



# ENGINEERING AND TRAFFIC SURVEY FOR SPEED LIMITS

Final Report

January 9<sup>th</sup>, 2025

Prepared for:



Prepared by: **Kimley»»Horn**

CERTIFICATION

I, Clara Ho, do hereby certify that this Engineering and Traffic Survey for the City of Hercules was performed under my supervision. I certify that I am experienced in performing surveys of this type and duly registered in the State of California as a professional Civil Engineer.

A handwritten signature in black ink, appearing to read "Clara Ho", positioned above a horizontal line.

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Clara Ho  
RCE# 90344  
Exp. 09/30/2025

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## 1.0 INTRODUCTION

This Engineering and Traffic Survey is intended to serve as the basis for the establishment and enforcement of speed limits for selected streets within the City of Hercules. This survey was authorized by the City and independently conducted by Kimley-Horn and Associates, Inc (Kimley-Horn).

Engineering and traffic surveys for speed limits are regularly conducted once every five (5) years by governing municipalities for the purpose of complying with Section 40802(a) of the *California Vehicle Code (CVC)* and the national *Uniform Vehicle Code*. Engineering and traffic surveys may be extended to every seven (7) years if criteria are met, or every ten (10) years if a registered engineer evaluates the section of the highway and determines that no significant changes in roadway or traffic conditions have occurred as specified in Section 40802(c) of the *California Vehicle Code (CVC)*. In addition, an engineering and traffic survey should be conducted on newly constructed roadway or roadways where the conditions have significantly changed. The latest Assembly Bill (AB) 43 Traffic Safety would extend the period that a speed limit justified by a traffic and engineering survey conducted more the 7 years old remains valid, for the purposes of speed enforcement, if evaluated by a registered engineer, as specified, to 14 years.

The California Governor's office approved AB 43 on October 8, 2021, which included amendments to Sections 627, 21400, 22352, 22354, 22358, and 40802 of, and to add Sections 22358.6, 22358.7, 22358.8, and 22358.9 to, the California Vehicle Code (CVC), relating to traffic safety.

## 1.1 Regulations and Guidelines

Division 11, Chapter 7, of the California Vehicle Code defines the California Speed Laws. Section 22352 of the CVC indicates that prima facie speed limits are 15 miles per hour (mph) at unprotected railroad grade crossings, highway intersections with site restrictions, and on any alley. In addition, the prima facie speed limit is 25 mph in residential and business districts, when approaching or passing a school building or grounds thereof or when passing a senior center or other facility primarily used by senior citizens. Division 1 of the CVC defines a business district and residence district in Section 235 and 515, respectively.

"A "business district" is that portion of a highway and the property contiguous thereto (a) 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, or (b) 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. A business district may be longer than the distances specified in this section if the above ratio of buildings in use for business to the length of the highway exists."<sup>1</sup>

"A "residence district" is that portion of a highway and the property contiguous thereto, other than a business district, (a) 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 (b) 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."<sup>2</sup>

Section 22357(a) permits the establishment of speed limits greater than 25 mph based on the following text:

"Whenever a local authority determines upon the basis of an engineering and traffic survey that a speed greater than 25 miles per hour would facilitate the orderly movement of vehicular traffic and would be reasonable and safe upon any street other than a state highway otherwise subject to a prima facie limit of 25 miles per hour, the local authority may by ordinance determine and declare a prima facie speed limit of 30, 35, 40, 45, 50, 55, or 60 miles per hour or a maximum speed limit of 65 miles per hour, whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe."<sup>3</sup>

Therefore, the CVC allows local authorities to increase or decrease the prima facie limits by ordinance or resolution to appropriate limits as determined by an engineering and traffic survey. Posted speed limits not defined in the CVC or established by ordinance are not valid. The CVC requires that speed surveys must be performed with the use of radar or other electronic devices at locations where speed limits are to be enforced with the use of radar. The current survey must be completed within five years as specified in Section 40802(a); seven years as specified in Section 40802(c), or ten years as specified in Section 40802(c), of the date of the preceding survey. A survey allowed to expire passed the valid duration of the previous survey would constitute a speed trap as defined in Sections 40802(a) and 40802(b) of the CVC:

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<sup>1</sup> California Legislative Information, Vehicle Code, Division 1, Section 235.

<sup>2</sup> California Legislative Information, Vehicle Code, Division 1, Section 515.

<sup>3</sup> California Legislative Information, Vehicle Code, Division 11, Chapter 7, Section 22357(a).

“(1) A particular section of a highway measured as to distance and with boundaries marked, designated, or otherwise determined in order that the speed of a vehicle may be calculated by securing the time it takes the vehicle to travel the known distance.

(2) A particular section of a highway with a prima facie speed limit that is provided by this code or by local ordinance under subparagraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established under Section 22354, 22357, 22358, or 22358.3, if that prima facie speed limit is not justified by an engineering and traffic survey conducted within five years prior to the date of the alleged violation, and enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects. This paragraph does not apply to a local street, road, or school zone.

(b) (1) For purposes of this section, a local street or road is one that is functionally classified as "local" on the "California Road System Maps," that are approved by the Federal Highway Administration and maintained by the Department of Transportation. When a street or road does not appear on the "California Road System Maps," it may be defined as a "local street or road" if it primarily provides access to abutting residential property and meets the following three conditions:

(A) Roadway width of not more than 40 feet.

(B) Not more than one-half of a mile of uninterrupted length. Interruptions shall include official traffic control signals as defined in Section 445.

(C) Not more than one traffic lane in each direction.

(2) For purposes of this section "school zone" means that area approaching or passing a school building or the grounds thereof that is contiguous to a highway and on which is posted a standard "SCHOOL" warning sign, while children are going to or leaving the school either during school hours or during the noon recess period. "School zone" also includes the area approaching or passing any school grounds that are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children if that highway is posted with a standard "SCHOOL" warning sign."<sup>4</sup>

(3) For purposes of this section, "senior zone" means that area approaching or passing a senior center building or other facility primarily used by senior citizens, or the grounds thereof that is contiguous to a highway and on which is posted a standard "SENIOR" warning sign, pursuant to Section 22352.

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<sup>4</sup> California Legislative Information, Vehicle Code, Division 17, Chapter 2, Section 40802.

(4) For purposes of this section, “business activity district” means a section of highway described in subdivision(b) of Section 22358.9 in which a standard 25 miles per hour or 20 miles per hour speed limit sign has been posted pursuant to paragraph (1) of subdivision (a) of that section.

Assembly Bill 43 added Section 22358.8 to the CVC to read:

- (a) If a local authority, after completing an engineering and traffic survey, finds that the speed limit is still more than is reasonable or safe, the local authority may, by ordinance, retain the current speed limit or restore the immediately prior speed limit if that speed limit was established with an engineering and traffic survey and if a registered engineer has evaluated the section of highway and determined that no additional general purpose lanes have been added to the roadway since completion of the traffic survey that established the prior speed limit.
- (b) This section does not authorize a speed limit to be reduced by any more than five miles per hour from the current speed limit nor below the immediately prior speed limit.
- (c) A local authority shall issue only warning citations for violations of exceeding the speed limit by 10 miles per hour or less for the first 30 days that a lower speed limit is in effect as authorized by this section.

## 1.2 Requirements and Methodology of an Engineering and Traffic Study

Speed zones are primarily established to protect the public from the unreasonable behavior of reckless, unreliable, or otherwise dangerous drivers. Speed limits are generally established at or near the 85<sup>th</sup> percentile speed, which is defined as the speed at or below which 85 percent of traffic is moving. Speed limits established on this basis conform to the consensus of those who drive on the roadways as to what speed is reasonable and safe and are not dependent on the judgment of one or a few individuals.

The Engineering and Traffic Survey, as defined in Section 627 of the CVC, must consider the prevailing speeds, collision records, pedestrian and bicycle activity, and roadway traffic and roadside conditions not readily apparent to the driver. Speed zones are also established to advise motorists of road conditions or hazards, which may not be readily apparent to a reasonable driver. For this reason, a field review of related road/traffic variables is conducted which is considered in combination with the statistical data and collision history of a particular roadway segment to determine a safe and reasonable speed limit. The specific procedures used in the performance of an Engineering and Traffic Study are outlined in the *2014 California MUTCD*. The statistical factors used to analyze the collected speed survey data and additional factors as noted in the *2014 California MUTCD* to consider are defined in the following section.



## 2.0 SPEED SURVEY EVALUATION

Seventeen (17) segments were evaluated by Kimley-Horn and included in this report. These segments and limits of the segments are listed in Table 1.

Table 1: Survey Locations and Limits Evaluated by Kimley-Horn

NO	STREET	LIMIT 1	LIMIT 2
1	Alfred Nobel Drive	John Muir Parkway	End
2	Coronado Street	Refugio Valley Road	Carson Street
3	John Muir Parkway	San Pablo Avenue	Alfred Nobel Drive
4	John Muir Parkway	Alfred Nobel Drive	Bayfront Boulevard
5	Linus Pauling Drive	San Pablo Avenue	West End
6	Refugio Valley Road	Sycamore Avenue	Patridge Drive
7	Refugio Valley Road	Patridge Drive	Falcon Way-Redwood
8	Refugio Valley Road	Falcon Way-Redwood	Bonaire Avenue
9	San Pablo Avenue	City Limits at 100 yards west of Willow Avenue	Linus Pauling Drive
10	San Pablo Avenue	Linus Pauling Drive	Sycamore Avenue
11	San Pablo Avenue	Sycamore Avenue	South City Limit
12	Sycamore Avenue	Civic Drive	Palm Avenue
13	Sycamore Avenue	Palm Avenue	City limits at 500 yards west of SR 4 Ramps
14	Turquoise Drive	Sycamore Avenue	Cinnabar Way
15	Willow Avenue	San Pablo Avenue	Canterbury Drive
16	Willow Avenue	Canterbury Drive	Palm Avenue
17	Willow Avenue	Palm Avenue	Sycamore Avenue

## 2.1 Field Review

Speed data was collected using manual radar surveys performed by sub-consultant IDAX Data Solutions to Kimley-Horn. Each of the radar speed checks were made from an inconspicuously parked, unmarked vehicle. An effort was made to ensure that the presence of the vehicle in no way affected the speed of the traffic being surveyed. Field information from these speed surveys and other roadway characteristics were recorded on field data forms and later coded into engineering software for analysis purposes. Chapter 2B of the *2014 California MUTCD* indicates that it is desirable to have a minimum sample of 100 vehicles for a speed zone survey for an arterial street. This may result in excessive survey periods for low volume roadways, but a survey should not contain less than 50 vehicles.

