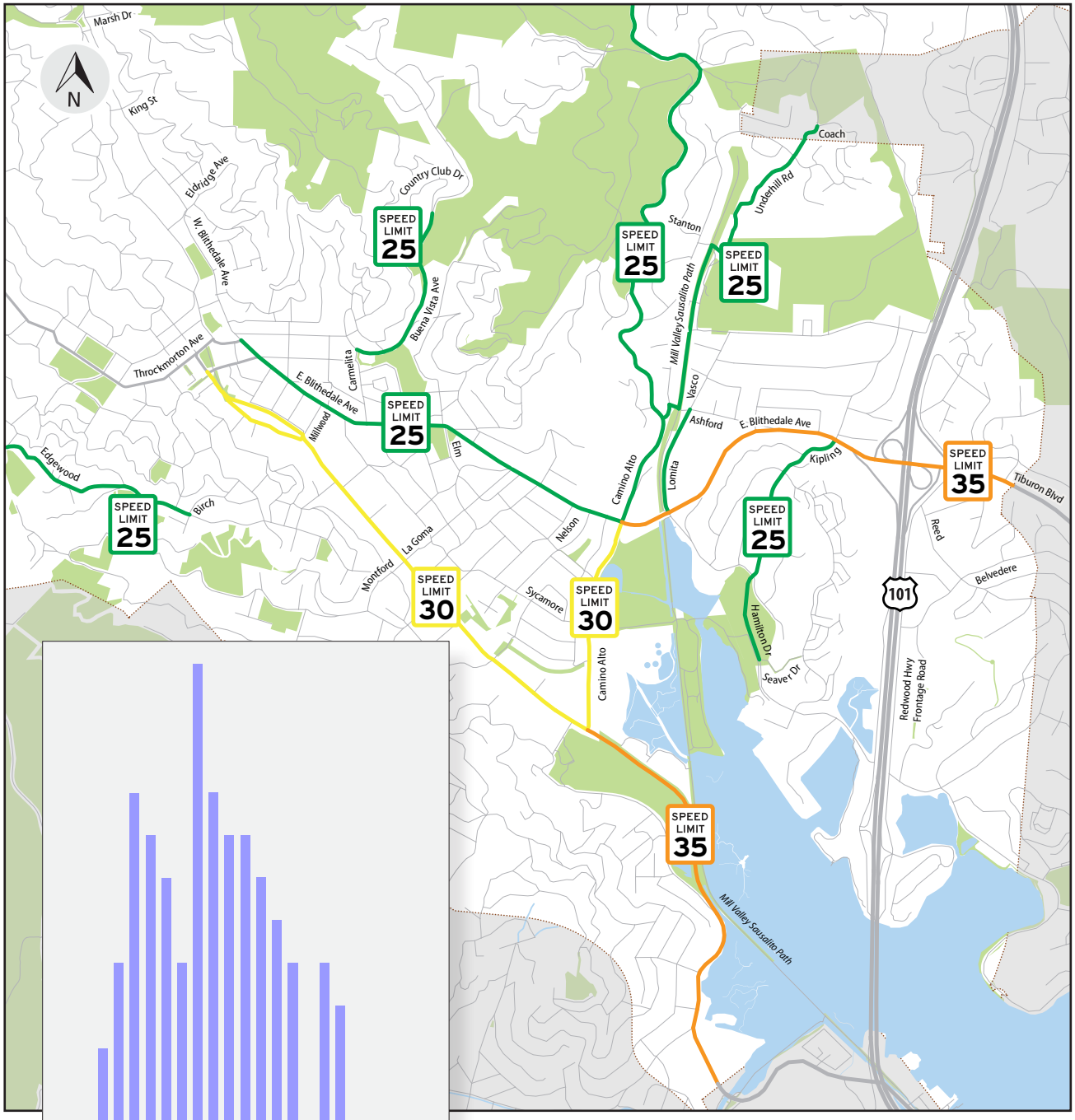
CITY OF MILL VALLEY

Engineering & Traffic Surveys



NOVEMBER 2019

MILL VALLEY

Parisi
TRANSPORTATION CONSULTING

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Purpose

This report presents the results of the Engineering and Traffic Surveys (E&TS) conducted for the City of Mill Valley along 20 roadway segments within the City limits. The 20 segments are encompassed within the following roadway limits:

Table 1: List of Roadway Segments

Street	From	To
Ashford Avenue	Lomita Drive	East Blithedale Avenue
East Blithedale Avenue	Throckmorton Avenue	Elm Avenue (West)
East Blithedale Avenue	Elm Avenue (West)	Camino Alto
East Blithedale Avenue	Camino Alto	Kipling Drive
Buena Vista Avenue	Carmelita	Country Club Drive
Camino Alto	City Limits (North)	East Blithedale Avenue
Camino Alto	East Blithedale Avenue	Sycamore Avenue
Camino Alto	Sycamore Avenue	Miller Avenue
Edgewood Avenue	Sequoia Avenue	Birch Street
Hamilton Drive	Kipling Drive	Seaver Drive
Kipling Drive	East Blithedale Avenue	Hamilton Drive
Lomita Drive	Ashford Avenue	East Blithedale Avenue
Miller Avenue	Sunnyside Avenue	Millwood Street
Miller Avenue	Millwood Street	500' West of Willow Avenue
Miller Avenue	500' West of Willow Avenue	Camino Alto
Miller Avenue	Camino Alto	City Limits (South)
Nelson Avenue	East Blithedale Avenue	Sycamore Avenue
Redwood Hwy Frontage Road	US 101 S Ramps	City Limits (South)
Underhill Road	Coach Road	Stanton Way (South)
Vasco Drive	Stanton Way (South)	Camino Alto

Source: City of Mill Valley

The surveys were conducted in compliance with regulations set forth in the California Vehicle Code (CVC) and were based on the guidelines for setting proper speed limits established by the California Department of Transportation (Caltrans) as documented in the California Manual for Setting Speed Limits (2014). The E&TS consists of engineering measurements of the prevailing free-flow speeds along survey segments, a review of the collision history reports, and of existing roadside conditions, i.e., the identification of any conditions not readily apparent to the motorist.

Speed Zone Establishment

All California roadways are subject to a maximum speed limit, 55 miles per hour (mph) on two-lane undivided roadways and 65 mph on all other roadways, as outlined in the CVC §22349. Along roadways that lack a posted speed limit the roadway is subject to a "prima facie" speed limit as set in the CVC §22349. The prima facie speed limit sets one of two speed limits covering six classes of location:

- 15 mph – uncontrolled railway crossings; blind, uncontrolled intersections; and alleyways.
- 25 mph – businesses, residential areas without other posted speed limits; school zones; and areas immediately around senior centers.

As outlined in the CVC §627 and §40802, any deviations from the maximum speed limit or the prima facie speed limit must be justified by an E&TS and be approved by a registered Civil or Traffic Engineer. The E&TS determines the recommended speed limits along each surveyed roadway segment. Chapter 2 ("Signs") of the California Manual on Uniform Traffic Control Devices (2014) (MUTCD), establishes guidelines for setting a speed limit that provides a rational and defensible determination with the use of an E&TS.

The following guidelines are outlined in the MUTCD for the establishment of posted speed limits:

- The speed limit shall be established at the nearest five mph increment of the 85th percentile speed of free-flowing traffic, except as shown in the two options below:
    - The posted speed may be reduced by five mph from the nearest five mph increment of the 85th percentile speed in compliance with CVC §627 and §22358.5.
    - For cases in which the nearest five mph increment of the 85th percentile speed would require rounding up, the speed limit may be rounded down to the nearest increment below the 85th percentile speed, if no further reduction is used.

Caltrans further clarifies the option to apply a five mile per hour reduction from the 85th percentile speed in the "California Manual for Setting Speed Limits" (2014), which provides two examples:

1. If the 85th percentile speed in a speed survey for a location was 37 mph, then the speed limit would be established at 35 mph since it is the closest 5 mph increment to the 37 mph speed. The 35 mph established speed limit can be reduced by 5 mph to 30 mph if the conditions and justification for using this lower speed limit are documented in the E&TS and approved by a registered Civil or Traffic Engineer.

2. If the 85th percentile speed in a speed survey for a location was 33 mph, then the speed limit would be established at 35 mph since it is the closest 5 mph increment to the 33 mph speed. The 35 mph established speed limit can be reduced by 5 mph to 30 mph if the conditions and justification for using this lower speed limit are documented in the E&TS and approved by a registered Civil or Traffic Engineer.

Residential density may be considered when qualifying an appropriate speed limit. The following conditions outlined in CVC §515 define a residence district:

- That portion of a highway and the property contiguous thereto, other than a business district:
    - *Upon one side of which highway, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures; or*
    - *Upon both sides of which highway, collectively, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.*
- A residence district may be longer than one-quarter of a mile if the above ratio of separate dwelling houses or business structures to the length of the highway exists.

The presence of businesses may be considered when qualifying an appropriate speed limit. The following conditions outlined in CVC §235 define a business district:

- That portion of a highway and the property contiguous thereto:
    - Upon one side of which highway, for a distance of 600 feet, 50 percent or more of the contiguous property fronting thereon is occupied by buildings in use for business.
    - Upon both sides of which highway, collectively, for a distance of 300 feet, 50 percent or more of the contiguous property fronting thereon is so occupied.

Speed Survey Operational Procedures

Technical experts conducted field surveys of existing vehicle speeds along the E&TS roadway segments. The data was collected in April 2019 on clear weather weekdays with dry pavement conditions. The surveys were done during off-peak hours to capture traffic speeds under free-flow conditions. Vehicle speeds along the E&TS segments were collected using a portable calibrated radar gun. The surveyor was strategically located to remain inconspicuous to avoid influencing driver speeds. Surveyor locations were selected so that prevailing speeds could be considered representative of the speed zone section. For each segment, the surveyor distanced themselves from nearby traffic signals and stop signs to minimize their effects on vehicular travel speeds.

The surveyor read speeds directly from the radar gun and recorded the free-flow speeds of a minimum of 100 vehicles along each roadway segment. The surveys captured both directions of travel along each study segment. Each direction consisted of no less than 50 vehicles.

Roadway Characteristics

As part of the speed survey assessment, the existing conditions along the E&TS roadway segments were determined. The roadway segment lengths were measured, and observations were made on the presence of on-street parking, sidewalks, and bicycle facilities. These roadway conditions were considered during speed limit evaluations and were used to determine appropriate speed limits that would promote all roadway user safety.

Data Analysis

The sample vehicle speeds collected during the field surveys were assessed for the following statistical factors:

- Average speed – the summation of measured speeds divided by the number of observed vehicles.
- Median speed (i.e., the 50th percentile speed) – the speed above and below which 50 percent of the sample speeds lie.
- 85th percentile speed – the speed at or below which 85 percent of free-flow vehicles travel. Also referred to as the critical speed, the 85th percentile speed is the primary factor used to determine the speed limit and may be subject to secondary factors of collision history and other conditions not apparent to drivers.
- 10 mph pace speed – the 10 mph increment of speed containing the greatest number of vehicles. The number of vehicles in the pace speed is reported as a percentage of vehicles surveyed. The pace speed aids in determining the proper speed limits. Generally, the critical speed lies within the pace speed.

Collision Review

The E&TS Survey analysis also reviewed the collision history of the roadway segments, obtained from the Statewide Integrated Traffic Records System (SWITRS). The data consisted of the most recently available three-year period of reported collision histories (April 1, 2016 to April 1, 2018).

The number of reported collisions along each roadway segment during the three-year period as well as the average daily traffic (ADT) volumes were used to calculate the rate for each roadway segment. These calculated rates were compared to the statewide average collision rates for the same type of roadway and configuration. The purpose of the comparison was to determine if the collision history along the roadway segment deviated from the statewide average and potentially represented an unusually high collision rate. The statewide average collision rates were based on the width, configuration, and terrain of each roadway segment.

Results and Recommendations

Speed limits are recommended for each of the 20 roadway segments studied based on policies described in the CVC and CA MUTCD. The results of the surveys are summarized with existing posted speeds, 85th percentile speeds, and recommended speed limits in Table 1. The detailed E&TS forms, which are composed of field data and subsequent analysis, are contained in the appendix.

References

California Manual for Setting Speed Limits, California Department of Transportation, 2014

California Manual on Uniform Traffic Control Devices for Street and Highways, California Department of Transportation, 2014

California Vehicle Code, California Department of Motor Vehicles, 2014

Table 2. Summary Table of Speed Limit Recommendations

Location	Between	Current Posted Limit	85th Percentile	Proposed Limit	Special Conditions
Ashford Avenue	Lomita Drive and East Blithedale Avenue	25	30	25	None (Prima Facie, Residential)
East Blithedale Avenue	Throckmorton Avenue and Elm Avenue (West)	25	27	25	Nonce (Prima Facie, Residential)
East Blithedale Avenue	Elm Avenue (West) and Camino Alto	25	29	25	None (Prima Facie, Residential)
East Blithedale Avenue	Camino Alto and Kipling Drive	35	33	35	None
Buena Vista Avenue	Carmelita and County Club Drive	25	28	25	None (Prima Facie, Residential)
Camino Alto	City Limits (North) and East Blithedale Avenue	25	30	25	Narrow segment with changing lane widths and sharp curves. Also shared with cyclists.
Camino Alto	East Blithedale Avenue and Sycamore Avenue	30	33	30	None
Camino Alto	Sycamore Avenue and Miller Avenue	30	31	30	None
Edgewood Avenue	Sequoia Valley Road and Birch Street	25	30	25	None (Prima Facie, Residential)
Hamilton Drive	Kipling Drive and Seaver Drive	25	28	25	None
Kipling Drive	East Blithedale Avenue and Hamilton Drive	25	28	25	None (Prima Facie, Residential)
Lomita Drive	Ashford Avenue and East Blithedale Avenue	25	26	25	None
Miller Avenue	Sunnyside Avenue and Millwood Street	30	31	25	None (Prima Facie, Residential)
Miller Avenue	Millwood Street and 500' West of Willow Avenue	30	31	25	None (Prima Facie, Residential)
Miller Avenue	500' West of Willow Avenue and Camino Alto	30	30	30	None
Miller Avenue	Camino Alto and City Limits (South)	35	41	35	Students may cross the road at unmarked locations; roadway shard with cyclists; uncontrolled crosswalks provide access to multi-use path.
Nelson Avenue	East Blithedale Avenue and Sycamore Avenue	-	24	25	None (Prima Facie, Residential)

Redwood Hwy Frontage Road	US 101 Ramps and City Limits (South)	35	33	35	None
Underhill Road	Coach Road and Stanton Way (South)	25	28	25	None (Prima Facie, Residential)
Vasco Drive	Stanton Way (South) and Camino Alto	25	26	25	None (Prima Facie, Residential)

Appendix: Engineering and Traffic Survey Forms

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Ashford Avenue **Between:** Lomita Drive **and:** E Blithedale Ave

Posted Limit:	25 mph	**Bicycle Lanes:**	Not present
Width:	38 feet	**Sidewalks:**	South side only
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Undivided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	1,700	**Vehicles Sampled:**	123
Segment Length (mi):	0.18	**85th Percentile Speed:**	30 mph
Collisions:	5	**50th Percentile Speed:**	25 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	20-29 mph
Collision Rate (c/mvn):	22.38	**Percent in Pace:**	72%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

The collision rate for this segment is more than triple the statewide average rate for roadways of the same type, indicating a safety concern that drivers would not necessarily recognize.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

David J. Parisi, PE, TE

REGISTERED PROFESSIONAL ENGINEER
DAVID J. PARISI
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11/19/2019
Date

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Additional information provided on the next sheet.

