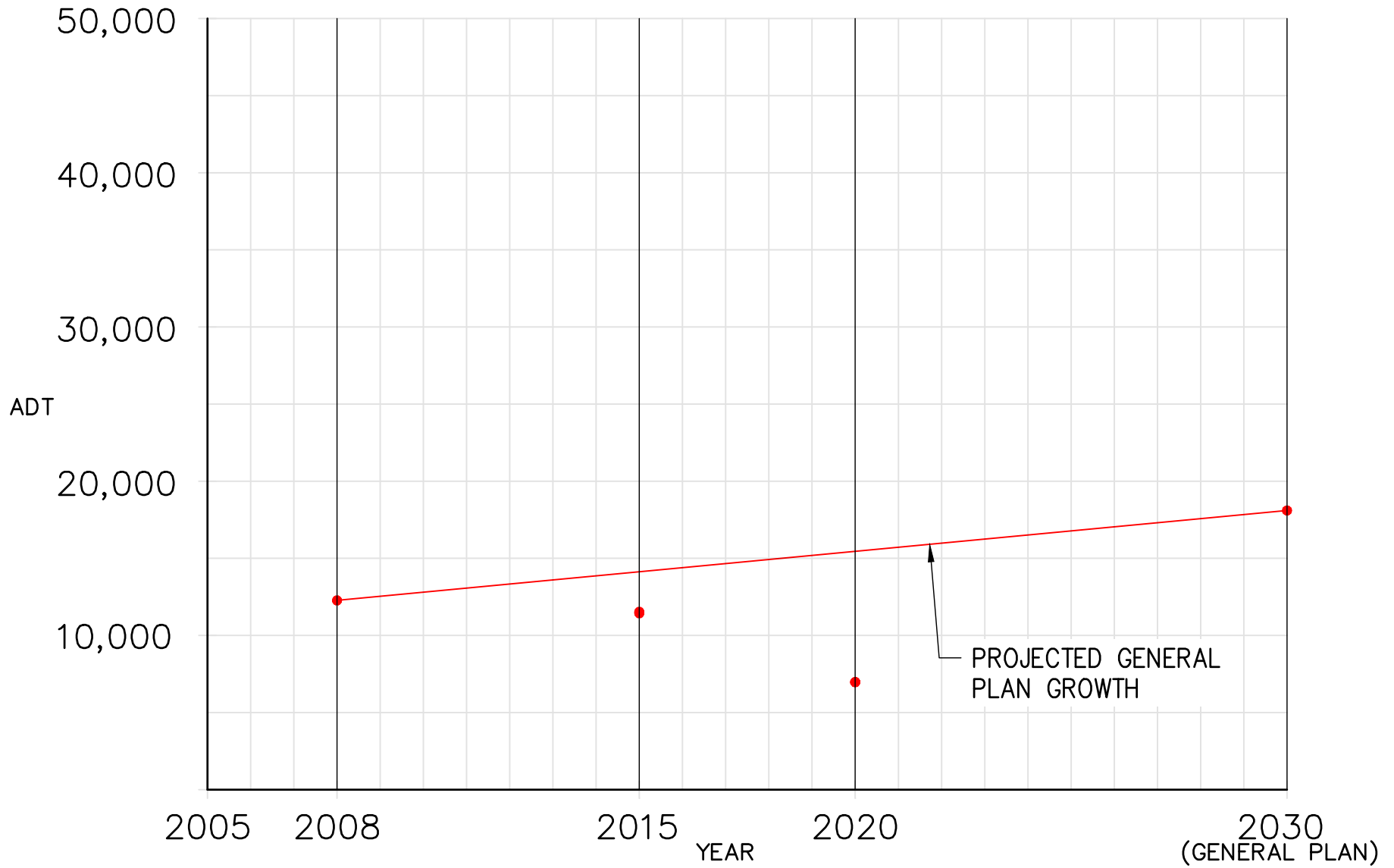


CARMEL RANCHO BOULEVARD
SEGMENT 16 - BETWEEN CARMEL VALLEY ROAD AND RIO ROAD
MONTEREY COUNTY, CA



RIO ROAD
 SEGMENT 12 - BETWEEN CARMEL RANCHO BOULEVARD AND VAL VERDE DRIVE
 MONTEREY COUNTY, CA

NOTE: 2008 AND GENERAL PLAN DATA NOT AVAILABLE



RIO ROAD
SEGMENT 13 - BETWEEN SR 1 AND CARMEL RANCHO BOULEVARD
MONTEREY COUNTY, CA