Examples of the field data collected for the purposes of analyzing related roadway characteristics as they pertain to the determination of appropriate speed limits are listed below. The results of the field review for related roadway and traffic variables are summarized in the Engineering and Traffic Survey forms included in the Appendix.

1. Segment length, width and alignment;
2. Level of pedestrian, bicycle, and truck activity
3. Traffic flow characteristics;
4. Number of lanes and other channelization/striping factors;
5. Frequency of intersections, driveways, on-street parking, bike lanes;
6. Locations of stop signs, traffic signals, and other regulatory traffic control devices;
7. Pavement condition;
8. Obstructions to driver/pedestrian visibility;
9. Land use and proximity of schools, parks/recreation areas and senior centers;
10. Uniformity with existing speed zones in adjacent jurisdictions; and,
11. Any other unusual conditions or hazards not readily apparent to the driver.

## 2.2 Statistical Analysis Factors

Significant factors used to analyze the collected survey data are summarized below:

1. **85<sup>th</sup> Percentile Speed.** The Critical Speed, or the 85<sup>th</sup> percentile speed, is defined as that speed at or below which 85 percent of the traffic is moving. This factor is the primary guide in determining what speeds the majority of safe and reasonable drivers are traveling. Therefore, the practice is to set the speed limit to the nearest 5 mph increment from the critical speed unless other factors require a lower limit. Speed limits set on this basis provide law enforcement officials with a means of controlling reckless or unreliable drivers who will not conform to what the majority finds reasonable.
2. **The 10-mph Pace.** The 10-mph Pace is the 10-mph increment range, which contains the largest number of recorded vehicles. The pace is a measure of the dispersion of speeds within the sample surveyed. Speed limits should normally be set to fall within the 10-mph pace. However, conditions not readily apparent to the driver or adhering to State mandated limits such as in Residence Districts may require setting speed limits below the 10-mph pace.
3. **50<sup>th</sup> Percentile Speed.** The Median Speed, or 50<sup>th</sup> Percentile Speed, represents the mid-point value within the range of recorded speeds for a particular roadway location. In other words, 50 percent of the vehicles travel faster than and 50 percent travel slower than, the median speed. This value is another measure of the central tendency of the vehicle speed distribution. Typically speed limits should not be set below the 50<sup>th</sup> Percentile Speed, since it would result in greater than 50-percent of the drivers exceeding the speed limit.
4. **15<sup>th</sup> Percentile Speed.** The 15<sup>th</sup> Percentile Speed is that speed at or below which 15 percent of the vehicles are traveling. This value is important in determining the minimum allowable speed limit, given that the vehicles traveling below this speed tend to obstruct the flow of traffic, thereby increasing the collision potential.
5. **Percent of Vehicles in Pace Speed.** The percent of vehicles in the 10-mph pace speed is an indication of the grouping of vehicular speeds. Ideally, if all vehicles were traveling at or about the same speed, there would be a reduced likelihood of vehicular collisions. In speed limit analysis, the higher the percent of vehicles within the pace speed, the more favorable the speed distribution. The percent of the 10-mph pace is often between 60 and 90 percent.

## 2.3 2014 California MUTCD and CVC Guidance

Based on the *2014 California MUTCD*, speed limits "shall be established at the nearest 5 mph increment of the 85<sup>th</sup>-percentile speed of free-flowing traffic."<sup>5</sup> In matching existing conditions with the traffic safety needs of the community, engineering judgment may indicate the need for a reduction of the posted speed limit by 5 mph due to specific factors such as road characteristics, the pace speed, roadside development and environment, pedestrian activity, and collision history. Alternatively, per CVC Code 21400(b)<sup>5</sup>, the *2014 California MUTCD* states that "for cases in which the nearest 5 mph increment of the 85th-percentile speed would require a rounding up, then the speed limit may be rounded down to the nearest 5 mph increment below the 85th-percentile speed, if no further reduction is used."<sup>6</sup> The following are some other factors to consider when establishing speed limits between adjacent street segments:

1. Avoid Short Segments. Short speed zones of less than ½ mile should be avoided, except in transition areas.
2. Change in Roadway Conditions or Roadside Development. Speed zone changes should be coordinated with changes in roadway conditions or roadside development.
3. Minimize Change in Speed between Adjacent Segments. Speed zoning should be in 10 mph increments except in urban areas where 5 mph increments are preferable.
4. Coordinate Speed Zoning with Adjacent Jurisdictions.

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<sup>5</sup> California Legislative Information, [Vehicle Code](#), Division 11, Chapter 2, Article 2.

<sup>6</sup> California Department of Transportation, *2014 California MUTCD*, Chapter 2B, page 134, 7 December 2014.

## 2.4 Collision History

The Engineering and Traffic Survey forms summarize the available collision information for each of the street segments. The collision information was obtained from Statewide Integrated Traffic Records System (SWITRS) from July 1, 2021 to June 30, 2024. The collisions were reviewed and corridor related collisions were summarized for each segment. Average daily traffic volumes (ADTs) were collected at all project locations. Based on the number of total collisions studied over the 3-year period and ADT counts, a collision rate per million vehicle miles was calculated for each segment. To provide a general comparison of the collision rates on the segments to expected collisions rates for similar types of local roadways, the collision rates for each segment were compared to the statewide average rate listed in the 2022 Collision Data on California State Highways (road miles, travel, collisions, collision rates) as listed in Table 2.

Table 2: 2022 California State Highways Collision Rates

Lane Type	Total Collision Rate Per Million Vehicle Miles (3-year rates for 2020, 2021, and 2022)
2&3 Lanes	1.07
4 lanes (Undivided)	1.33
4 lanes (Divided)	0.99

### 3.0 RESULTS AND RECOMMENDATIONS

The recommendations contained in this report are intended to establish prima facie speed limits. Prima facie limits attempt to advise the motorist and enforcement of the reasonable speed for a particular section of roadway for the prevailing conditions. In many cases, the recommendations made produce a uniform speed limit along the road. As a result, the speed limits in adjacent jurisdictions were considered as well as along the various street segments surveyed within the City of Hercules.

The Engineering and Traffic Survey forms, presented in the Appendix, illustrate the results of a thorough evaluation of the available data and indicate a recommended speed limit for each of the street segments surveyed. A summary of the data analysis, along with recommended speed limits can be found in Table 3.

One segment is in a residential district which qualifies for a Prima Facie speed limit of 25 mph per CVC sections 22352. The segment was reviewed and confirmed in the field to confirm the adjacent land uses and roadway characteristics match the descriptions and definitions of a residential district as defined in CVC. It is recommended that the speed limit remain at 25 mph for the segment, as summarized in Table 3.

Table 3: Speed Survey Recommendations

No.	Street Segment	Existing Posted Speed Limit (mph)	Recom Speed Limit (mph)	85% Speed (mph)	Median Speed (mph)	10 mph Pace Range (mph)	% of Veh. In Pace	Justification
1	Alfred Nobel Drive between John Muir Parkway and End	35	35	35.6	31.3	27 - 36	76.0%	The 85th-percentile speed of 35.6 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 27-36 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.
2	Coronado Street between Refugio Valley Road and Carson Street	30	30	34.7	30.2	26 - 35	75.0%	The 85th-percentile speed of 34.7 indicates a 35 mph speed limit. The 10 mph pace ranges from 26-35 mph and the suggested speed limit falls within this range. The collision rate is higher than the expected statewide collision rate. Due to the higher than expected collision rate and presence of sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 30 mph.
3	John Muir Parkway between San Pablo Avenue and Alfred Nobel Drive	35	35	34.9	31.2	28 - 37	89.0%	The 85th-percentile speed of 34.9 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 28-37 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

No.	Street Segment	Existing Posted Speed Limit (mph)	Recom Speed Limit (mph)	85% Speed (mph)	Median Speed (mph)	10 mph Pace Range (mph)	% of Veh. In Pace	Justification
4	John Muir Parkway between Alfred Nobel Drive & Bayfront Boulevard	25	25	36.5	31.5	29 - 38	75.0%	Per CVC 22352, the segment can be classified as a "residence district" as it exceeds the ratio of contiguous property fronting by 13 or more separate dwelling houses per quarter mile. The residence district classification may be extended for the whole segment as the required ratio is maintained. Therefore, maintaining the current speed limit is justified and it is recommended that the posted speed limit remains at 25 mph.
5	Linus Pauling Drive between San Pablo Avenue and End	35	35	36.1	31.4	27 - 36	76.0%	The 85th-percentile speed of 36.1 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 27-36 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.
6	Refugio Valley Road between Sycamore Avenue and Partridge Drive	35	35	39.0	34.2	31 - 40	76.0%	The 85th-percentile speed of 39 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 31-40 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 35 mph.



No.	Street Segment	Existing Posted Speed Limit (mph)	Recom Speed Limit (mph)	85% Speed (mph)	Median Speed (mph)	10 mph Pace Range (mph)	% of Veh. In Pace	Justification
7	Refugio Valley Road between Partridge Drive & Falcon Way-Redwood Road	40	40	41.7	37.2	34 - 43	72.0%	The 85th-percentile speed of 41.7 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 34-43 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 40 mph.
8	Refugio Valley Boulevard between Falcon Way-Redwood Road and Bonaire Avenue	35	35	39.0	31.6	27 - 36	71.0%	The 85th-percentile speed of 39.0 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 27-36 mph and the suggested speed falls outside of this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 35 mph.
9	San Pablo Avenue between Willow Avenue and Linus Pauling Drive	40	40	47.6	40.8	36 - 45	67.0%	The 85th-percentile speed of 47.6 mph indicates a 45 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 36-45 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.