Spot Speed Study

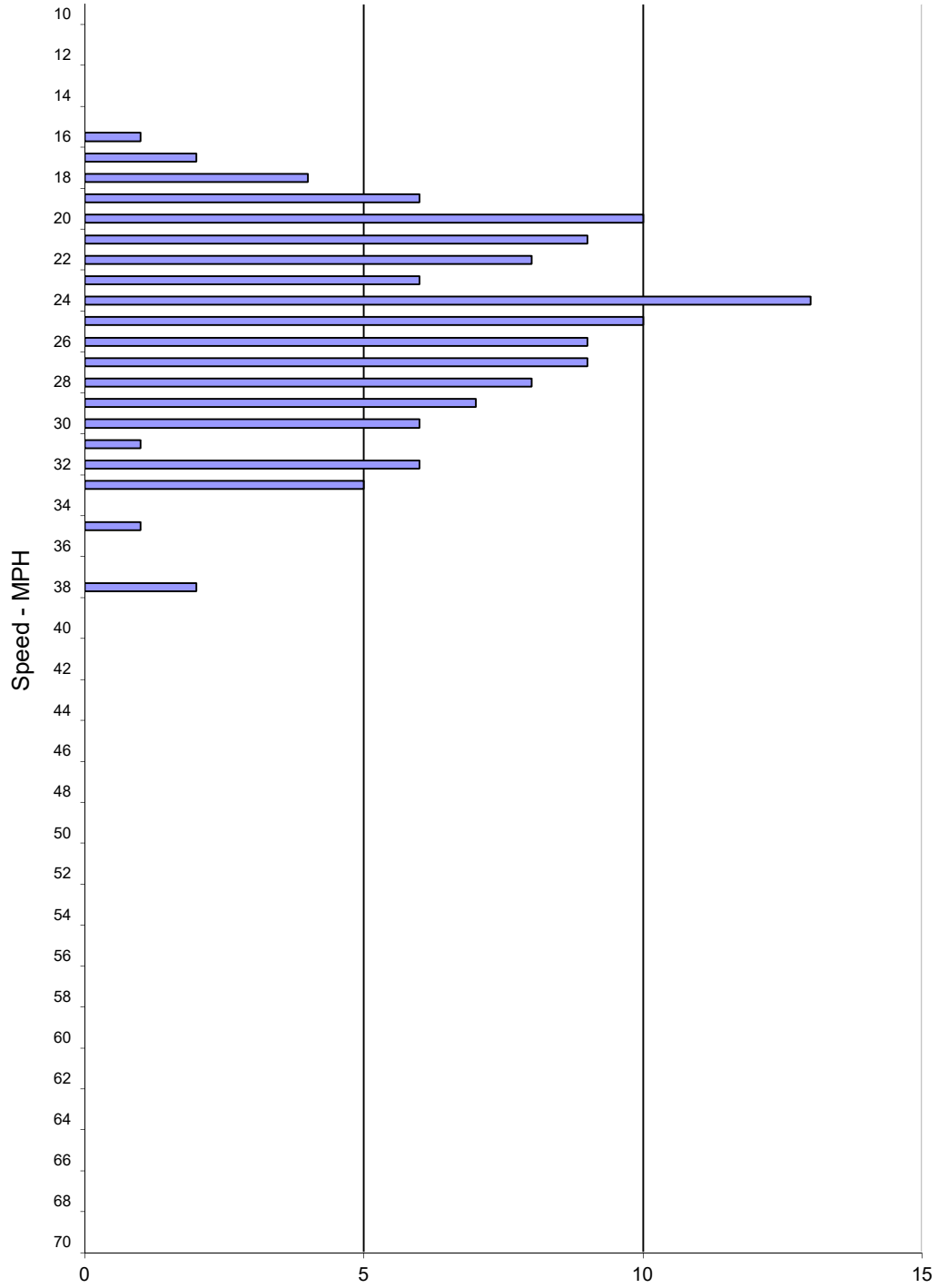
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/8/2019 **Location:** 11 Ashford Ave
TIME: 09:30-10:30 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 19-8177-001

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	1
17	2
18	4
19	6
20	10
21	9
22	8
23	6
24	13
25	10
26	9
27	9
28	8
29	7
30	6
31	1
32	6
33	5
34	
35	1
36	
37	
38	2
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	123	16 - 38	25 mph	30 mph	20 - 29	89	72%	10% / 13	18% / 21

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: E Blithedale Ave **Between:** Throckmorton Avenue **and:** Elm Ave (West)

Posted Limit:	25 mph	**Bicycle Lanes:**	Not marked
Width:	23 feet	**Sidewalks:**	Present
Travel Lanes:	2	**Land Use:**	Mixed Use
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	13,000	**Vehicles Sampled:**	218
Segment Length (mi):	0.5	**85th Percentile Speed:**	27 mph
Collisions:	2	**50th Percentile Speed:**	24 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	19-28 mph
Collision Rate (c/mvn):	0.42	**Percent in Pace:**	92%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

Heavily populated segment mixed with residential and commercial sections. Road conflicts anticipated between drivers, cyclists, and tourists.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph



David J. Parisi, PE, TE



11/19/2019

Date

Parisi TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

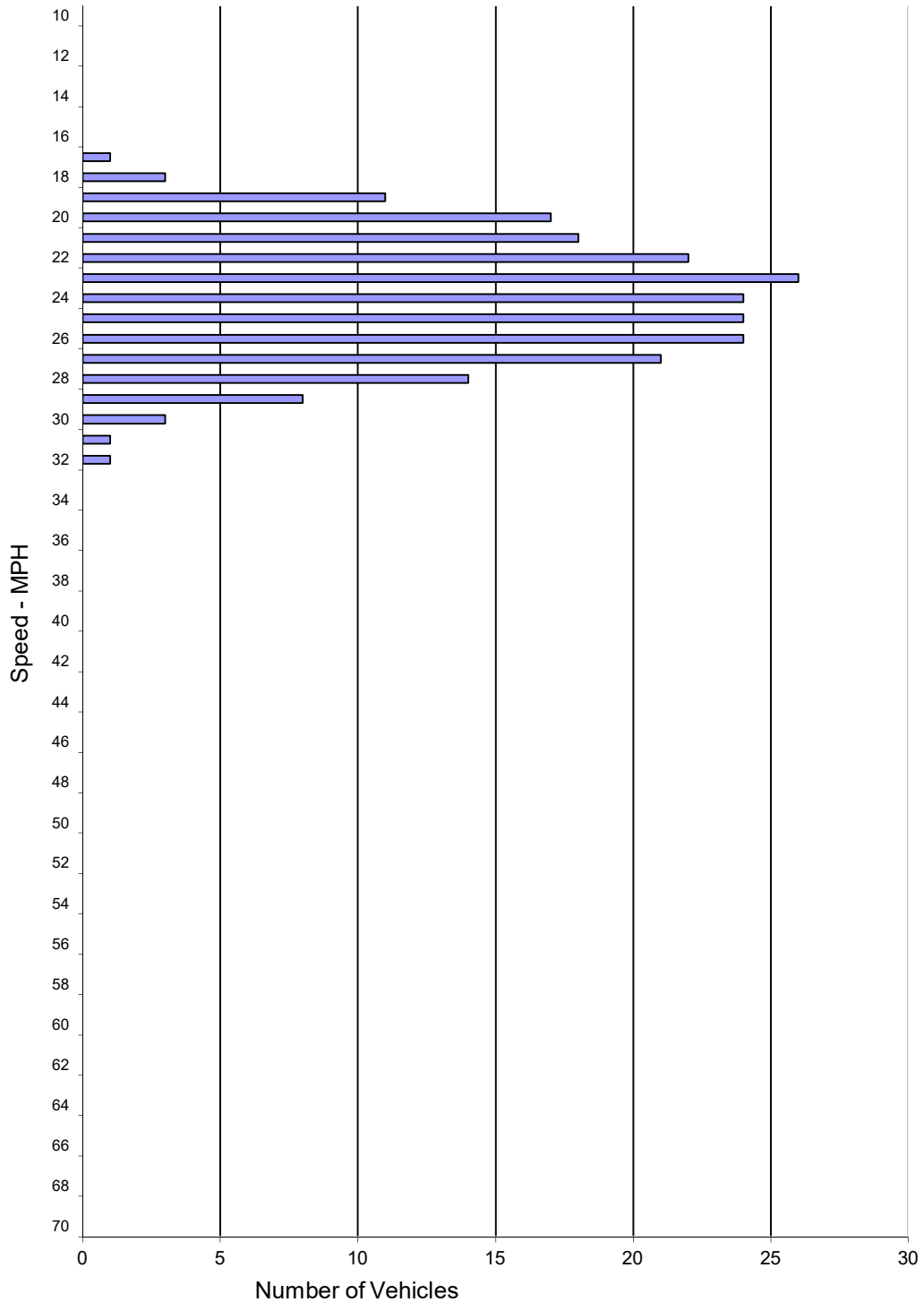
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/8/2019 **Location:** 117 E. Blithedale Ave
TIME: 14:32-15:30 **Posted Speed:** None Clear/Dry **Project #: 19-8177-005**

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	1
18	3
19	11
20	17
21	18
22	22
23	26
24	24
25	24
26	24
27	21
28	14
29	8
30	3
31	1
32	1
33	
34	
35	
36	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	218	17 - 32	24 mph	27 mph	19 - 28	201	92%	1% / 4	6% / 13

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: E Blithedale Ave **Between:** Elm Avenue (West) **and:** Camino Alto

Posted Limit:	25 mph	**Bicycle Lanes:**	Not present
Width:	27 feet	**Sidewalks:**	Present
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	18,700	**Vehicles Sampled:**	207
Segment Length (mi):	0.5	**85th Percentile Speed:**	29 mph
Collisions:	6	**50th Percentile Speed:**	26 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	22-31 mph
Collision Rate (c/mvn):	0.88	**Percent in Pace:**	95%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

Anticipated conflicts between drivers, cyclists, and pedestrians.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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11/19/2019
Date

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Additional information provided on the next sheet.

Spot Speed Study

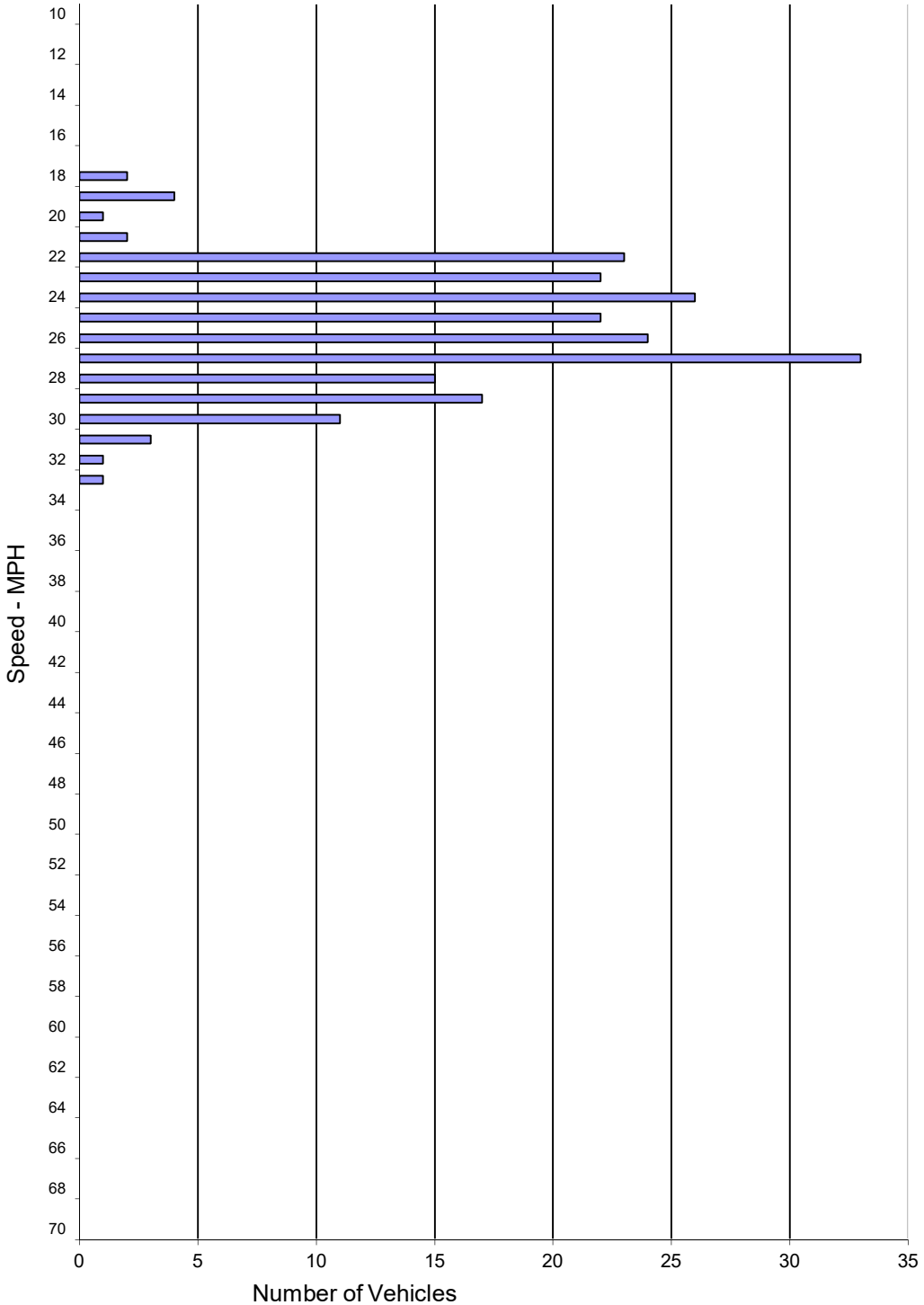
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** E. Blithedale Ave 50' E/O Elm Ave
TIME: 13:59-14:24 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 19-8177-006