No.	Street Segment	Existing Posted Speed Limit (mph)	Recom Speed Limit (mph)	85% Speed (mph)	Median Speed (mph)	10 mph Pace Range (mph)	% of Veh. In Pace	Justification
10	San Pablo Avenue between Linus Pauling Drive and Sycamore Drive	40	40	49.0	42.8	37 - 46	65.0%	The 85th-percentile speed of 49.0 mph indicates a 45 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 37-46 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.
11	San Pablo Avenue between Sycamore Avenue and City Limits	40	40	50.0	44.3	40 - 49	71.0%	The 85th-percentile speed of 50.0 mph indicates a 45 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 40-49 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.
12	Sycamore Avenue between Civic Drive and Palm Avenue	35	35	36.5	32.3	28 - 37	81.0%	The 85th-percentile speed of 36.5 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 28-37 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

No.	Street Segment	Existing Posted Speed Limit (mph)	Recom Speed Limit (mph)	85% Speed (mph)	Median Speed (mph)	10 mph Pace Range (mph)	% of Veh. In Pace	Justification
13	Sycamore Avenue between Palm Avenue and SR-4 Ramps	40	40	44.0	38.6	35 - 44	73.0%	The 85th percentile speed of 44.0 mph indicates a 40 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 35-44 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 40 mph.
14	Turquoise Drive between Sycamore Avenue and Cinnabar Way	25	25	30.2	26.7	22 - 31	92.0%	The 85th-percentile speed of 30.2 mph indicates a 30 mph speed limit. The 10 mph pace ranges from 22-31 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 25 mph.
15	Willow Avenue between San Pablo Avenue and Canterbury Drive	40	40	44.0	38.4	34 - 43	70.0%	The 85th-percentile speed of 44.0 mph indicates a 45 mph speed limit. The 10 mph pace ranges from 34-43 mph and the suggested speed falls outside of this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.

No.	Street Segment	Existing Posted Speed Limit (mph)	Recom Speed Limit (mph)	85% Speed (mph)	Median Speed (mph)	10 mph Pace Range (mph)	% of Veh. In Pace	Justification
16	Willow Avenue between Canterbury Drive and Palm Avenue	35	35	33.8	29.7	26 - 35	84.0%	The 85th-percentile speed of 33.8 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 26-35 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.
17	Willow Avenue between Palm Avenue and Sycamore Avenue	35	35	41.0	36.4	31 - 40	70.0%	The 85th-percentile speed of 41.0 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 31-40 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

## Appendix

## Engineering and Traffic Survey Forms

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

1

**STREET:** Alfred Nobel Drive  
**FROM:** John Muir Parkway

**SURVEY DATE:** 12/3/2024  
**TO:** End

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	10:35 AM - 11:45 AM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	31.3 mph	Speed Limit Change	No
85th Percentile Speed	35.6 mph	Speed Justification	85h-percentile speed
10 mph Pace Speed	27 - 36 mph		
Percentage of Vehicles in Pace	76.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	0
Collision Rate (ACC/MVM)	0.00
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	2,458
Type of Traffic Control	Stop control at Linus Pauling Dr and John Muir Pkwy
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3215'
Width	50'-60'
Number of Lanes	NB - 1      SB - 1
Street Classification	Collector
Divided Median?	Yes - end to 315' south of Linus Pauling Dr, 285' north of John Muir Pkwy to John Muir Pkwy
Designated Bike Route?	No
Bike Lanes?	No
Uncontrolled Crosswalks?	No
On-Street Parking?	No
Sidewalks?	Yes - Continuous
Driveways?	Few
Vertical Curve	Yes - Continuous
Horizontal Curve	Yes - 400' North of John Muir Phwy
Visibility	Fair
Pavement Condition	Fair
Adjacent Land Use	Commercial

### COMMENTS

The 85th-percentile speed of 35.6 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 27-36 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

Date





# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

2

**STREET:** Coronado St  
**FROM:** Refugio Valley Rd

**SURVEY DATE:** 11/13/2024  
**TO:** Carson St

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	25 mph
Time of Speed Survey	1:30 PM - 3:30 PM	Recommended Speed Limit	25 mph
50th Percentile Speed (Mean Speed)	30.2 mph	Speed Limit Change	No
85th Percentile Speed	34.7 mph	Speed Justification	85th-percentile speed
10 mph Pace Speed	26 - 35 mph		downgrade due to
Percentage of Vehicles in Pace	75.0%		collision rate and CVC
Number of Survey Samples	100		22358.7

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	1
Collision Rate (ACC/MVM)	2.36
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	861
Type of Traffic Control	Stop control at Carson St
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	2,375
Width	40'
Number of Lanes	NB - 1      SB - 1
Street Classification	Local
Divided Median?	No
Designated Bike Route?	No
Bike Lanes?	No
Uncontrolled Crosswalks?	No
On-Street Parking?	No
Sidewalks?	Yes - Continuous
Driveways?	None
Vertical Curve	Yes - Continuous
Horizontal Curve	Yes - at Balboa Ct
Visibility	Fair
Pavement Condition	New
Adjacent Land Use	Residential

### COMMENTS

The 85th-percentile speed of 34.7 indicates a 35 mph speed limit. The 10 mph pace ranges from 26-35 mph and the suggested speed limit falls within this range. The collision rate is higher than the expected statewide collision rate. Due to the higher than expected collision rate and presence of sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 30 mph.

Approved and Authorized for release by City of Hercules, CA:

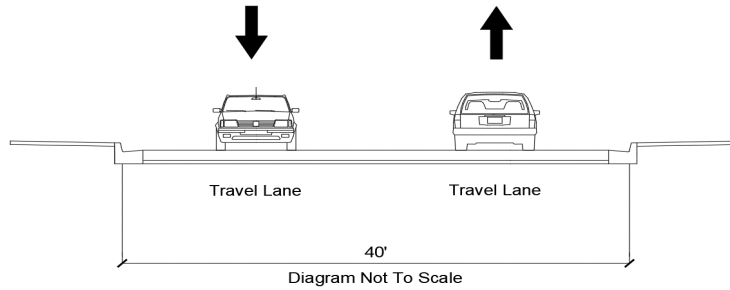
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** Coronado Street

**Limits:** Refugio Vallery Rd to Carson St

**Typical  
Cross-section**



**Radar Survey Sheet**

X = North / = South

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
							0		
55							0		
							0		
							0		
							0		
50							0		
							0		
							0		
							0		
45							0		
							0		
							0		
							0		
	X						1	1.0%	100.0%
							0		
40	/						1	1.0%	99.0%
	X /						2	2.0%	98.0%
	X						1	1.0%	96.0%
	X X						2	2.0%	95.0%
	X X X X						4	4.0%	93.0%
35	X X X X / /						6	6.0%	89.0%
	X X X X X /						6	6.0%	83.0%
	X X X X X X / / / /						10	10.0%	77.0%
	X X X X X / / / /						9	9.0%	67.0%
	X X X X X / / / /						10	10.0%	58.0%
30	X X X X X /						6	6.0%	48.0%
	X X / / /						5	5.0%	42.0%
	X X X X X / / / /						10	10.0%	37.0%
	X X X X / / /						7	7.0%	27.0%
	X X / / / /						6	6.0%	20.0%
25	/ / / /						4	4.0%	14.0%
	X X / / /						5	5.0%	10.0%
	/						1	1.0%	5.0%
	X /						2	2.0%	4.0%
	X						1	1.0%	2.0%
20	/						1	1.0%	1.0%
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		
Total Samples =							100		

**85th Percentile Speed:** 34.7 mph  
**50th Percentile Speed:** 30.2 mph  
**15th Percentile Speed:** 25.2 mph  
**10 MPH Pace:** 26 - 35  
**Number in Pace:** 75  
**Percent in Pace:** 75.0%

**Date of Survey:** 11/13/24  
**Weather:** Sunny  
**Pavement Condition:** New  
**Street Class.:** Local  
**Field Study by:** IDAX / KHA

**Start Time:** 1:30 PM  
**End Time:** 3:30 PM  
**Posted Speed:** 25 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

3

**STREET:** John Muir Pkwy  
**FROM:** San Pablo Avenue

**SURVEY DATE:** 12/3/2024  
**TO:** Alfred Nobel Drive

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	11:53 AM - 12:24 PM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	31.2 mph	Speed Limit Change	No
85th Percentile Speed	34.9 mph	Speed Justification	85th-percentile speed
10 mph Pace Speed	28 - 37 mph		
Percentage of Vehicles in Pace	89.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	3
Collision Rate (ACC/MVM)	0.35
Expected Collisions (ACC/MVM)	0.99

### TRAFFIC FACTORS

Average Daily Traffic	8,215
Type of Traffic Control	Traffic signal at San Pablo Ave, stop control at Alfred Nobel Dr
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	830'
Width	80'
Number of Lanes	EB - 2      WB - 2
Street Classification	Arterial
Divided Median?	Yes - continuous throughout segment
Designated Bike Route?	Yes
Bike Lanes?	Yes
Uncontrolled Crosswalks?	No
On-Street Parking?	No
Sidewalks?	Yes - continuous throughout segment
Driveways?	None
Vertical Curve	None
Horizontal Curve	Slight curve throughout segment
Visibility	Good
Pavement Condition	Fair
Adjacent Land Use	Commercial

### COMMENTS

The 85th-percentile speed of 34.9 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 28-37 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** San Pablo Avenue to Alfred Nobel Drive

Diagram Not To Scale

[illegible]

**Start Time:** 11:53 AM  
**End Time:** 12:24 PM  
**Posted**  
**Speed:** 35 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

4

**STREET:** John Muir Parkway  
**FROM:** Alfred Nobel Drive

**SURVEY DATE:** 11/14/2024  
**TO:** Bayfront Boulevard

### SPEED DATA

<b>Location of Speed Survey</b>		<b>Posted Speed Limit</b>	25 mph
<b>Time of Speed Survey</b>	10:25 AM - 11:10 AM	<b>Recommended Speed Limit</b>	25 mph
<b>50th Percentile Speed (Mean Speed)</b>	31.5 mph	<b>Speed Limit Change</b>	No
<b>85th Percentile Speed</b>	36.5 mph	<b>Speed Justification</b>	CVC 22352, residence district
<b>10 mph Pace Speed</b>	29 - 38 mph		
<b>Percentage of Vehicles in Pace</b>	75.0%		
<b>Number of Survey Samples</b>	100		

### COLLISION HISTORY

<b>Number of Years Studied</b>	3
<b>Total Collisions</b>	0
<b>Collision Rate (ACC/MVM)</b>	0.00
<b>Expected Collisions (ACC/MVM)</b>	1.07

### TRAFFIC FACTORS

<b>Average Daily Traffic</b>	2,628
<b>Type of Traffic Control</b>	Stop control at Alfred Nobel Dr
<b>Pedestrian Traffic</b>	Low
<b>Truck Traffic</b>	Low

### ROADWAY CHARACTERISTICS

<b>Length of Segment</b>	2625'
<b>Width</b>	50'-65'
<b>Number of Lanes</b>	EB - 1      WB - 1
<b>Street Classification</b>	Local
<b>Divided Median?</b>	Yes- raised medians from Tioga Loop to Alfred Nobel Dr
<b>Designated Bike Route?</b>	Yes
<b>Bike Lanes?</b>	Yes
<b>Uncontrolled Crosswalks?</b>	Yes - at Tsushima St, Tioga Loop, 300' east of Bayfront Blvd, and Bayfront Blvd
<b>On-Street Parking?</b>	Yes - from Bayfront Blvd to 620' east, and Tioga Loop to Alfred Nobel Drive
<b>Sidewalks?</b>	Yes - Continuous
<b>Driveways?</b>	Few
<b>Vertical Curve</b>	None
<b>Horizontal Curve</b>	Yes - at Tioga Loop
<b>Visibility</b>	Good
<b>Pavement Condition</b>	Fair
<b>Adjacent Land Use</b>	Residential, commercial

### COMMENTS

Per CVC 22352, the segment can be classified as a "residence district" as it exceeds the ratio of contiguous property fronting by 13 or more separate dwelling houses per quarter mile. The residence district classification may be extended for the whole segment as the required ratio is maintained. Therefore, maintaining the current speed limit is justified and it is recommended that the posted speed limit remains at 25 mph.

Approved and Authorized for release by City of Hercules, CA:

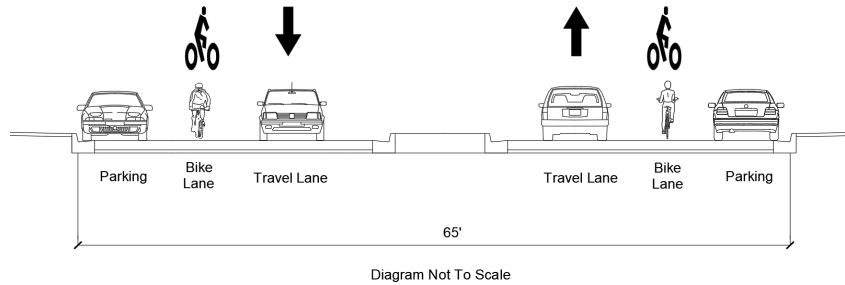
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** John Muir Parkway

**Limits:** Alfred Nobel Drive to Bayfront Boulevard

**Typical  
Cross-section**



**Radar Survey Sheet**

X = East / = West

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
							0		
55	X						1	1.0%	100.0%
							0		
							0		
50							0		
							0		
							0		
							0		
45	X						1	1.0%	99.0%
							0		
	/	/					2	2.0%	98.0%
	X						1	1.0%	96.0%
40	X	/					2	2.0%	95.0%
	X	/					2	2.0%	93.0%
	X	X	X	/			4	4.0%	91.0%
	X	X	/	/			4	4.0%	87.0%
	X	X	/	/			4	4.0%	83.0%
35	X	/	/	/	/	/	7	7.0%	79.0%
	X	X	X	/	/	/	8	8.0%	72.0%
	X	X	X	X	/	/	9	9.0%	64.0%
	X	X	X	X	/	/	10	10.0%	55.0%
	X	X	X	/	/	/	11	11.0%	45.0%
30	X	X	X	X	/	/	11	11.0%	34.0%
	X	X	X	/	/	/	7	7.0%	23.0%
	X	/					2	2.0%	16.0%
	X	X	/				3	3.0%	14.0%
	X	X	X	/	/	/	6	6.0%	11.0%
25	/	/					2	2.0%	5.0%
							0		
	X	X					2	2.0%	3.0%
	X						1	1.0%	1.0%
20							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 36.5 mph  
**50th Percentile Speed:** 31.5 mph  
**15th Percentile Speed:** 27.5 mph  
**10 MPH Pace:** 29 - 38  
**Number in Pace:** 75  
**Percent in Pace:** 75.0%

**Date of Survey:** 11/14/24  
**Weather:** Cloudy  
**Pavement Condition:** Fair  
**Street Class.:** Local  
**Field Study by:** IDAX / KHA

**Start Time:** 10:25 AM  
**End Time:** 11:10 AM  
**Posted Speed:** 25 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

5

**STREET:** Linus Pauling Drive  
**FROM:** San Pablo Avenue

**SURVEY DATE:** 11/19/2024  
**TO:** West end

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	1:10 PM - 2:30 PM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	31.4 mph	Speed Limit Change	No
85th Percentile Speed	36.1 mph	Speed Justification	85th-percentile speed
10 mph Pace Speed	27 - 36 mph		
Percentage of Vehicles in Pace	76.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	0
Collision Rate (ACC/MVM)	0.00
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	1,358
Type of Traffic Control	Stop control at Alfred Nobel Dr
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3115'
Width	45'-65'
Number of Lanes	EB - 1      WB - 1
Street Classification	Collector
Divided Median?	Yes- discontinuous raised medians from 275' west of Alfred Nobel Dr to San Pablo Ave
Designated Bike Route?	None
Bike Lanes?	None
Uncontrolled Crosswalks?	None
On-Street Parking?	Yes - from west end to 450' west of Alfred Nobel Dr
Sidewalks?	Yes - Continuous
Driveways?	Moderate
Vertical Curve	Yes - Continuous
Horizontal Curve	Yes - at James Watson Dr
Visibility	Fair
Pavement Condition	Fair
Adjacent Land Use	Commercial

### COMMENTS

The 85th-percentile speed of 36.1 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 27-36 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** San Pablo Avenue to West end

The diagram illustrates a cross-section of a two-lane road. Two vehicles are shown, one in each lane, facing each other. Above the left vehicle is a downward-pointing arrow, and above the right vehicle is an upward-pointing arrow. The road surface is labeled "Travel Lane" on both sides. A dimension line at the bottom indicates a width of "45'-65'". Below the diagram, the text "Diagram Not To Scale" is written.

[illegible]

**Start Time:** 1:10 PM  
**End Time:** 2:30 PM  
**Posted**  
**Speed:** 35 mph



# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

6

**STREET:** Refugio Valley Road  
**FROM:** Sycamore Avenue

**SURVEY DATE:** 11/13/2024  
**TO:** Partridge Drive

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	11:13 AM - 11:45 AM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	34.2 mph	Speed Limit Change	No
85th Percentile Speed	39.0 mph	Speed Justification	85th-percentile rate downgraded due to CVC 22358.7
10 mph Pace Speed	31 - 40 mph		
Percentage of Vehicles in Pace	76.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	1
Collision Rate (ACC/MVM)	0.14
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	10,900
Type of Traffic Control	Traffic signals at Sycamore Ave, Pheasant Dr, and Partridge Dr
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3210'
Width	60'-65'
Number of Lanes	EB - 1/2    WB - 1/2
Street Classification	Arterial
Divided Median?	Yes- continuous raised medians between Sycamore Ave and Lavender Pl
Designated Bike Route?	Yes
Bike Lanes?	Yes, eastbound from Pheasant Dr to Partridge Dr and westbound from Partridge Dr to Country Run
Uncontrolled Crosswalks?	None
On-Street Parking?	Yes - discontinuous throughout segment
Sidewalks?	Yes - continuous westbound, between Sycamore Ave and Pheasant Dr eastbound
Driveways?	Few
Vertical Curve	Continuous slight uphill
Horizontal Curve	Yes - slight throughout the segment
Visibility	Fair
Pavement Condition	Fair
Adjacent Land Use	Commercial, Recreational, Residential

### COMMENTS

The 85th-percentile speed of 39 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 31-40 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

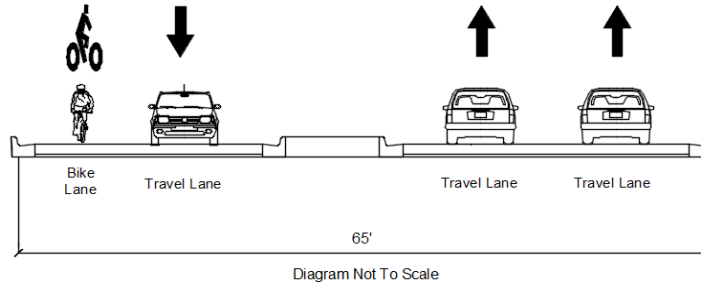
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** Refugio Valley Road