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	2
19	4
20	1
21	2
22	23
23	22
24	26
25	22
26	24
27	33
28	15
29	17
30	11
31	3
32	1
33	1
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SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	207	18 - 33	26 mph	29 mph	22 - 31	196	95%	4% / 9	1% / 2

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: E Blithedale Ave **Between:** Camino Alto **and:** Kipling Drive

Posted Limit:	35	**Bicycle Lanes:**	Present
Width:	60 feet	**Sidewalks:**	Discontinuous
Travel Lanes:	4	**Land Use:**	Commercial
Configuration:	Divided	**Character:**	Urban
Parking:	Not present	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	37,000	**Vehicles Sampled:**	210
Segment Length (mi):	0.56	**85th Percentile Speed:**	33 mph
Collisions:	8	**50th Percentile Speed:**	29 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	24-33 mph
Collision Rate (c/mvn):	0.53	**Percent in Pace:**	83%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None

CONCLUSION AND RECOMMENDATION

On the basis of the engineering and traffic investigation reported above with an 85th percentile speed of 33 mph and pace of 24 to 33 mph, a speed limit of 35 mph is recommended. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 35 mph is determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 35 mph



David J. Parisi, PE, TE



11/19/2019

Date

Parisi TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

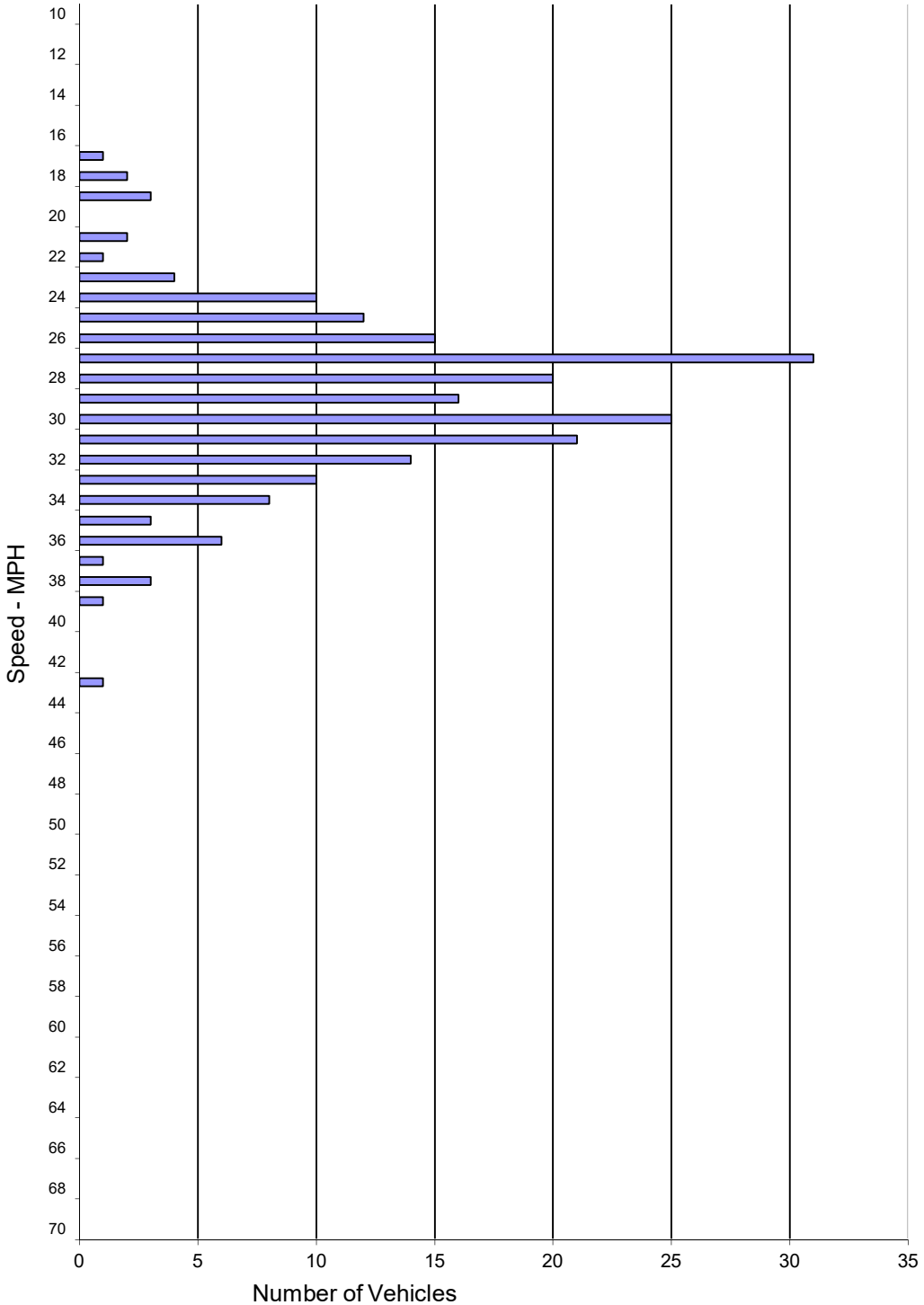
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/10/2019 **Location:** 757 E Blithedale Ave
TIME: 13:20-14:00 **Posted Speed:** 35 MPH Clear/Dry **Project #:** 19-8177-007

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	1
18	2
19	3
20	
21	2
22	1
23	4
24	10
25	12
26	15
27	31
28	20
29	16
30	25
31	21
32	14
33	10
34	8
35	3
36	6
37	1
38	3
39	1
40	
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43	1
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68	
69	
>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	210	17 - 43	29 mph	33 mph	24 - 33	174	83%	6% / 13	11% / 23

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Buena Vista Ave **Between:** Carmelita **and:** Country Club Dr

Posted Limit:	25 mph	**Bicycle Lanes:**	Not present
Width:	19 feet	**Sidewalks:**	Not present
Travel Lanes:	2	**Land Use:**	Flat
Configuration:	Undivided	**Character:**	Urban
Parking:	Not present	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	1,530	**Vehicles Sampled:**	121
Segment Length (mi):	0.39	**85th Percentile Speed:**	28 mph
Collisions:	0	**50th Percentile Speed:**	24 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	19-28 mph
Collision Rate (c/mvn):	0.00	**Percent in Pace:**	83%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

This roadway segment is very narrow with limited sight distance.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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11/19/2019
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Additional information provided on the next sheet.

Spot Speed Study

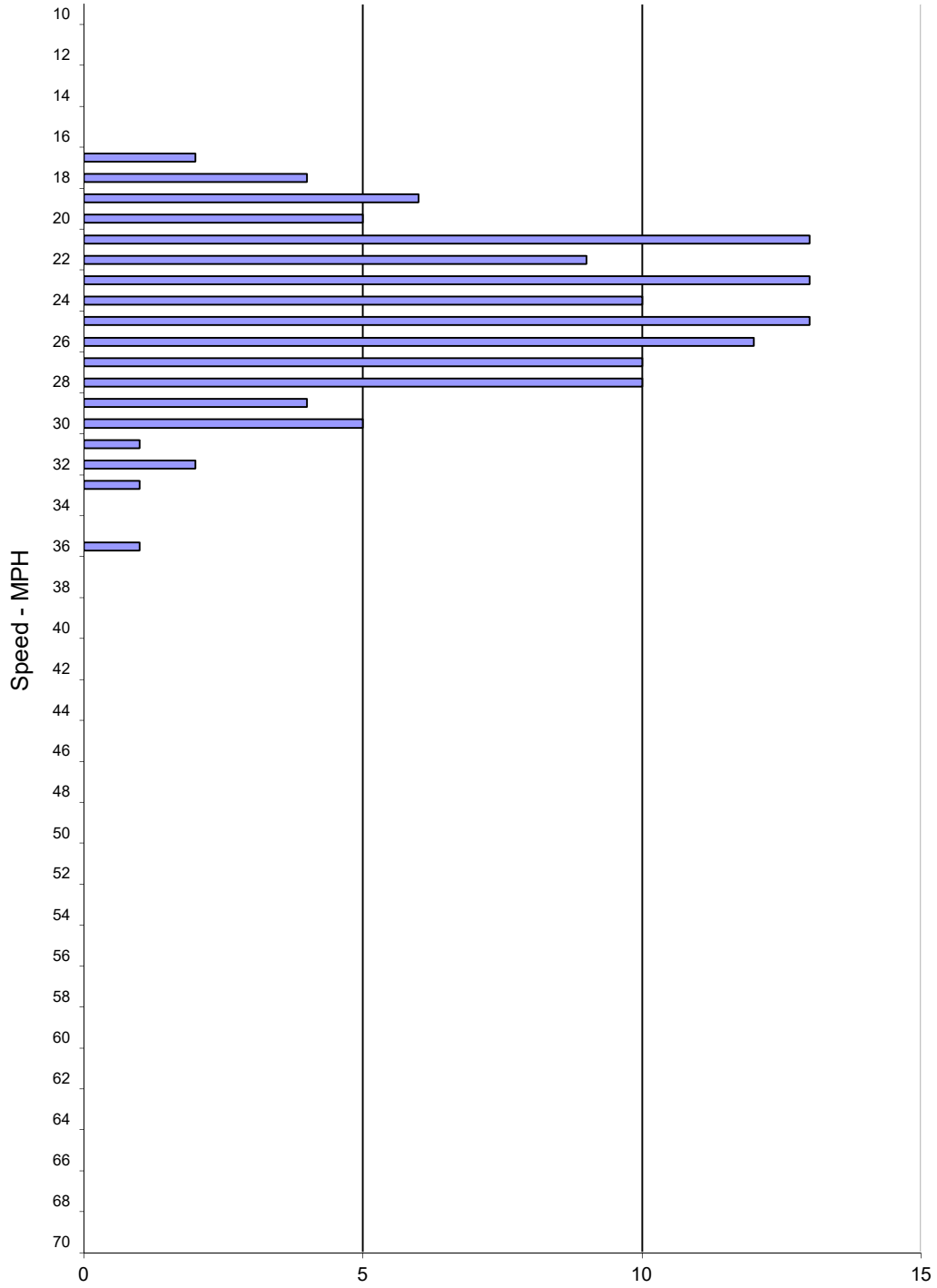
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** 223 Buena Vista Ave
TIME: 09:30-10:35 **Posted Speed:** None Clear/Dry **Project #: 19-8177-008**

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	2
18	4
19	6
20	5
21	13
22	9
23	13
24	10
25	13
26	12
27	10
28	10
29	4
30	5
31	1
32	2
33	1
34	
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36	1
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66	
67	
68	
69	
>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	121	17 - 36	24 mph	28 mph	19 - 28	101	83%	4% / 6	12% / 14

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Camino Alto **Between:** City Limits (South) **and:** E Blithedale Ave

Posted Limit:	25 mph	**Bicycle Lanes:**	Present
Width:	25-30 feet	**Sidewalks:**	Not present
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Divided	**Character:**	Urban
Parking:	Some restrictions	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	9,300	**Vehicles Sampled:**	98
Segment Length (mi):	1.35	**85th Percentile Speed:**	30 mph
Collisions:	4	**50th Percentile Speed:**	28 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	23-32 mph
Collision Rate (c/mvn):	0.44	**Percent in Pace:**	86%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

Very narrow and curvy roadway with limited sight distance for cyclists and opposite oncoming traffic.

CONCLUSION AND RECOMMENDATION

On the basis of the engineering and traffic investigation reported above, a speed limit of 25 mph is recommended due to the critical speed of 30 mph and to account for the narrow and curvy roads being shared with cyclists. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 25 mph is determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

David J. Parisi, PE, TE

REGISTERED PROFESSIONAL ENGINEER
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11/19/2019
Date

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TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

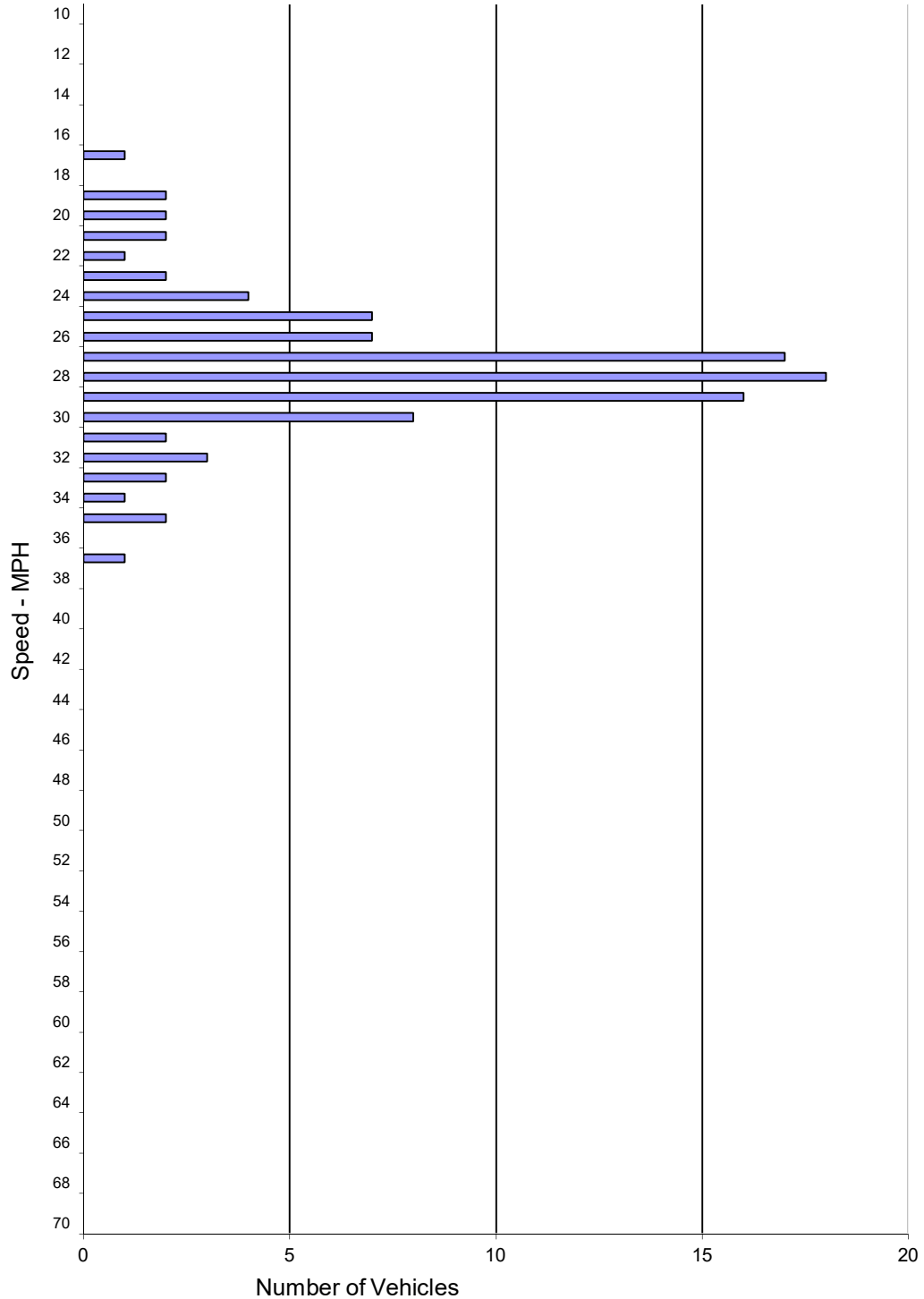
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/10/2019 **Location:** Camino Alto 500' N/O Kite Hill Ln
TIME: 14:15-15:30 **Posted Speed:** 25 MPH Clear/Dry **Project #: 19-8177-009**

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	1
18	
19	2
20	2
21	2
22	1
23	2
24	4
25	7
26	7
27	17
28	18
29	16
30	8
31	2
32	3
33	2
34	1
35	2
36	
37	1
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	98	17 - 37	28 mph	30 mph	23 - 32	84	86%	8% / 8	7% / 6

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Camino Alto **Between:** E Blithedale Ave **and:** Sycamore Avenue

Posted Limit:	30 mph	**Bicycle Lanes:**	Not present
Width:	67 feet	**Sidewalks:**	Present
Travel Lanes:	4	**Land Use:**	Mixed Use
Configuration:	Divided	**Character:**	Urban
Parking:	Some restrictions	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	21,600	**Vehicles Sampled:**	152
Segment Length (mi):	0.31	**85th Percentile Speed:**	33 mph
Collisions:	5	**50th Percentile Speed:**	27 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	23-33 mph
Collision Rate (c/mvn):	1.02	**Percent in Pace:**	72%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

A community center is on this roadway segment which hosts programs which leads to higher pedestrian rates.

CONCLUSION AND RECOMMENDATION

On the basis of the engineering and traffic investigation reported above, a speed limit of 30 mph is recommended. This is a reduction of 3 mph of the critical speed of 33 mph to account for the higher pedestrian rates. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 30 mph is determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 30 mph

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Additional information provided on the next sheet.

Spot Speed Study

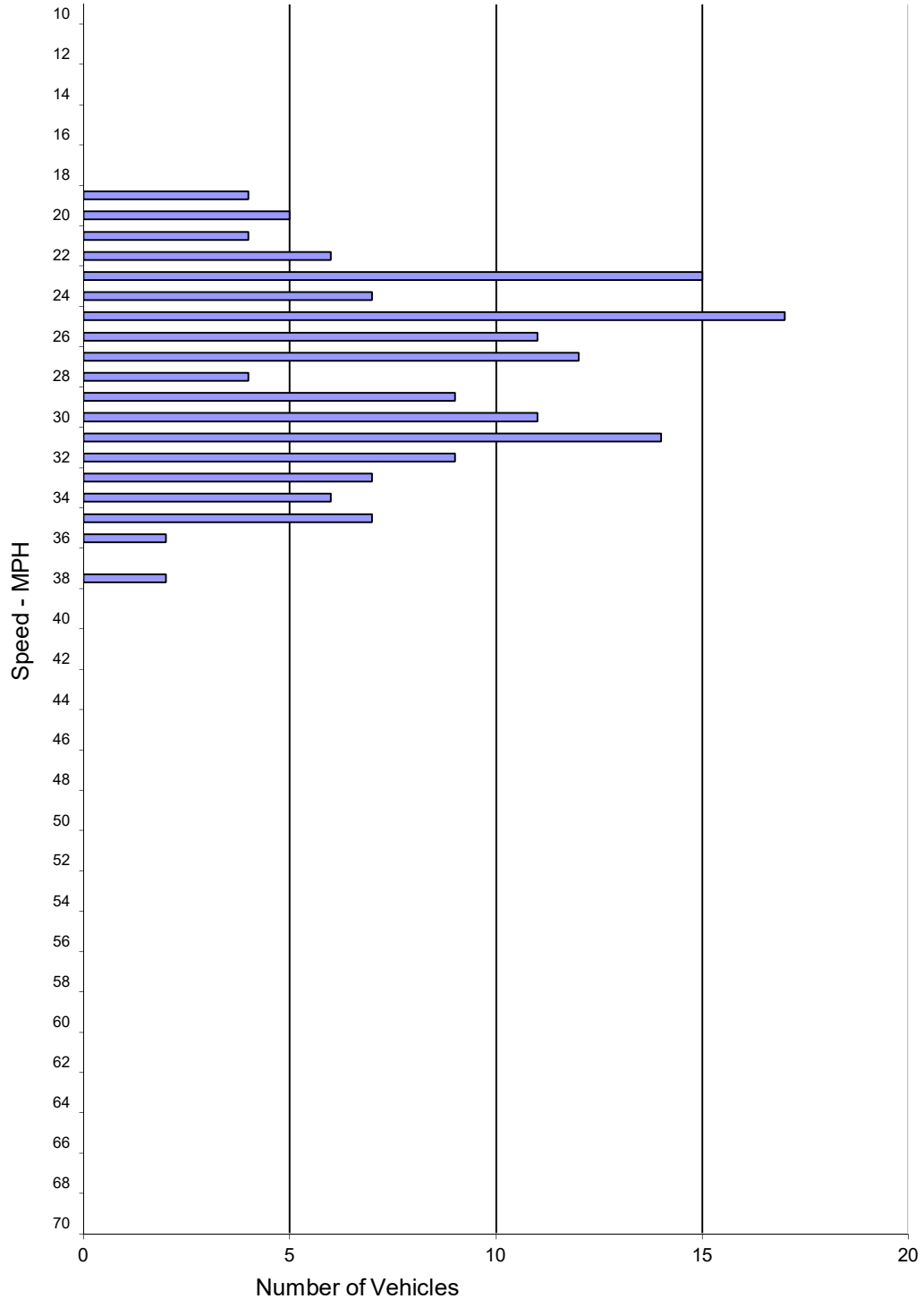
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/12/2019 **Location:** Camino Alto 600' N/O Sycamore Ave
TIME: 09:30-10:52 **Posted Speed:** 30 MPH Clear/Dry **Project #: 19-8177-010**

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	4
20	5
21	4
22	6
23	15
24	7
25	17
26	11
27	12
28	4
29	9
30	11
31	14
32	9
33	7
34	6
35	7
36	2
37	
38	2
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	152	19 - 38	27 mph	33 mph	23 - 32	109	72%	12% / 19	16% / 24

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Camino Alto **Between:** Sycamore Avenue **and:** Miller Avenue

Posted Limit:	30 mph	**Bicycle Lanes:**	Not Present
Width:	70 feet	**Sidewalks:**	Present
Travel Lanes:	4	**Land Use:**	Mixed Use
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	20,000	**Vehicles Sampled:**	216
Segment Length (mi):	0.25	**85th Percentile Speed:**	31 mph
Collisions:	10	**50th Percentile Speed:**	27 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	21-30 mph
Collision Rate (c/mvn):	2.74	**Percent in Pace:**	76%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

The collision rate is more than double the statewide average and serves a higher pedestrian community.

CONCLUSION AND RECOMMENDATION

On the basis of the engineering and traffic investigation reported above, taking into account the critical speed of 31 mph and the collision rate a speed limit of 30 mph is recommended. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 30 mph is determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 30 mph



David J. Parisi, PE, TE



11/19/2019

Date

Additional information provided on the next sheet.

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Spot Speed Study

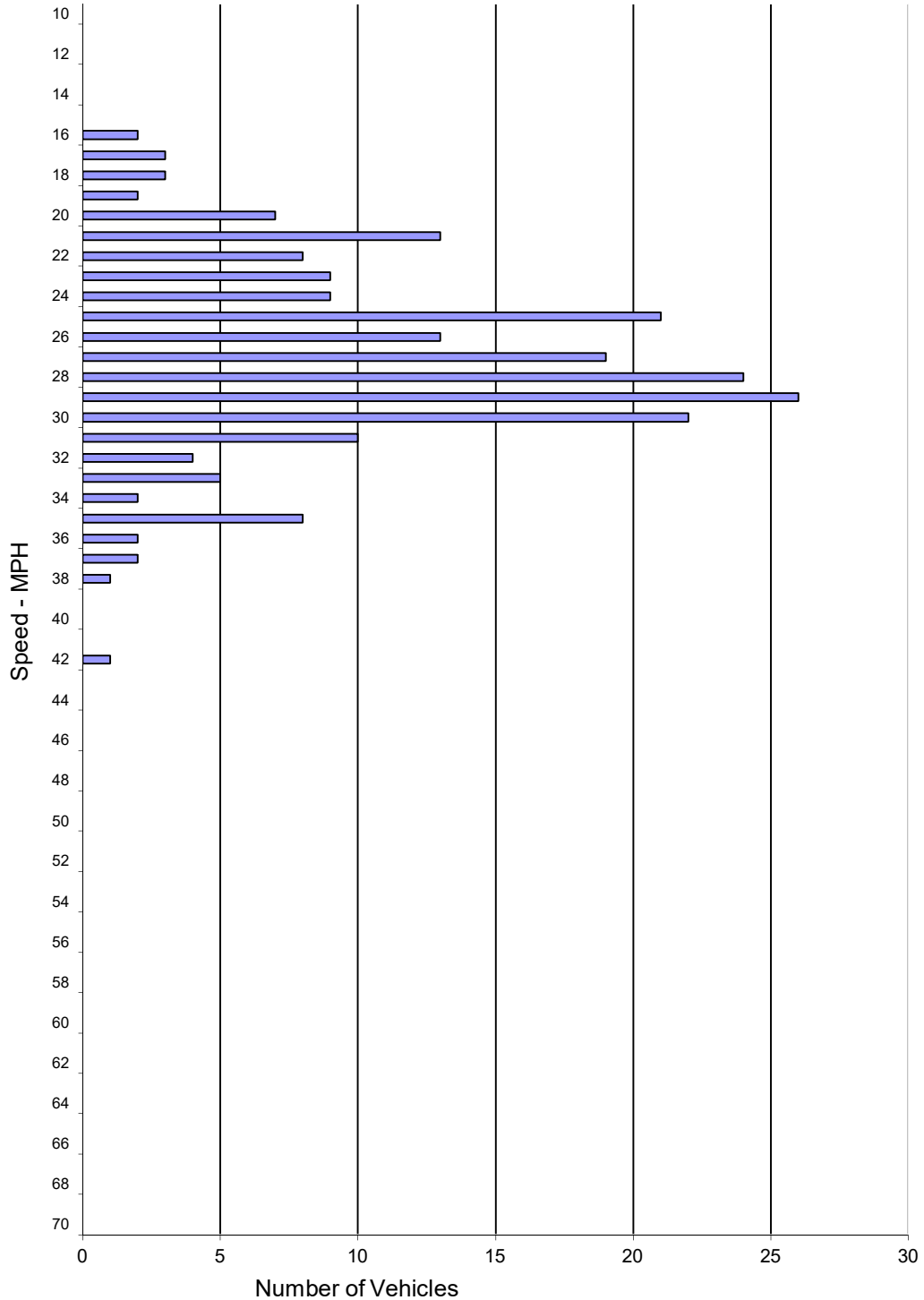
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** 60 Camino Alto
TIME: 10:40-11:15 **Posted Speed:** 30 MPH Clear/Dry **Project #:** 19-8177-011

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	2
17	3
18	3
19	2
20	7
21	13
22	8
23	9
24	9
25	21
26	13
27	19
28	24
29	26
30	22
31	10
32	4
33	5
34	2
35	8
36	2
37	2
38	1
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41	
42	1
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	216	16 - 42	27 mph	31 mph	21 - 30	164	76%	7% / 17	17% / 35

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Edgewood Avenue **Between:** Sequoia Valley Road **and:** Birch Street

Posted Limit:	25 mph	**Bicycle Lanes:**	Not Present
Width:	20-30 feet	**Sidewalks:**	Not Present
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Undivided	**Character:**	Urban
Parking:	Not present	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	3,600	**Vehicles Sampled:**	166
Segment Length (mi):	0.52	**85th Percentile Speed:**	30 mph
Collisions:	1	**50th Percentile Speed:**	26 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	21-30 mph
Collision Rate (c/mvn):	0.73	**Percent in Pace:**	76%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

Sight lines on this segment are limited, there are no sidewalks causing vehicles to use the oncoming lane to avoid collisions.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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Additional information provided on the next sheet.