**Limits:** Sycamore Avenue to Partridge Drive

**Typical  
Cross-section**



**Radar Survey Sheet**

X = East / = West

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
							0		
55	X						1	1.0%	100.0%
							0		
							0		
							0		
50	X						1	1.0%	99.0%
							0		
	X						1	1.0%	98.0%
	X						1	1.0%	97.0%
45							0		
	X						1	1.0%	96.0%
	X						1	1.0%	95.0%
	X /						2	2.0%	94.0%
	X X /						3	3.0%	92.0%
40	X X / /						4	4.0%	89.0%
	X X / /						4	4.0%	85.0%
	X X / / /						5	5.0%	81.0%
	X X X / / / /						9	9.0%	76.0%
	X X X X / / / / /						10	10.0%	67.0%
35	X X X X X / / / / /						9	9.0%	57.0%
	X X X X X X X / / / / /						11	11.0%	48.0%
	X X X X / / / / /						9	9.0%	37.0%
	X X X / / / / /						8	8.0%	28.0%
	X X X / / / / /						7	7.0%	20.0%
30	X / /						3	3.0%	13.0%
	X X /						3	3.0%	10.0%
	X X						2	2.0%	7.0%
	X X /						3	3.0%	5.0%
	/						1	1.0%	2.0%
25	/						1	1.0%	1.0%
							0		
							0		
							0		
							0		
20							0		
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 39.0 mph  
**50th Percentile Speed:** 34.2 mph  
**15th Percentile Speed:** 30.3 mph  
**10 MPH Pace:** 31 - 40  
**Number in Pace:** 76  
**Percent in Pace:** 76.0%

**Date of Survey:** 11/13/24  
**Weather:** Sunny  
**Pavement Condition:** Fair  
**Street Class.:** Arterial  
**Field Study by:** IDAX / KHA

**Start Time:** 11:13 AM  
**End Time:** 11:45 AM  
**Posted Speed:** 35 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

7

**STREET:** Refugio Valley Road  
**FROM:** Partridge Drive

**SURVEY DATE:** 11/13/2024  
**TO:** Falcon Way and Redwood Rd

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	40 mph
Time of Speed Survey	11:50 AM - 12:25 PM	Recommended Speed Limit	40 mph
50th Percentile Speed (Mean Speed)	37.2 mph	Speed Limit Change	No
85th Percentile Speed	41.7 mph	Speed Justification	85th-percentile speed
10 mph Pace Speed	34 - 43 mph		
Percentage of Vehicles in Pace	72.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	4
Collision Rate (ACC/MVM)	0.49
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	8,218
Type of Traffic Control	Traffic signals at Partridge Dr, Hercules Middle & High School, and Community Center; roundabout at Redwood Rd
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	4770'
Width	55'
Number of Lanes	EB - 1      WB - 1
Street Classification	Arterial
Divided Median?	Yes - continuous throughout segment
Designated Bike Route?	Yes
Bike Lanes?	Yes
Uncontrolled Crosswalks?	Yes - 700' west of Community Center
On-Street Parking?	No
Sidewalks?	Yes - continuous throughout segment
Driveways?	Few
Vertical Curve	Continuous slight uphill
Horizontal Curve	No
Visibility	Fair
Pavement Condition	Fair
Adjacent Land Use	School, community center

### COMMENTS

The 85th-percentile speed of 41.7 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 34-43 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 40 mph.

Approved and Authorized for release by City of Hercules, CA:

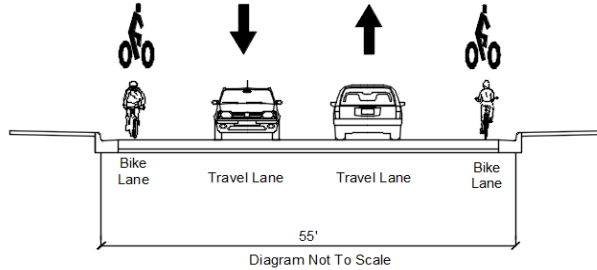
Date

**City of Hercules**  
**Transportation Services Division**

**Street Name:** Refugio Valley Road

**Limits:** Partridge Drive to Falcon Way and Redwood Rd

**Typical  
Cross-section**



**Radar Survey Sheet**

X = East / = West

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
							0		
55							0		
							0		
							0		
	X						1	1.0%	100.0%
							0		
50							0		
							0		
	X	X					2	2.0%	99.0%
	X	/					2	2.0%	97.0%
							0		
45	X						1	1.0%	95.0%
	X	X					2	2.0%	94.0%
	X	X	X	X	X		5	5.0%	92.0%
	X	X	X	X	X	/	7	7.0%	87.0%
	X	X	X	X	X	/ / / /	9	9.0%	80.0%
40	X	X	X	X	X	X / / / / / /	12	12.0%	71.0%
	X	X	X	/	/		5	5.0%	59.0%
	X	X	X	/	/		5	5.0%	54.0%
	X	X	X	/	/	/ /	7	7.0%	49.0%
	X	X	/	/	/	/ / /	8	8.0%	42.0%
35	X	/	/	/	/	/ /	7	7.0%	34.0%
	X	/	/	/	/	/ /	7	7.0%	27.0%
	/	/	/	/			4	4.0%	20.0%
	X	/	/	/	/		5	5.0%	16.0%
	X	/					2	2.0%	11.0%
30	X	X	X	/			4	4.0%	9.0%
	X	/					2	2.0%	5.0%
							0		
	/						1	1.0%	3.0%
							0		
25	/						1	1.0%	2.0%
							0		
	/						1	1.0%	1.0%
							0		
							0		
20							0		
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 41.7 mph  
**50th Percentile Speed:** 37.2 mph  
**15th Percentile Speed:** 31.8 mph  
**10 MPH Pace:** 34 - 43  
**Number in Pace:** 72  
**Percent in Pace:** 72.0%

**Date of Survey:** 11/13/24  
**Weather:** Sunny  
**Pavement Condition:** Fair  
**Street Class.:** Arterial  
**Field Study by:** IDAX / KHA

**Start Time:** 11:50 AM  
**End Time:** 12:25 PM  
**Posted Speed:** 40 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

8

**STREET:** Refugio Valley Road  
**FROM:** Falcon Way and Redwood Rd

**SURVEY DATE:** 11/13/2024  
**TO:** Bonaire Avenue

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	12:35 PM - 1:25 PM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	31.6 mph	Speed Limit Change	No
85th Percentile Speed	39.0 mph	Speed Justification	85th-percentile speed downgraded due to CVC 22358.7
10 mph Pace Speed	27 - 36 mph		
Percentage of Vehicles in Pace	71.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	3
Collision Rate (ACC/MVM)	0.62
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	4,401
Type of Traffic Control	Roundabout at Redwood Rd, stop control at Carson St
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	5265'
Width	40'-60'
Number of Lanes	EB - 1      WB - 1
Street Classification	Arterial
Divided Median?	Yes - Continuous raised medians until 100' east of Mandalay Ave
Designated Bike Route?	No
Bike Lanes?	No
Uncontrolled Crosswalks?	Yes - east of Redwood Rd, Coronado St, Southwind Dr, Midship Dr, Malibu Dr
On-Street Parking?	Yes - continuous eastbound
Sidewalks?	Yes - continuous throughout segment
Driveways?	None
Vertical Curve	Continuous throughout corridor
Horizontal Curve	No
Visibility	Fair
Pavement Condition	Fair
Adjacent Land Use	School, residential

### COMMENTS

The 85th-percentile speed of 39.0 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 27-36 mph and the suggested speed falls outside of this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** Falcon Way and Redwood Rd to Bonaire Avenue

Diagram Not To Scale

X = East / = West

**Start Time:** 12:35 PM  
**End Time:** 1:25 PM  
**Posted**  
**Speed:** 35 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

9

**STREET:** San Pablo Avenue  
**FROM:** City Limits at 100 yds W/O Willow Ave

**SURVEY DATE:** 11/14/2024  
**TO:** Linus Pauling Dr

### SPEED DATA

<b>Location of Speed Survey</b>		<b>Posted Speed Limit</b>	40 mph
<b>Time of Speed Survey</b>	11:20 AM - 11:40 AM	<b>Recommended Speed Limit</b>	40 mph
<b>50th Percentile Speed (Mean Speed)</b>	40.8 mph	<b>Speed Limit Change</b>	No
<b>85th Percentile Speed</b>	47.6 mph	<b>Speed Justification</b>	85th-percentile speed
<b>10 mph Pace Speed</b>	36 - 45 mph		dowgraded due to bike
<b>Percentage of Vehicles in Pace</b>	67.0%		lanes, sidewalks, and
<b>Number of Survey Samples</b>	100		CVC 22358.6

### COLLISION HISTORY

<b>Number of Years Studied</b>	3
<b>Total Collisions</b>	3
<b>Collision Rate (ACC/MVM)</b>	0.62
<b>Expected Collisions (ACC/MVM)</b>	1.33

### TRAFFIC FACTORS

<b>Average Daily Traffic</b>	8,565
<b>Type of Traffic Control</b>	Traffic signal at Victoria Cres W
<b>Pedestrian Traffic</b>	Low
<b>Truck Traffic</b>	Low

### ROADWAY CHARACTERISTICS

<b>Length of Segment</b>	2735'
<b>Width</b>	60'-90'
<b>Number of Lanes</b>	SB - 2/3    NB - 2
<b>Street Classification</b>	Arterial
<b>Divided Median?</b>	Yes- Continuous raised medians until north of Craftsman Dr
<b>Designated Bike Route?</b>	Yes
<b>Bike Lanes?</b>	Yes
<b>Uncontrolled Crosswalks?</b>	No
<b>On-Street Parking?</b>	No
<b>Sidewalks?</b>	Yes
<b>Driveways?</b>	None
<b>Vertical Curve</b>	Continuous throughout segment
<b>Horizontal Curve</b>	No
<b>Visibility</b>	Fair
<b>Pavement Condition</b>	Fair
<b>Adjacent Land Use</b>	Residential

### COMMENTS

The 85th-percentile speed of 47.6 mph indicates a 45 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 36-45 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.