Spot Speed Study

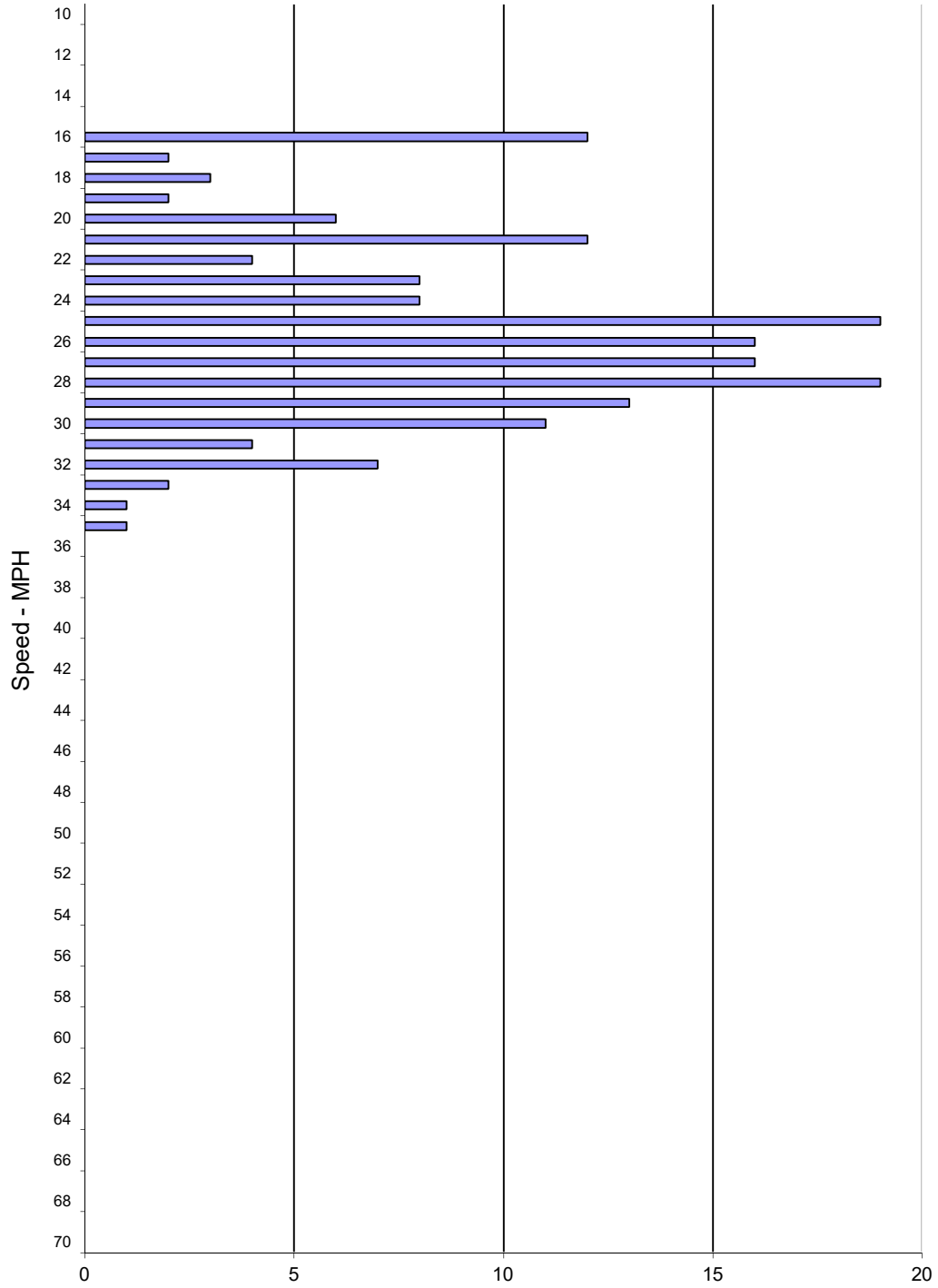
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** 172 Edgewood Ave
TIME: 11:25-12:27 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 19-8177-012

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	12
17	2
18	3
19	2
20	6
21	12
22	4
23	8
24	8
25	19
26	16
27	16
28	19
29	13
30	11
31	4
32	7
33	2
34	1
35	1
36	
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67	
68	
69	
>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	166	16 - 35	26 mph	30 mph	21 - 30	126	76%	15% / 25	10% / 15

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Hamilton Drive **Between:** Kipling Drive **and:** Seaver Drive

Posted Limit:	25 mph	**Bicycle Lanes:**	Not Present
Width:	35 feet	**Sidewalks:**	Present
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Undivided	**Character:**	Urban
Parking:	Some restrictions	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	-	**Vehicles Sampled:**	60
Segment Length (mi):	0.4	**85th Percentile Speed:**	28 mph
Collisions:	0	**50th Percentile Speed:**	24 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	19-28 mph
Collision Rate (c/mvn):	-	**Percent in Pace:**	73%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation reported above the critical rate is 28 mph with a pace of 19 to 28 mph, a reduction to the critical speed of 3 mph is recommended. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 25 mph determined to be reasonable and appropriate for this street segment.

Nots: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph



David J. Parisi, PE, TE



11/19/2019

Date

Additional information provided on the next sheet.

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Spot Speed Study

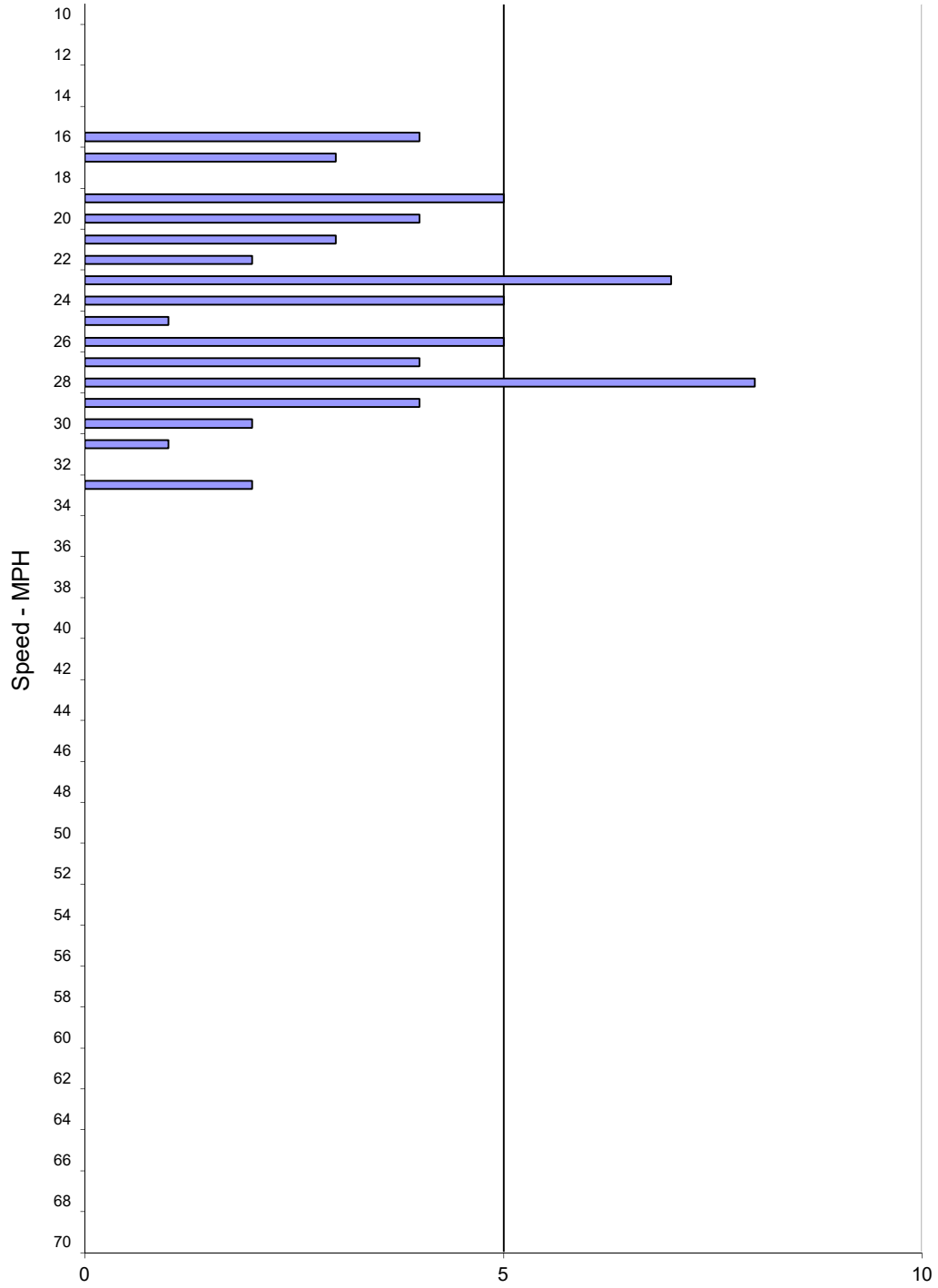
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/11/2019 **Location:** 1 Hamilton Dr
TIME: 12:00-14:00 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 19-8177-023

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	4
17	3
18	
19	5
20	4
21	3
22	2
23	7
24	5
25	1
26	5
27	4
28	8
29	4
30	2
31	1
32	
33	2
34	
35	
36	
37	
38	
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65	
66	
67	
68	
69	
>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	60	16 - 33	24 mph	28 mph	19 - 28	44	73%	11% / 7	15% / 9

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Kipling Drive **Between:** E Blithedale Ave **and:** Hamilton Drive

Posted Limit:	25 mph	**Bicycle Lanes:**	Not present
Width:	20-30 feet	**Sidewalks:**	Discontinuous
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	600	**Vehicles Sampled:**	90
Segment Length (mi):	0.4	**85th Percentile Speed:**	28 mph
Collisions:	0	**50th Percentile Speed:**	24 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	18-27 mph
Collision Rate (c/mvn):	0.00	**Percent in Pace:**	79%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

Limits sightlines and steep grades with discontinuous sidewalks.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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11/19/2019
Date

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TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

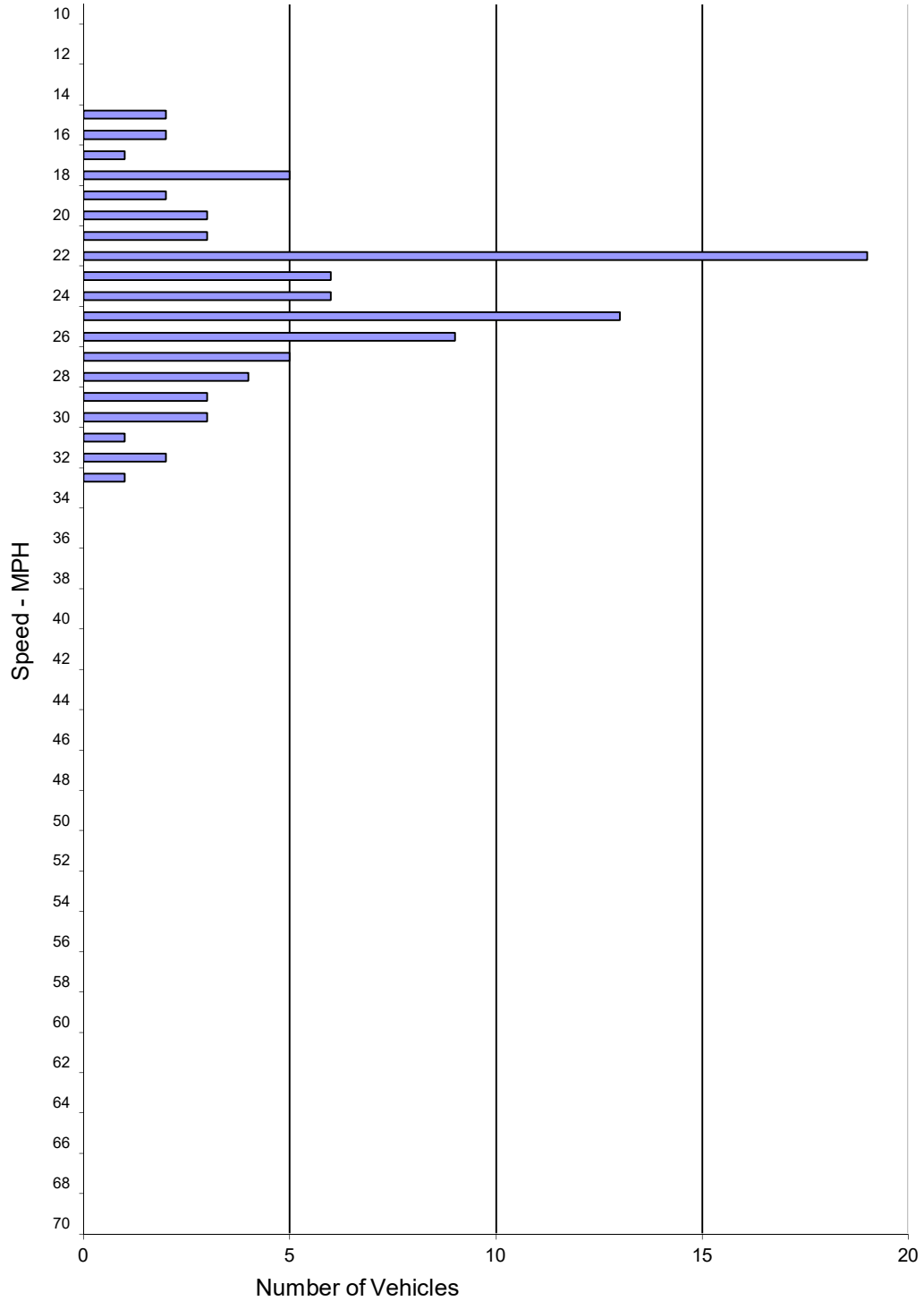
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** Kipling Dr 160' N/O Keats Dr
TIME: 10:45-12:45 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 19-8177-013

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	2
16	2
17	1
18	5
19	2
20	3
21	3
22	19
23	6
24	6
25	13
26	9
27	5
28	4
29	3
30	3
31	1
32	2
33	1
34	
35	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	90	15 - 33	24 mph	28 mph	18 - 27	71	79%	5% / 5	16% / 14

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Lomita Drive **Between:** Ashford Avenue **and:** E Blithedale Ave

Posted Limit:	25 mph	**Bicycle Lanes:**	Not present
Width:	40 feet	**Sidewalks:**	East side only
Travel Lanes:	2	**Land Use:**	Mixed Use
Configuration:	Undivided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	3,600	**Vehicles Sampled:**	129
Segment Length (mi):	0.3	**85th Percentile Speed:**	26 mph
Collisions:	3	**50th Percentile Speed:**	23 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	18-27 mph
Collision Rate (c/mvn):	3.81	**Percent in Pace:**	82%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

This segment serves an Elementary school with a one sided sidewalk. More than double the average collision rate.

CONCLUSION AND RECOMMENDATION

On the basis of the engineering and traffic investigation reported above with an 85th percentile speed of 26 mph and pace of 18 to 27 mph, a speed limit of 25 mph is recommended. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 25 mph is determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph



David J. Parisi, PE, TE



11/19/2019

Date

Additional information provided on the next sheet.

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Spot Speed Study

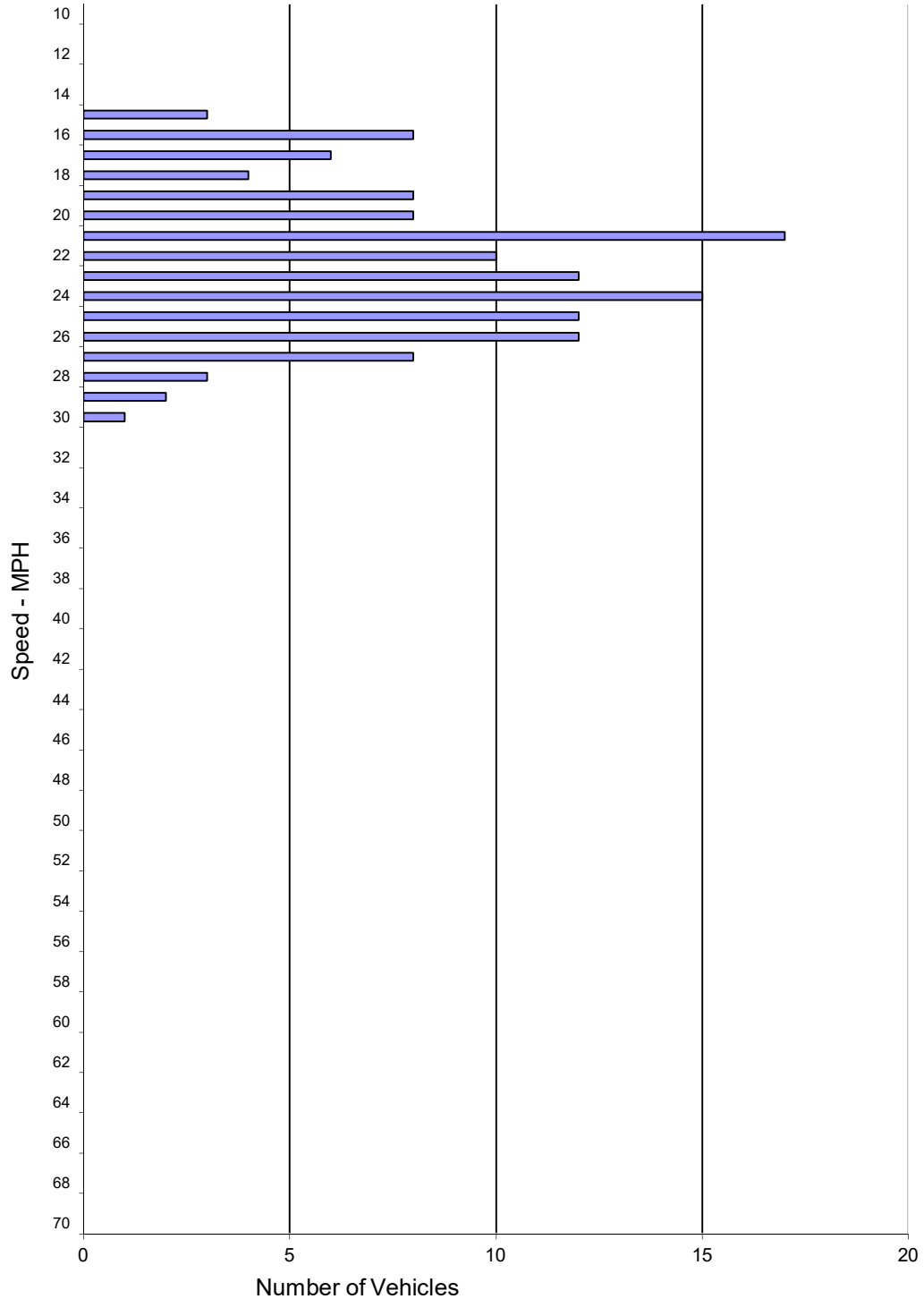
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** Lomita Dr 500' S/O Ashford Ave
TIME: 9:38-10:38 **Posted Speed:** 25 MPH Clear/Dry **Project #: 19-8177-014**

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	3
16	8
17	6
18	4
19	8
20	8
21	17
22	10
23	12
24	15
25	12
26	12
27	8
28	3
29	2
30	1
31	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	129	15 - 30	23 mph	26 mph	18 - 27	106	82%	13% / 17	5% / 6

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Miller Avenue **Between:** Sunnyside Avenue **and:** Millwood Street

Posted Limit:	30 mph	**Bicycle Lanes:**	Present
Width:	80 feet	**Sidewalks:**	Present
Travel Lanes:	4	**Land Use:**	Residential
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	12,400	**Vehicles Sampled:**	232
Segment Length (mi):	0.3	**85th Percentile Speed:**	31 mph
Collisions:	0	**50th Percentile Speed:**	27 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	22-31 mph
Collision Rate (c/mvn):	0.00	**Percent in Pace:**	81%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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11/19/2019
Date

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TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

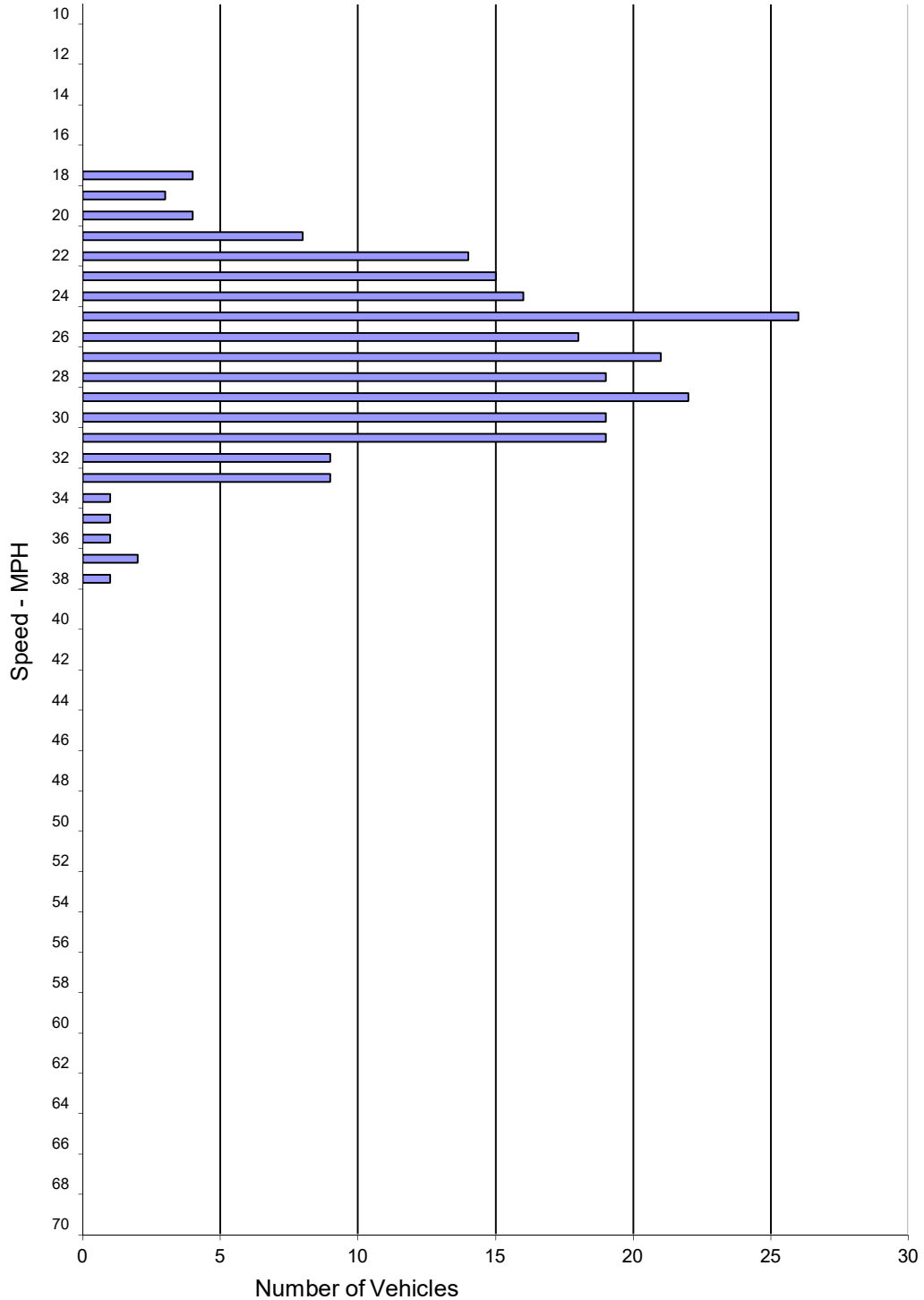
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/12/2019 **Location:** 129 Miller Ave
TIME: 11:15-13:10 **Posted Speed:** 30 MPH Clear/Dry **Project #: 19-8177-015**

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	4
19	3
20	4
21	8
22	14
23	15
24	16
25	26
26	18
27	21
28	19
29	22
30	19
31	19
32	9
33	9
34	1
35	1
36	1
37	2
38	1
39	
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42	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	232	18 - 38	27 mph	31 mph	22 - 31	189	81%	8% / 19	11% / 24

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Miller Avenue **Between:** Millwood St **and:** 500' West of Willow Avenue

Posted Limit:	30 mph	**Bicycle Lanes:**	Present
Width:	78 feet	**Sidewalks:**	Present
Travel Lanes:	4	**Land Use:**	Commercial
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	12,400	**Vehicles Sampled:**	178
Segment Length (mi):	0.5	**85th Percentile Speed:**	31 mph
Collisions:	5	**50th Percentile Speed:**	27 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	21-30 mph
Collision Rate (c/mvn):	1.10	**Percent in Pace:**	76%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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REGISTERED PROFESSIONAL ENGINEER
DAVID J. PARISI
No. 44893
Exp. 03/20
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STATE OF CALIFORNIA

11/19/2019

Date

Parisi
TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

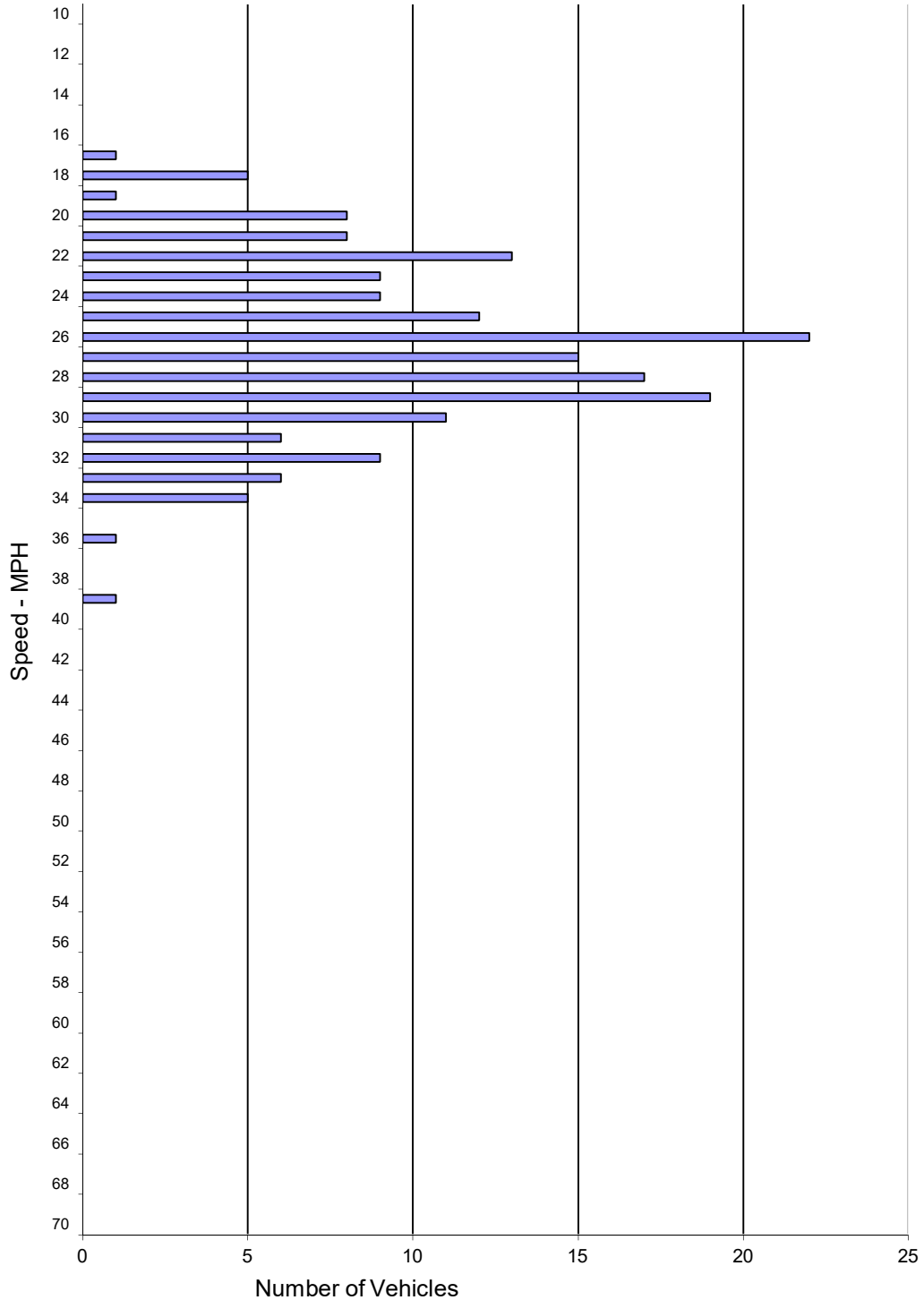
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** 310 Miller Ave
TIME: 13:35-14:35 **Posted Speed:** 30 MPH Clear/Dry **Project #:** 19-8177-016

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	1
18	5
19	1
20	8
21	8
22	13
23	9
24	9
25	12
26	22
27	15
28	17
29	19
30	11
31	6
32	9
33	6
34	5
35	
36	1
37	
38	
39	1
40	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	178	17 - 39	27 mph	31 mph	21 - 30	135	76%	8% / 15	16% / 28

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Miller Avenue **Between:** 500' West of Willow Avenue **and:** Camino Alto

Posted Limit:	30 mph	**Bicycle Lanes:**	Present
Width:	104 feet	**Sidewalks:**	Present
Travel Lanes:	4	**Land Use:**	Commercial
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	23,500	**Vehicles Sampled:**	219
Segment Length (mi):	0.5	**85th Percentile Speed:**	30 mph
Collisions:	8	**50th Percentile Speed:**	26 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	21-30 mph
Collision Rate (c/mvn):	0.93	**Percent in Pace:**	81%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of the engineering and traffic investigation reported above with an 85th percentile speed of 30 mph and pace of 21 to 30 mph, a speed limit of 30 mph is recommended. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 30 mph is determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 30 mph