Approved and Authorized for release by City of Hercules, CA:

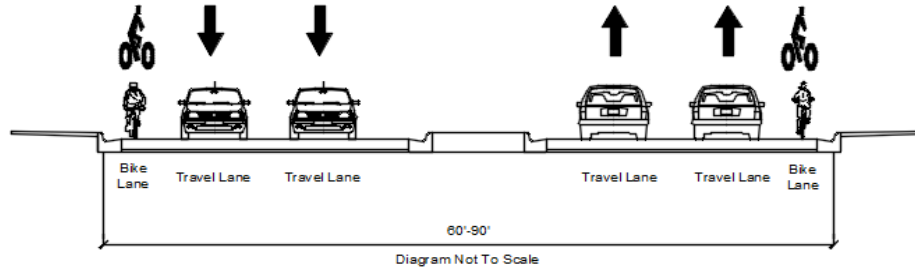
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** San Pablo Avenue

**Limits:** City Limits at 100 yds W/O Willow Ave to Linus Pauling Dr

**Typical  
Cross-section**



**Radar Survey Sheet**

X = North / = South

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
	X /						2	2.0%	100.0%
55	X / /						3	3.0%	98.0%
	X						1	1.0%	95.0%
							0		
	/						1	1.0%	94.0%
	/ /						2	2.0%	93.0%
50	X						1	1.0%	91.0%
	X / /						3	3.0%	90.0%
	X X / / /						5	5.0%	87.0%
	X / / / /						5	5.0%	82.0%
	X X / / /						5	5.0%	77.0%
45	X X X / / / /						7	7.0%	72.0%
	X X X X / /						6	6.0%	65.0%
	X X X /						4	4.0%	59.0%
	X / /						3	3.0%	55.0%
	X X X X / / / /						9	9.0%	52.0%
40	X X X X / / / /						9	9.0%	43.0%
	X X X / / / / /						8	8.0%	34.0%
	X X X X X / / / /						9	9.0%	26.0%
	X X X X X / /						7	7.0%	17.0%
	X / / / /						5	5.0%	10.0%
35	X X						2	2.0%	5.0%
	X						1	1.0%	3.0%
	X						1	1.0%	2.0%
							0		
30	X						1	1.0%	1.0%
							0		
							0		
							0		
							0		
25							0		
							0		
							0		
							0		
							0		
20							0		
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 47.6 mph  
**50th Percentile Speed:** 40.8 mph  
**15th Percentile Speed:** 36.7 mph  
**10 MPH Pace:** 36 - 45  
**Number in Pace:** 67  
**Percent in Pace:** 67.0%

**Date of Survey:** 11/14/24  
**Weather:** Sunny  
**Pavement Condition:** Fair  
**Street Class.:** Arterial  
**Field Study by:** IDAX / KHA

**Start Time:** 11:20 AM  
**End Time:** 11:40 AM  
**Posted Speed:** 40 mph



# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

10

**STREET:** San Pablo Avenue  
**FROM:** Linus Pauling Drive

**SURVEY DATE:** 12/3/2024  
**TO:** Sycamore Avenue

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	40 mph
Time of Speed Survey	12:39 PM - 1:01 PM	Recommended Speed Limit	40 mph
50th Percentile Speed (Mean Speed)	42.8 mph	Speed Limit Change	No
85th Percentile Speed	49.0 mph	Speed Justification	85th-percentile speed
10 mph Pace Speed	37 - 46 mph		dowgraded due to bike
Percentage of Vehicles in Pace	65.0%		lanes, sidewalks, and
Number of Survey Samples	100		CVC 22358.6

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	8
Collision Rate (ACC/MVM)	1.17
Expected Collisions (ACC/MVM)	0.99

### TRAFFIC FACTORS

Average Daily Traffic	10,887
Type of Traffic Control	Traffic signal at John Muir Pkwy, Sycamore Ave
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3020'
Width	70'-90'
Number of Lanes	SB - 2      NB - 2
Street Classification	Arterial
Divided Median?	Yes - continuous raised medians throughout segment
Designated Bike Route?	Yes
Bike Lanes?	Yes
Uncontrolled Crosswalks?	No
On-Street Parking?	No
Sidewalks?	Yes - southbound from Linus Pauling to John Muir Pkwy, northbound from Sycamore Ave to John Muir Pkwy
Driveways?	None
Vertical Curve	Continuous throughout segment
Horizontal Curve	Slight curve throughout the segment
Visibility	Fair
Pavement Condition	Moderate
Adjacent Land Use	Residential, commercial

### COMMENTS

The 85th-percentile speed of 49.0 mph indicates a 45 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 37-46 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.

Approved and Authorized for release by City of Hercules, CA:

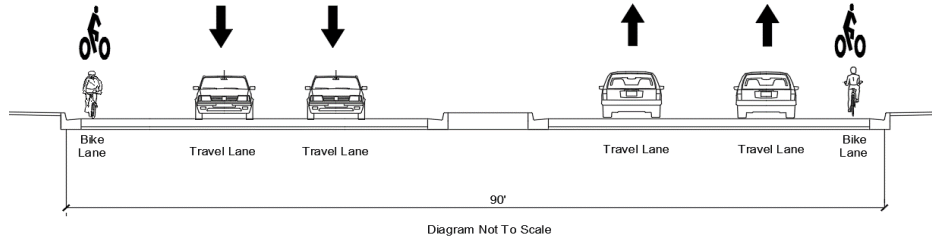
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** San Pablo Avenue

**Limits:** Linus Pauling Drive to Sycamore Avenue

**Typical  
Cross-section**



**Radar Survey Sheet**

X = North / = South

	5	10	15	20	25	30			
60							0		
							0		
							0		
	/						1	1.0%	100.0%
	X	X	X				3	3.0%	99.0%
55							0		
	X						1	1.0%	96.0%
	/						1	1.0%	95.0%
	X	X	X				3	3.0%	94.0%
	X	X	X	/			4	4.0%	91.0%
50	X	/					2	2.0%	87.0%
	X	X	/	/	/		6	6.0%	85.0%
	X	X	/				3	3.0%	79.0%
	X	X	/	/			4	4.0%	76.0%
	X	X	X	X	X	/	9	9.0%	72.0%
45	X	X	/	/	/	/	6	6.0%	63.0%
	X	X	X	/	/	/	6	6.0%	57.0%
	X	X	X	X	/	/	6	6.0%	51.0%
	X	X	X	/	/	/	7	7.0%	45.0%
	X	X	X	X	/	/	8	8.0%	38.0%
40	X	X	/	/	/	/	7	7.0%	30.0%
	X	X	X	X	/	/	8	8.0%	23.0%
	X	X	/	/			4	4.0%	15.0%
	X	X	/	/			4	4.0%	11.0%
	/	/					2	2.0%	7.0%
35	X	X	/				3	3.0%	5.0%
	/						1	1.0%	2.0%
	/						1	1.0%	1.0%
							0		
							0		
30							0		
							0		
							0		
							0		
							0		
25							0		
							0		
							0		
							0		
							0		
20							0		
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 49.0 mph  
**50th Percentile Speed:** 42.8 mph  
**15th Percentile Speed:** 38.0 mph  
**10 MPH Pace:** 37 - 46  
**Number in Pace:** 65  
**Percent in Pace:** 65.0%

**Date of Survey:** 12/3/24  
**Weather:** Sunny  
**Pavement Condition:** Moderate  
**Street Class.:** Arterial  
**Field Study by:** IDAX / KHA

**Start Time:** 12:39 PM  
**End Time:** 1:01 PM  
**Posted Speed:** 40 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

11

**STREET:** San Pablo Avenue  
**FROM:** Sycamore Avenue

**SURVEY DATE:** 12/3/2024  
**TO:** South City Limit

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	40 mph
Time of Speed Survey	1:09 PM - 1:30 PM	Recommended Speed Limit	40 mph
50th Percentile Speed (Mean Speed)	44.3 mph	Speed Limit Change	No
85th Percentile Speed	50.0 mph	Speed Justification	85th-percentile speed downgraded due to bike lanes, sidewalks, and CVC 22358.6
10 mph Pace Speed	40 - 49 mph		
Percentage of Vehicles in Pace	71.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	4
Collision Rate (ACC/MVM)	0.24
Expected Collisions (ACC/MVM)	1.33

### TRAFFIC FACTORS

Average Daily Traffic	18,470
Type of Traffic Control	Traffic signal at Sycamore Ave and Hercules Ave
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

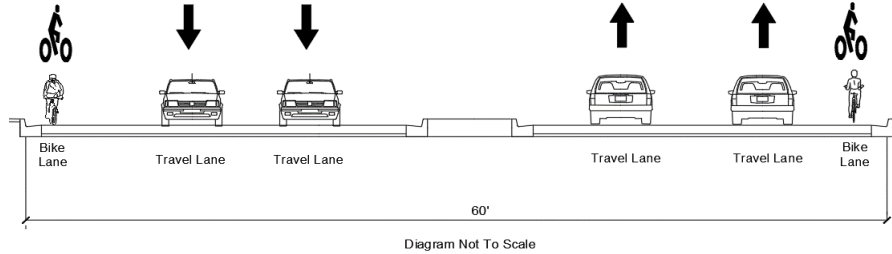
Length of Segment	4320'
Width	60'-65'
Number of Lanes	SB - 2      NB - 2
Street Classification	Arterial
Divided Median?	Yes - Raised medians from Sycamore Ave to Tsushima St, and Hercules Ave to end of segment
Designated Bike Route?	Yes
Bike Lanes?	Yes - from Sycamore Ave to Hercules Ave
Uncontrolled Crosswalks?	No
On-Street Parking?	No
Sidewalks?	Yes - continuous northbound, southbound from Tsushima St to South City Limit
Driveways?	None
Vertical Curve	Continuous throughout segment
Horizontal Curve	No
Visibility	Fair
Pavement Condition	Fair
Adjacent Land Use	Residential, commercial

### COMMENTS

The 85th-percentile speed of 50.0 mph indicates a 45 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 40-49 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.8. Therefore, it is recommended that the posted speed limit remains at 40 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** Sycamore Avenue to South City Limit[illegible]

**Start Time:** 1:09 PM  
**End Time:** 1:30 PM  
**Posted**  
**Speed:** 40 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

12

**STREET:** Sycamore Avenue  
**FROM:** Civic Drive

**SURVEY DATE:** 11/13/2024  
**TO:** Palm Avenue

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	10:30 AM - 11:06 AM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	32.3 mph	Speed Limit Change	No
85th Percentile Speed	36.5 mph	Speed Justification	85th-percentile speed
10 mph Pace Speed	28 - 37 mph		
Percentage of Vehicles in Pace	81.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	2
Collision Rate (ACC/MVM)	0.46
Expected Collisions (ACC/MVM)	0.99