David J. Parisi, PE, TE



11/19/2019

Date

Parisi TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

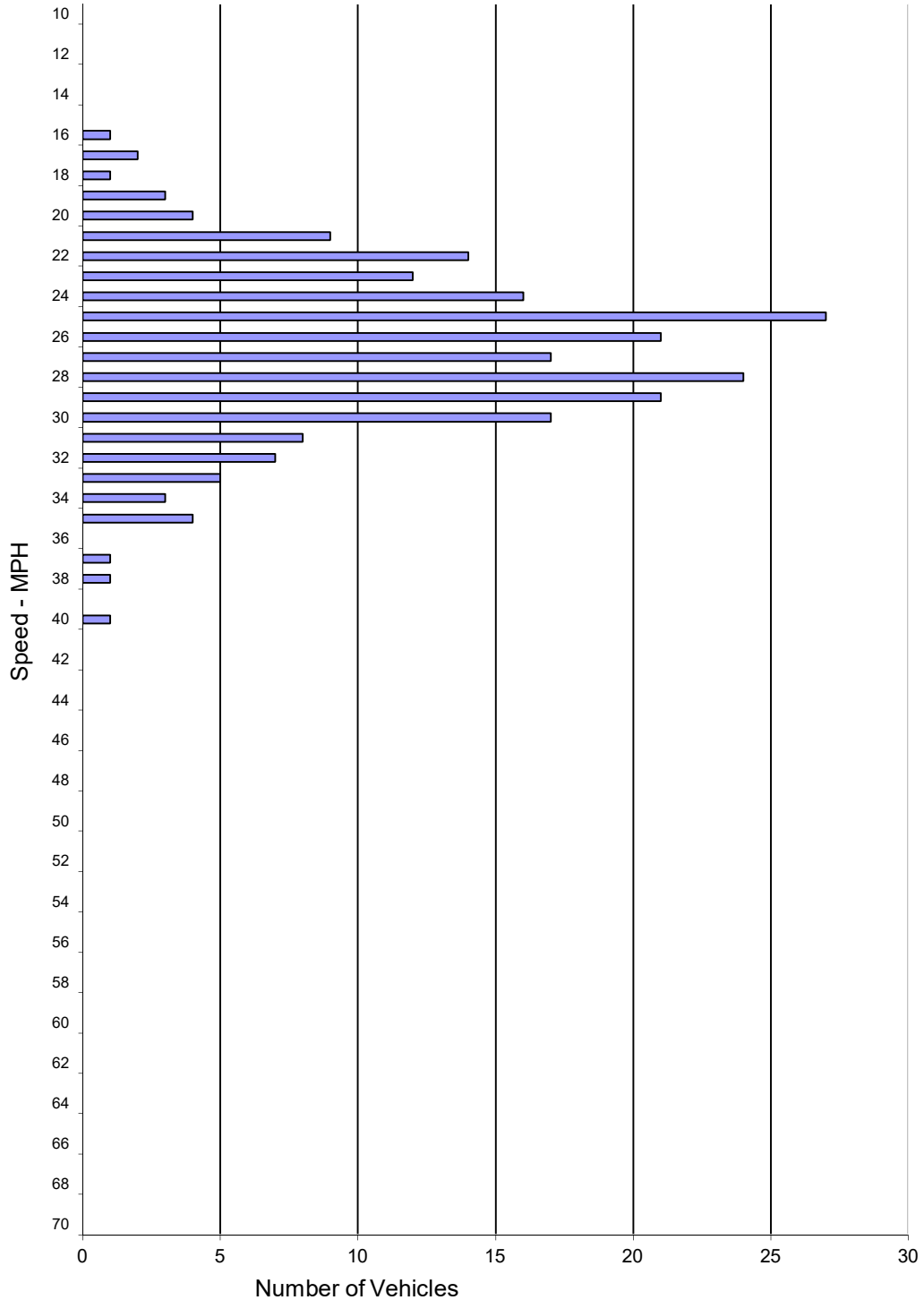
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** 489 Miller Ave
TIME: 14:45-15:30 **Posted Speed:** 30 MPH Clear/Dry **Project #: 19-8177-017**

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	1
17	2
18	1
19	3
20	4
21	9
22	14
23	12
24	16
25	27
26	21
27	17
28	24
29	21
30	17
31	8
32	7
33	5
34	3
35	4
36	
37	1
38	1
39	
40	1
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68	
69	
>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	219	16 - 40	26 mph	30 mph	21 - 30	178	81%	5% / 11	14% / 30

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Miller Avenue **Between:** Camino Alto **and:** City Limits (South)

Posted Limit:	35 mph	**Bicycle Lanes:**	Present
Width:	82 feet	**Sidewalks:**	Not present
Travel Lanes:	4	**Land Use:**	Residential
Configuration:	Divided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	19,400	**Vehicles Sampled:**	226
Segment Length (mi):	0.58	**85th Percentile Speed:**	41 mph
Collisions:	10	**50th Percentile Speed:**	37 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	33-42 mph
Collision Rate (c/mvn):	1.22	**Percent in Pace:**	81%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

According to SWITRS data from 2016 to 2018 there have been 10 collisions causing a collision rate to be above the statewide average collision rate. Students may cross the road at unmarked locations; roadway shard with cyclists; uncontrolled crosswalks provide access to multi-use path.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above the critical rate is 41 mph with a pave of 33 to 42 mph, a reduction of the critical speed by 6mph is reccomended due to the conditions that aren't apparent to the driver. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 35 mph determined to be reasonable and appropriate for this street segment. .

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 35 mph

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Date

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TRANSPORTATION CONSULTING

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Spot Speed Study

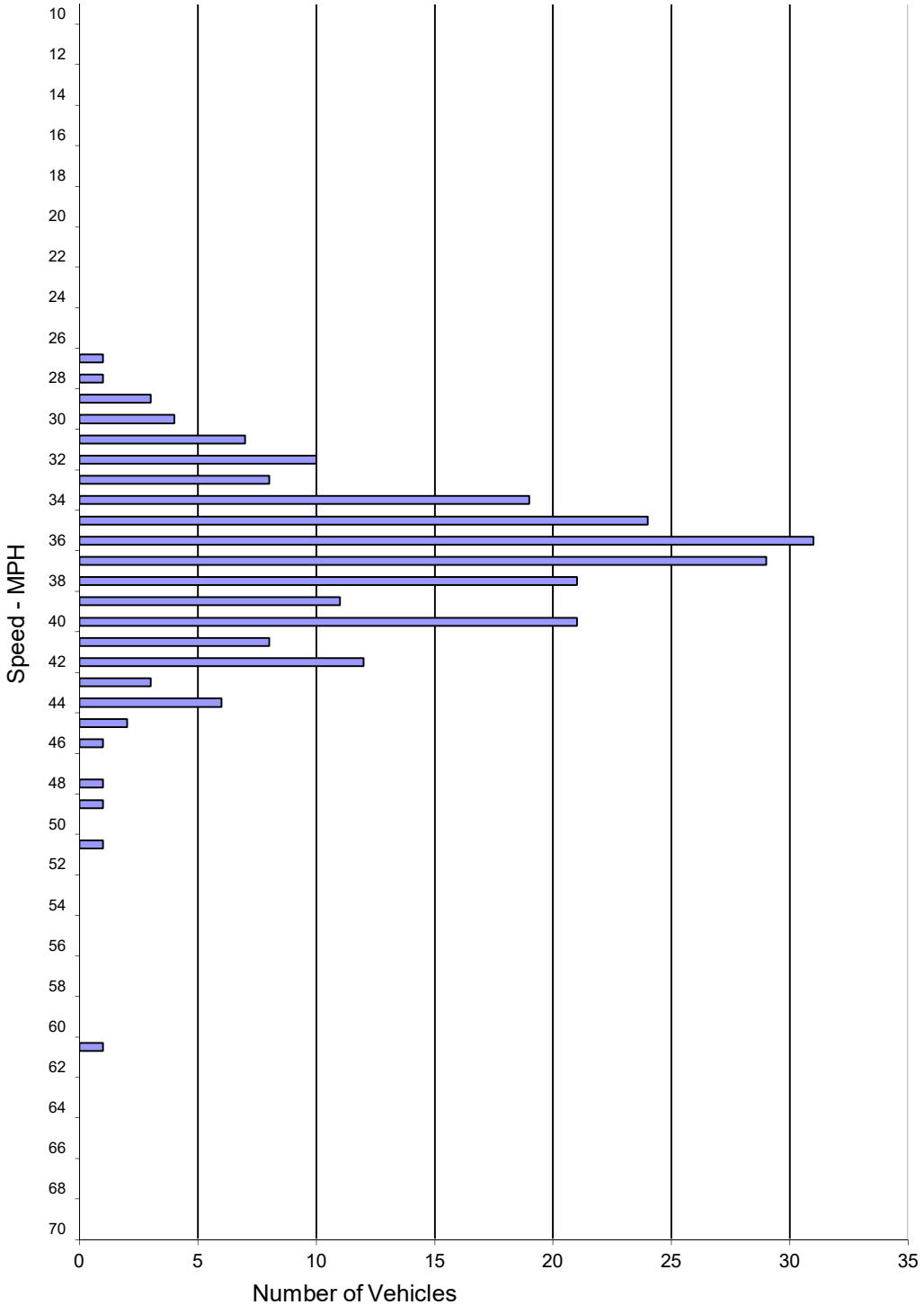
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/11/2019 **Location:** Miller Ave 1050' E/O Camino Alto
TIME: 09:30-10:20 **Posted Speed:** 35 MPH Clear/Dry **Project #:** 19-8177-018

Eastbound & Westbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
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16	
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19	
20	
21	
22	
23	
24	
25	
26	
27	1
28	1
29	3
30	4
31	7
32	10
33	8
34	19
35	24
36	31
37	29
38	21
39	11
40	21
41	8
42	12
43	3
44	6
45	2
46	1
47	
48	1
49	1
50	
51	1
52	
53	
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61	1
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	226	27 - 61	37 mph	41 mph	33 - 42	184	81%	11% / 26	8% / 16

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Nelson Avenue **Between:** E Blithedale Ave **and:** Sycamore Avenue

Posted Limit:	Unposted	**Bicycle Lanes:**	Not Present
Width:	29 feet	**Sidewalks:**	Discontinuous
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Undivided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	2,200	**Vehicles Sampled:**	154
Segment Length (mi):	0.27	**85th Percentile Speed:**	24 mph
Collisions:	1	**50th Percentile Speed:**	20 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	16-25 mph
Collision Rate (c/mvn):	2.31	**Percent in Pace:**	87%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

The collision rate is almost double the state average collision rate. There is no posted speed limit sign only warning signs.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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Date

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TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

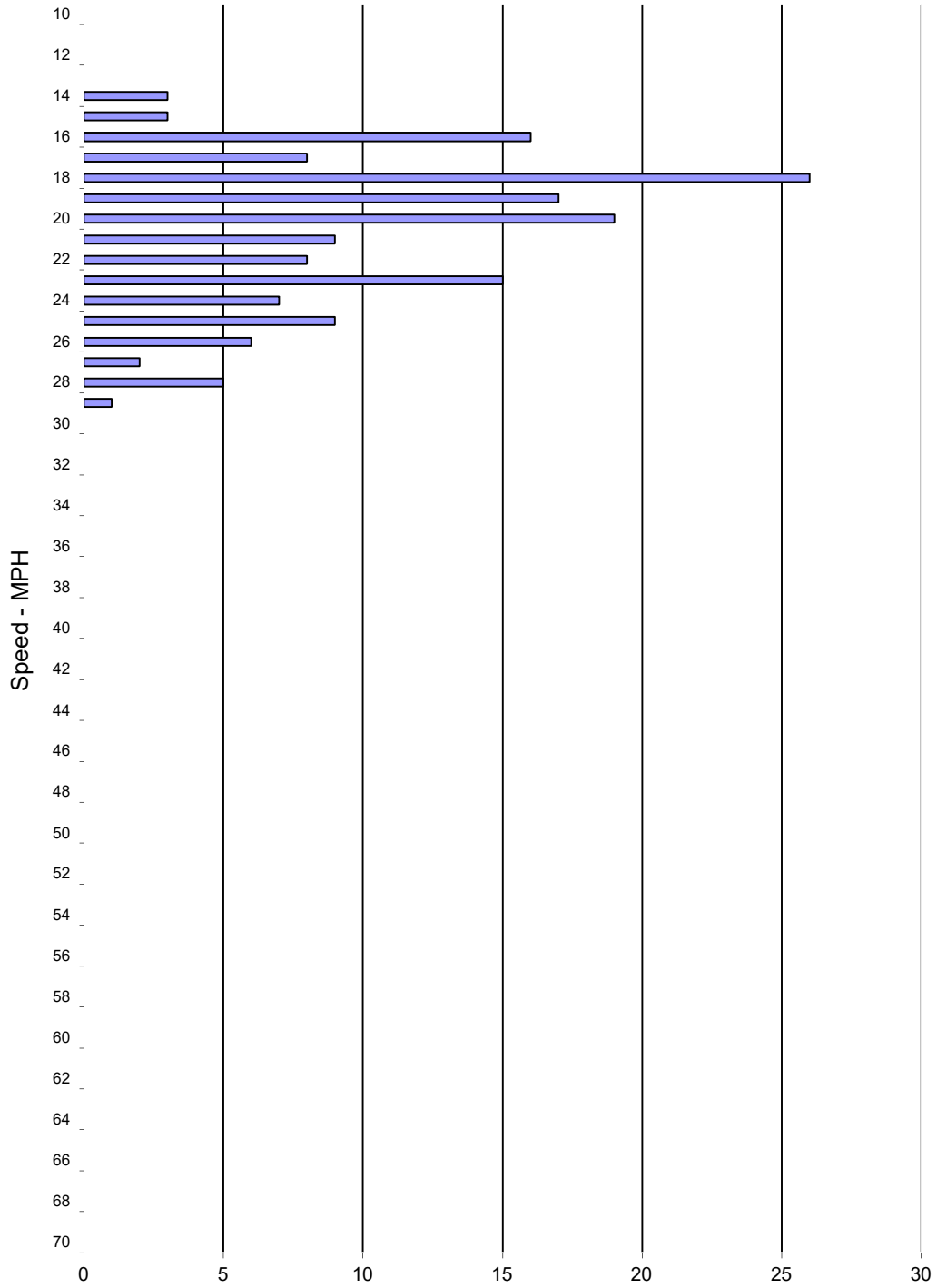
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** Nelson Ave 250' N/O Matilda Ave
TIME: 12:55-13:55 **Posted Speed:** 20 MPH Clear/Dry **Project #:** 19-8177-019

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	3
15	3
16	16
17	8
18	26
19	17
20	19
21	9
22	8
23	15
24	7
25	9
26	6
27	2
28	5
29	1
30	
31	
32	
33	
34	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	154	14 - 29	20 mph	24 mph	16 - 25	134	87%	3% / 6	10% / 14

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Redwood Hwy Frontage Rd **Between:** US 101 S Ramps **and:** City Limits (South)

Posted Limit:	35 mph	**Bicycle Lanes:**	Not Present
Width:	30-40 feet	**Sidewalks:**	North Side of Road
Travel Lanes:	2	**Land Use:**	Commercial
Configuration:	Undivided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Flat

OBSERVATIONS AND EVALUATION

Volume (ADT):	6,100	**Vehicles Sampled:**	161
Segment Length (mi):	0.51	**85th Percentile Speed:**	33 mph
Collisions:	0	**50th Percentile Speed:**	29 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	25-34 mph
Collision Rate (c/mvn):	0.00	**Percent in Pace:**	79%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation reported above the critical rate is 33 mph with a pace of 25 to 34 mph, a speed limit of 35 mph is recommended. In accordance with the provisions of Sections 627, 22357, 22358, and 40802 of the California Vehicle Code, a speed limit of 35 mph determined to be reasonable and appropriate for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 35 mph

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REGISTERED PROFESSIONAL ENGINEER
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Date

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TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