### TRAFFIC FACTORS

Average Daily Traffic	7,066
Type of Traffic Control	Stop control at Redwood Rd, Lupine Rd, and Palm Ave
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	2950'
Width	80'
Number of Lanes	EB - 1/2    WB - 1/2
Street Classification	Arterial
Divided Median?	Yes - Raised medians throughout segment
Designated Bike Route?	Yes - throughout segment
Bike Lanes?	Yes - throughout segment
Uncontrolled Crosswalks?	Yes - at Civic Dr
On-Street Parking?	Yes - between Civic Dr and Redwood Rd
Sidewalks?	Yes - throughout segment
Driveways?	None
Vertical Curve	Yes - downhill east of Redwood Rd
Horizontal Curve	Yes - throughout segment
Visibility	Good
Pavement Condition	Fair
Adjacent Land Use	Residential, commercial, City Hall

### COMMENTS

The 85th-percentile speed of 36.5 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 28-37 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

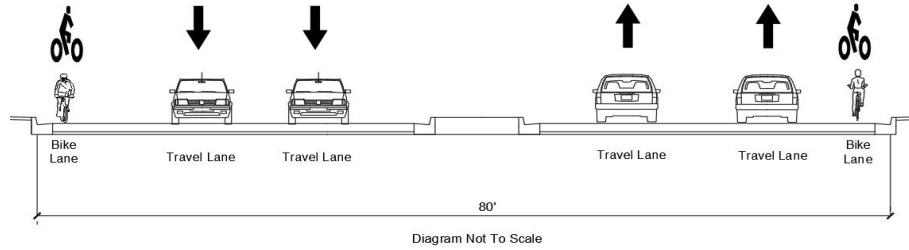
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** Sycamore Avenue

**Limits:** Civic Drive to Palm Avenue

**Typical  
Cross-section**



**Radar Survey Sheet**

X = East / = West

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
							0		
55							0		
							0		
							0		
							0		
							0		
50							0		
	X						1	1.0%	100.0%
							0		
	X						1	1.0%	99.0%
							0		
45							0		
							0		
							0		
	/						1	1.0%	98.0%
	X	/					2	2.0%	97.0%
40	X	X					2	2.0%	95.0%
	X	/					2	2.0%	93.0%
	/	/	/				3	3.0%	91.0%
	X	/	/	/	/		6	6.0%	88.0%
	X	X	/	/			4	4.0%	82.0%
35	X	X	X	X	X	/	8	8.0%	78.0%
	X	X	X	X	X	X	12	12.0%	70.0%
	X	X	X	X	X	/	11	11.0%	58.0%
	X	X	X	X	X	/	12	12.0%	47.0%
	X	X	X	X	X	/	9	9.0%	35.0%
30	X	X	X	/	/	/	8	8.0%	26.0%
	X	X	X	/	/		5	5.0%	18.0%
	X	X	/	/	/		6	6.0%	13.0%
	X	X	X	/	/		5	5.0%	7.0%
	X						1	1.0%	2.0%
25							0		
							0		
	X						1	1.0%	1.0%
							0		
							0		
20							0		
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 36.5 mph  
**50th Percentile Speed:** 32.3 mph  
**15th Percentile Speed:** 28.4 mph  
**10 MPH Pace:** 28 - 37  
**Number in Pace:** 81  
**Percent in Pace:** 81.0%

**Date of Survey:** 11/13/24  
**Weather:** Cloudy  
**Pavement Condition:** Fair  
**Street Class.:** Arterial  
**Field Study by:** IDAX / KHA

**Start Time:** 10:30 AM  
**End Time:** 11:06 AM  
**Posted Speed:** 35 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

13

**STREET:** Sycamore Avenue  
**FROM:** Palm Avenue

**SURVEY DATE:** 11/14/2024  
**TO:** City limits at 500 yds W/O SR-4 Ramps

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	40 mph
Time of Speed Survey	9:30 AM - 10:00 AM	Recommended Speed Limit	40 mph
50th Percentile Speed (Mean Speed)	38.6 mph	Speed Limit Change	No
85th Percentile Speed	44.0 mph	Speed Justification	85th-percentile speed reduced per CVC 22358.6
10 mph Pace Speed	35 - 44 mph		
Percentage of Vehicles in Pace	73.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	0
Collision Rate (ACC/MVM)	0.00
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	2,800
Type of Traffic Control	Stop control at Palm Ave and SR-4 Ramps
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3390'
Width	30'-40'
Number of Lanes	EB - 1      WB - 1
Street Classification	Collector
Divided Median?	No
Designated Bike Route?	No
Bike Lanes?	No
Uncontrolled Crosswalks?	No
On-Street Parking?	No
Sidewalks?	No
Driveways?	None
Vertical Curve	Yes - slight vertical curves throughout segment
Horizontal Curve	Yes - at 1550' and 2250' east of Palm Ave
Visibility	Good
Pavement Condition	Fair
Adjacent Land Use	N/A

### COMMENTS

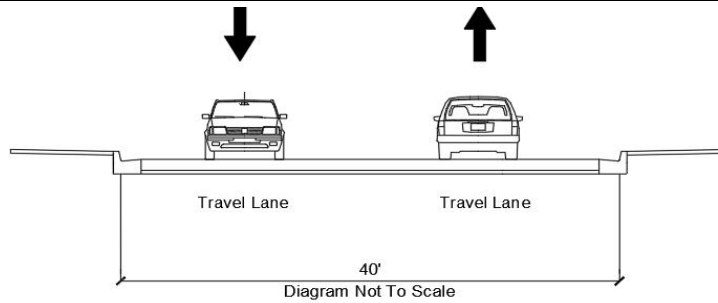
The 85th percentile speed of 44.0 mph indicates a 40 mph speed limit per CVC 22358.6. The 10 mph pace ranges from 35-44 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 40 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** Palm Avenue to City limits at 500 yds W/O SR-4 Ramps

## Typical Cross-section



## Radar Survey Sheet

X = East / = West

[illegible]

Total Samples =	100
-----------------	-----

85th Percentile Speed:	44.0 mph
50th Percentile Speed:	38.6 mph
15th Percentile Speed:	34.8 mph
10 MPH Pace:	35 - 44
Number in Pace:	73
Percent in Pace:	73.0%

Date of Survey:	11/14/24
Weather:	Cloudy
Pavement Condition:	Fair
Street Class.:	Collector
Field Study by:	IDAX / KHA

**Start Time:** 9:30 AM  
**End Time:** 10:00 AM  
**Posted**  
**Speed:** 40 mph



# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

14

**STREET:** Turquoise Drive  
**FROM:** Sycamore Avenue

**SURVEY DATE:** 11/19/2024  
**TO:** Cinnabar Way

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	25 mph
Time of Speed Survey	2:40 PM - 3:10 PM	Recommended Speed Limit	25 mph
50th Percentile Speed (Mean Speed)	26.7 mph	Speed Limit Change	No
85th Percentile Speed	30.2 mph	Speed Justification	85th-percentile speed downgraded due to presence of sidewalks
10 mph Pace Speed	22 - 31 mph		
Percentage of Vehicles in Pace	92.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	1
Collision Rate (ACC/MVM)	0.35
Expected Collisions (ACC/MVM)	1.33

### TRAFFIC FACTORS

Average Daily Traffic	4,075
Type of Traffic Control	Traffic signal at Sycamore Ave, stop control at Park Lake Plaza, Crystal Cir (South), Cinnabar Way
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	1840'
Width	60'
Number of Lanes	NB - 2      SB - 2
Street Classification	Collector
Divided Median?	Yes - between Sycamore Ave and Crystal Cir
Designated Bike Route?	No
Bike Lanes?	No
Uncontrolled Crosswalks?	No
On-Street Parking?	Yes - continuous throughout segment
Sidewalks?	Yes
Driveways?	Few
Vertical Curve	Yes - throughout segment
Horizontal Curve	Yes - at Jasper Ct and park Lake Plaza
Visibility	Good
Pavement Condition	Fair
Adjacent Land Use	Commercial, Residential, School

### COMMENTS

The 85th-percentile speed of 30.2 mph indicates a 30 mph speed limit. The 10 mph pace ranges from 22-31 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 25 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** Sycamore Avenue to Cinnabar Way

The diagram shows a 60-foot wide road layout. From left to right, the lanes are: Parking, Travel Lane, Travel Lane, Travel Lane, Travel Lane, and Parking. The first Travel Lane has a downward arrow above it, indicating traffic flow towards the center. The second Travel Lane has a downward arrow above it, indicating traffic flow towards the center. The third Travel Lane has an upward arrow above it, indicating traffic flow away from the center. The fourth Travel Lane has an upward arrow above it, indicating traffic flow away from the center. The fifth Travel Lane has an upward arrow above it, indicating traffic flow away from the center. The sixth Travel Lane has an upward arrow above it, indicating traffic flow away from the center. The total width of the road is 60 feet. Below the diagram, it says "Diagram Not To Scale".

X = North / = South

**Start Time:** 2:40 PM  
**End Time:** 3:10 PM  
**Posted**  
**Speed:** 25 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

15

**STREET:** Willow Avenue  
**FROM:** San Pablo Avenue

**SURVEY DATE:** 11/19/2024  
**TO:** Canterbury Drive

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	40 mph
Time of Speed Survey	3:35 PM - 3:55 PM	Recommended Speed Limit	40 mph
50th Percentile Speed (Mean Speed)	38.4 mph	Speed Limit Change	No
85th Percentile Speed	44.0 mph	Speed Justification	85th-percentile speed downgraded due to presence of bike lanes and sidewalks
10 mph Pace Speed	34 - 43 mph		
Percentage of Vehicles in Pace	70.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	2
Collision Rate (ACC/MVM)	0.16
Expected Collisions (ACC/MVM)	1.33

### TRAFFIC FACTORS

Average Daily Traffic	14,980
Type of Traffic Control	Traffic signals at San Pablo Ave, Hawthorne Dr, I-80 S Off-Ramp, I-80 N On-Ramp; stop control at Canterbury Dr
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	4100'
Width	65'-80'
Number of Lanes	NB - 2      SB - 2
Street Classification	Arterial
Divided Median?	Yes - between I-80 ramps and Canterbury Drive
Designated Bike Route?	Yes - on northbound side
Bike Lanes?	Yes - on northbound side
Uncontrolled Crosswalks?	No
On-Street Parking?	Yes - on southbound side south of I-80 ramps
Sidewalks?	Yes - discontinuous throughout the corridor
Driveways?	Few
Vertical Curve	No
Horizontal Curve	Yes - at Hawthorne Dr
Visibility	Good
Pavement Condition	Fair
Adjacent Land Use	Commercial, Residential

### COMMENTS

The 85th-percentile speed of 44.0 mph indicates a 45 mph speed limit. The 10 mph pace ranges from 34-43 mph and the suggested speed falls outside of this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Therefore, it is recommended that the posted speed limit remains at 40 mph.

Approved and Authorized for release by City of Hercules, CA:

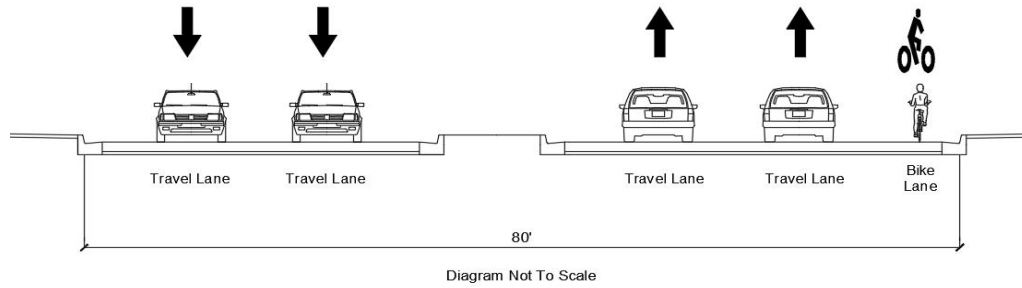
Date

**City of Hercules  
Transportation Services Division**

**Street Name:** Willow Avenue

**Limits:** San Pablo Avenue to Canterbury Drive

**Typical  
Cross-section**



**Radar Survey Sheet**

X = North / = South

	5	10	15	20	25	30			
60							0		
							0		
							0		
							0		
							0		
55							0		
X							1	1.0%	100.0%
X X							2	2.0%	99.0%
							0		
							0		
50							0		
X							1	1.0%	97.0%
X X /							3	3.0%	96.0%
X /							2	2.0%	93.0%
X							1	1.0%	91.0%
45	X X / / /						5	5.0%	90.0%
/							1	1.0%	85.0%
X X X X / /							6	6.0%	84.0%
X X X X X / / / /							10	10.0%	78.0%
X X X X X / /							7	7.0%	68.0%
40	X / / / / /						6	6.0%	61.0%
X X X X X / / /							8	8.0%	55.0%
X X / / /							5	5.0%	47.0%
X X X X / / / / / / /							11	11.0%	42.0%
X X X X X X / /							8	8.0%	31.0%
35	X X / / /						4	4.0%	23.0%
X X / / /							5	5.0%	19.0%
X X / / /							5	5.0%	14.0%
X / /							3	3.0%	9.0%
/							1	1.0%	6.0%
30	/						1	1.0%	5.0%
/							1	1.0%	4.0%
X /							2	2.0%	3.0%
							0		
							0		
25	/						1	1.0%	1.0%
							0		
							0		
							0		
							0		
20							0		
							0		
							0		
							0		
							0		
15							0		
							0		
							0		
							0		
							0		
10							0		
							0		

Total Samples = 100

**85th Percentile Speed:** 44.0 mph  
**50th Percentile Speed:** 38.4 mph  
**15th Percentile Speed:** 33.2 mph  
**10 MPH Pace:** 34 - 43  
**Number in Pace:** 70  
**Percent in Pace:** 70.0%

**Date of Survey:** 11/19/24  
**Weather:** Cloudy  
**Pavement Condition:** Fair  
**Street Class.:** Arterial  
**Field Study by:** IDAX / KHA

**Start Time:** 3:35 PM  
**End Time:** 3:55 PM  
**Posted Speed:** 40 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

16

**STREET:** Willow Avenue  
**FROM:** Canterbury Drive

**SURVEY DATE:** 11/19/2024  
**TO:** Palm Avenue

### SPEED DATA

Location of Speed Survey		<b>Posted Speed Limit</b>	35 mph
Time of Speed Survey	3:20 PM - 3:35 PM	<b>Recommended Speed Limit</b>	35 mph
50th Percentile Speed (Mean Speed)	29.7 mph	<b>Speed Limit Change</b>	No
85th Percentile Speed	33.8 mph	<b>Speed Justification</b>	85th-percentile speed
10 mph Pace Speed	26 - 35 mph		
Percentage of Vehicles in Pace	84.0%		
Number of Survey Samples	100		

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	2
Collision Rate (ACC/MVM)	0.44
Expected Collisions (ACC/MVM)	1.33

### TRAFFIC FACTORS

Average Daily Traffic	7,301
Type of Traffic Control	Stop control at Canterbury Dr, Route 4 off-ramp, Palm Ave
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3000'
Width	45'-85'
Number of Lanes	NB - 1/2 SB - 1/2
Street Classification	Arterial
Divided Median?	Yes - between Canterbury Dr to Route 4 off ramps
Designated Bike Route?	Yes
Bike Lanes?	Yes - SB south of Route 4 to Palm Ave, NB between Canterbury Dr and Mariner's Pointe
Uncontrolled Crosswalks?	Yes - at Mariner's Pointe
On-Street Parking?	Yes - between Mariner's Pointe and Route 4 off ramps
Sidewalks?	Yes - northbound continuous throughout segment, and southbound from Palm Ave to 200' north
Driveways?	Some
Vertical Curve	Yes - on Route 4 overpass
Horizontal Curve	Yes - continuous throughout segment
Visibility	Good
Pavement Condition	Fair
Adjacent Land Use	Commercial, Residential

### COMMENTS

The 85th percentile speed of 33.8 mph indicates a 35 mph speed limit. The 10 mph pace ranges from 26-35 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** Canterbury Drive to Palm Avenue

Diagram Not To Scale

X = North / = South

[illegible]

Total Samples =	100
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85th Percentile Speed:	33.8 mph
50th Percentile Speed:	29.7 mph
15th Percentile Speed:	26.4 mph
10 MPH Pace:	26 - 35
Number in Pace:	84
Percent in Pace:	84.0%

Date of Survey:	11/19/24
Weather:	Cloudy
Pavement Condition:	Fair
Street Class.:	Arterial
Field Study by:	IDAX / KHA

**Start Time:** 3:20 PM  
**End Time:** 3:35 PM  
**Posted**  
**Speed:** 35 mph

# CITY OF HERCULES

## ENGINEERING AND TRAFFIC SURVEY

17

**STREET:** Willow Avenue  
**FROM:** Palm Avenue

**SURVEY DATE:** 11/13/2024  
**TO:** Sycamore Avenue

### SPEED DATA

Location of Speed Survey		Posted Speed Limit	35 mph
Time of Speed Survey	9:30 AM - 10:08 AM	Recommended Speed Limit	35 mph
50th Percentile Speed (Mean Speed)	36.4 mph	Speed Limit Change	No
85th Percentile Speed	41.0 mph	Speed Justification	85th-percentile
10 mph Pace Speed	31 - 40 mph		downgraded due to
Percentage of Vehicles in Pace	70.0%		presence of bike lanes
Number of Survey Samples	100		and sidewalks

### COLLISION HISTORY

Number of Years Studied	3
Total Collisions	3
Collision Rate (ACC/MVM)	0.92
Expected Collisions (ACC/MVM)	1.07

### TRAFFIC FACTORS

Average Daily Traffic	4,180
Type of Traffic Control	Signal at Sycamroe Ave, Stop control at Route 4 ramps and Palm Ave
Pedestrian Traffic	Low
Truck Traffic	Low

### ROADWAY CHARACTERISTICS

Length of Segment	3780'
Width	25'-50'
Number of Lanes	EB - 2      WB - 1
Street Classification	Arterial
Divided Median?	No
Designated Bike Route?	Yes
Bike Lanes?	Yes - east of Route 4 ramps for 400', sharrows to Palm Ave
Uncontrolled Crosswalks?	None
On-Street Parking?	No
Sidewalks?	Yes - continuous throughout segment northbound, and from Palm Ave to 200' north southbound
Driveways?	Some
Vertical Curve	Slight curve at Hercules Transit Center
Horizontal Curve	Yes - at Hercules Transit Center
Visibility	Good
Pavement Condition	New
Adjacent Land Use	Commercial, Transit Center

### COMMENTS

The 85th-percentile speed of 41.0 mph indicates a 40 mph speed limit. The 10 mph pace ranges from 31-40 mph and the suggested speed falls within this range. The collision rate is lower than the expected statewide collision rate. Due to the presence of bike lanes and sidewalks, a downgrading of the speed limit by 5 mph is justified per CVC 22358.7. Based on the 85th-percentile speed, it is recommended that the posted speed limit remains at 35 mph.

Approved and Authorized for release by City of Hercules, CA:

Date

**Limits:** Palm Avenue to Sycamore Avenue

A diagram of a two-lane road with opposing traffic flow. Two cars are shown on the road, one on each side. A large downward arrow is positioned above the car on the left, and a large upward arrow is positioned above the car on the right. Below the road, the text "Travel Lane" is written under each car. At the bottom, a dimension line indicates a width of "25'-50'". Below the dimension line, the text "Diagram Not To Scale" is written.

X = East / = West

[illegible]

Total Samples =	100
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<b>Date of Survey:</b>	11/13/24
<b>Weather:</b>	Sunny
<b>Pavement Condition:</b>	New
<b>Street Class.:</b>	Arterial
<b>Field Study by:</b>	IDAX / KHA

**Start Time:** 9:30 AM  
**End Time:** 10:08 AM  
**Posted**  
**Speed:** 35 mph