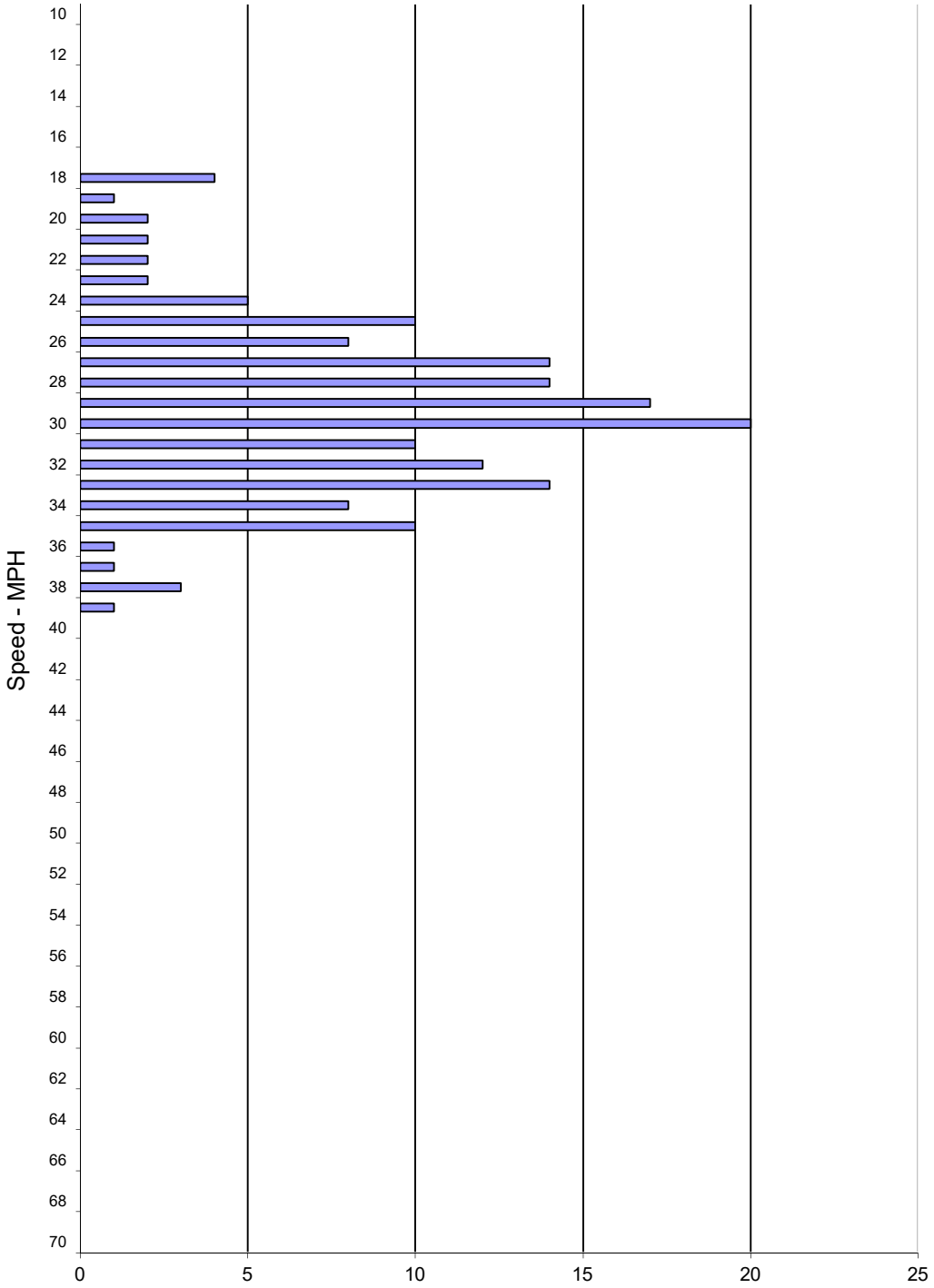
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/11/2019 **Location:** 707 Redwood Hwy
TIME: 10:50-11:52 **Posted Speed:** 35 MPH Clear/Dry **Project #: 19-8177-020**

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	4
19	1
20	2
21	2
22	2
23	2
24	5
25	10
26	8
27	14
28	14
29	17
30	20
31	10
32	12
33	14
34	8
35	10
36	1
37	1
38	3
39	1
40	
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	161	18 - 39	29 mph	33 mph	25 - 34	127	79%	11% / 18	10% / 16

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Underhill Road **Between:** Coach Road **and:** Stanton Way (South)

Posted Limit:	25 mph	**Bicycle Lanes:**	Not present
Width:	28 feet	**Sidewalks:**	Not present
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Undivided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	800	**Vehicles Sampled:**	111
Segment Length (mi):	0.46	**85th Percentile Speed:**	28 mph
Collisions:	0	**50th Percentile Speed:**	22 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	18-27 mph
Collision Rate (c/mvn):	0.00	**Percent in Pace:**	77%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Notes: Collisions from SWITRS (2016-2018)

Nots: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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11/19/2019
Date

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Additional information provided on the next sheet.

Spot Speed Study

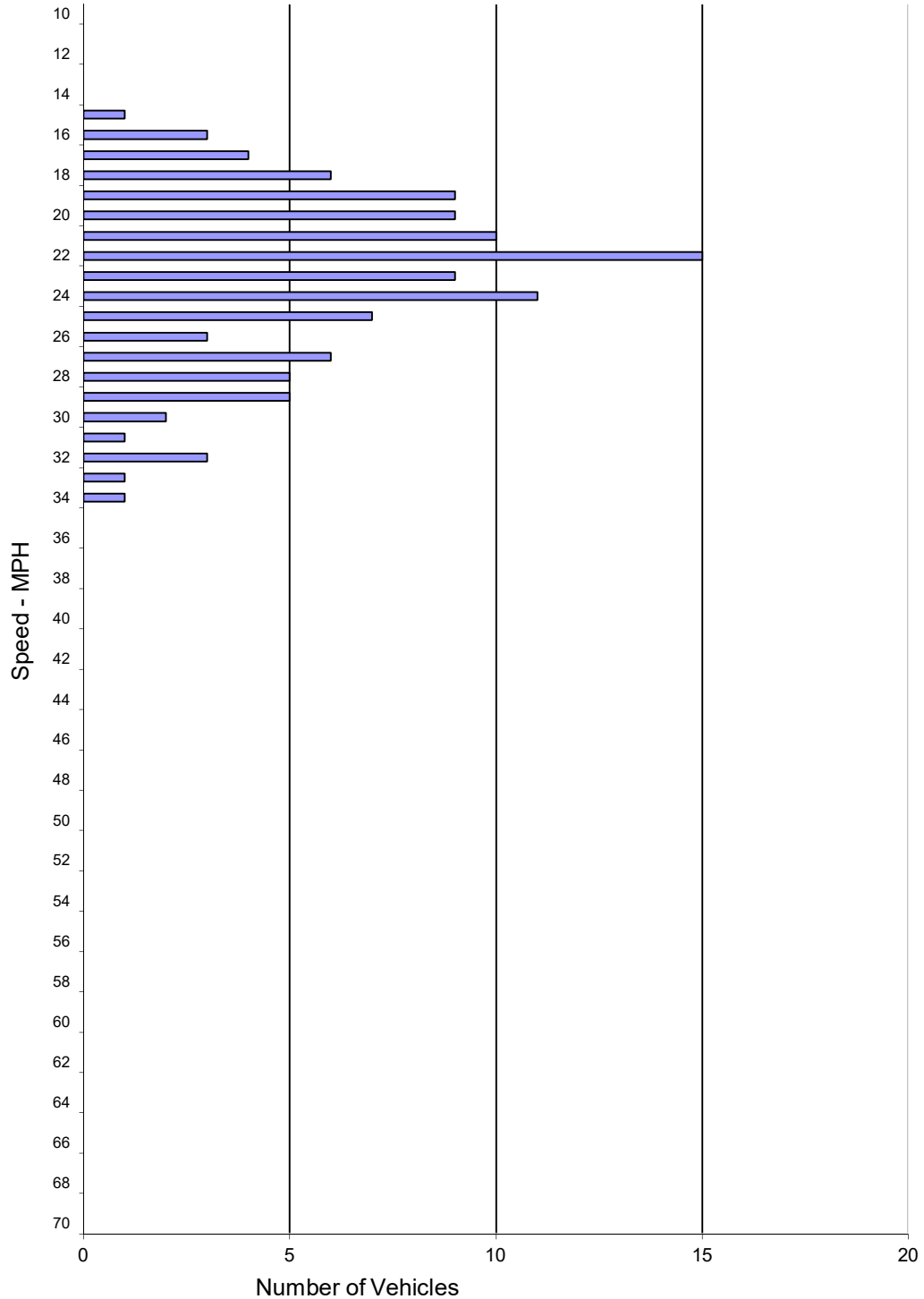
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/12/2019 **Location:** 42 Underhill Rd
TIME: 13:15-15:10 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 19-8177-021

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	1
16	3
17	4
18	6
19	9
20	9
21	10
22	15
23	9
24	11
25	7
26	3
27	6
28	5
29	5
30	2
31	1
32	3
33	1
34	1
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>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	111	15 - 34	22 mph	28 mph	18 - 27	85	77%	7% / 8	17% / 18

City of Mill Valley

ENGINEERING AND TRAFFIC SURVEY

Segment: Vasco Drive **Between:** Stanton Way (South) **and:** Camino Alto

Posted Limit:	25 mph	**Bicycle Lanes:**	Present
Width:	36 feet	**Sidewalks:**	East side only
Travel Lanes:	2	**Land Use:**	Residential
Configuration:	Undivided	**Character:**	Urban
Parking:	On-street	**Terrain:**	Hilly

OBSERVATIONS AND EVALUATION

Volume (ADT):	2,100	**Vehicles Sampled:**	105
Segment Length (mi):	0.28	**85th Percentile Speed:**	26 mph
Collisions:	0	**50th Percentile Speed:**	22 mph
Evaluation Period (yr):	2	**10 mph in Pace:**	18-27 mph
Collision Rate (c/mvn):	0.00	**Percent in Pace:**	90%
Statewide Average Rate:	1.14 (c/mvm)		

Conditions Not Readily Apparent to the Driver:

None.

CONCLUSION AND RECOMMENDATION

On the basis of an engineering and traffic investigation, as reported above and in In accordance with the provisions of Sections 515 and 22358.4 of the California Vehicle Code, a speed limit of 25 mph is hereby determined to be reasonable for this street segment.

Nots: Collisions from SWITRS (2016-2018)

Recommended Speed Limit: 25 mph

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11/19/2019
Date

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TRANSPORTATION CONSULTING

Additional information provided on the next sheet.

Spot Speed Study

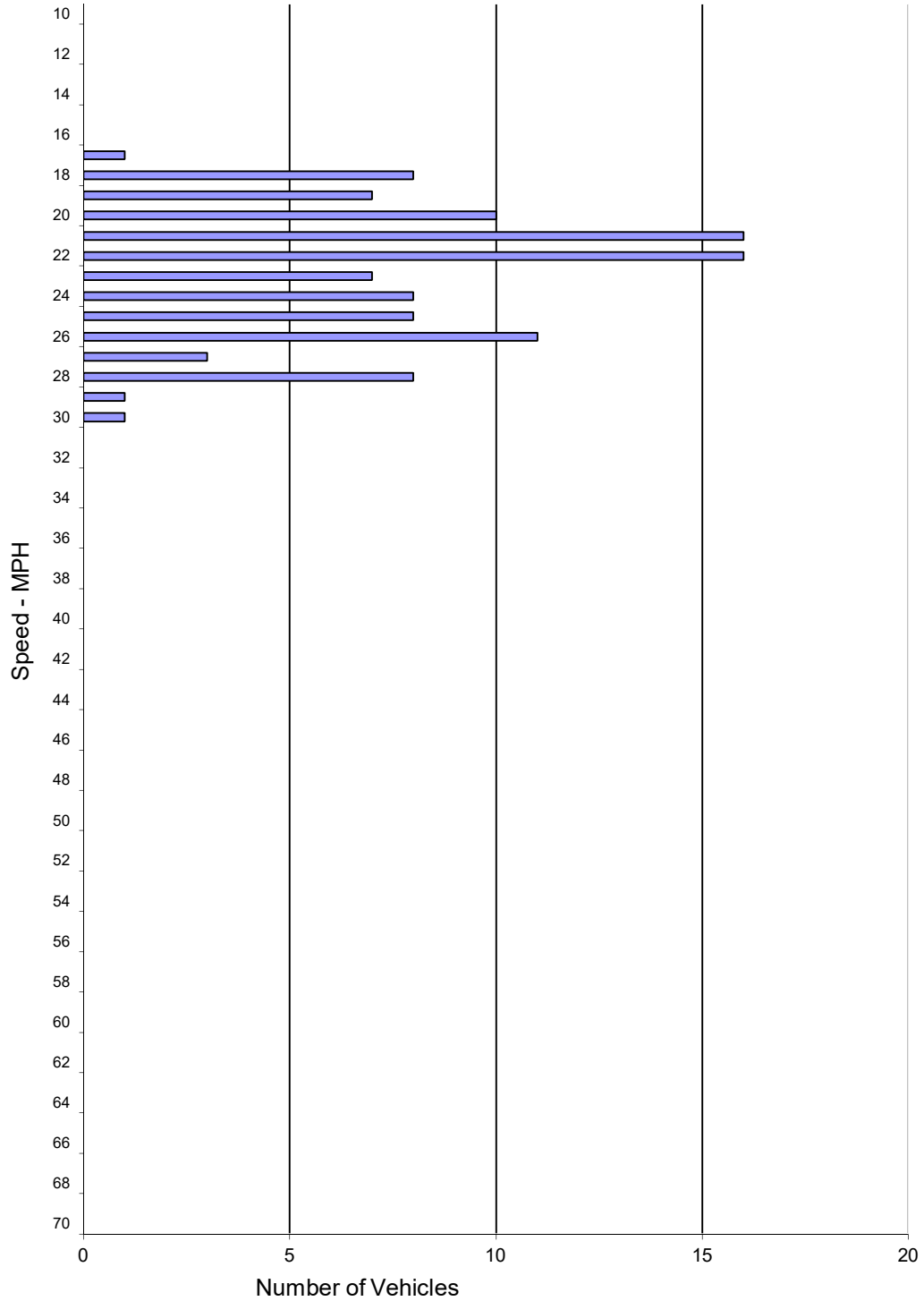
Prepared by: National Data & Surveying Services

City of Mill Valley

DATE: 4/9/2019 **Location:** Vasco Dr 180' N/O Azalea Dr
TIME: 14:33-15:30 **Posted Speed:** 25 MPH Clear/Dry **Project #: 19-8177-022**

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	1
18	8
19	7
20	10
21	16
22	16
23	7
24	8
25	8
26	11
27	3
28	8
29	1
30	1
31	
32	
33	
34	
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69	
>=70	



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	105	17 - 30	22 mph	26 mph	18 - 27	94	90%	0% / 1	10% / 10