

TO: James L. App, City Manager
FROM: Lisa Solomon, Chief of Police
SUBJECT: Speed Zone Survey – Additional Roads
DATE: March 16, 2010

NEEDS: For the City Council to consider adopting a resolution establishing speed limits at South Vine Street, South River Road, Experimental Station Road, and Dallons Drive.

- FACTS:**
1. The City is required to complete a speed zone survey every five years in order to comply with the State Vehicle Code for enforcement by radar.
 2. Specific criteria must be met in establishing speed limits. Without conformance to the criteria, radar cannot be used enforce speed limits.
 3. Generally, speed limit postings are set at the nearest 5 MPH increment of the 85th percentile speed of free flowing traffic (as measured in the field).
 4. The posted speed may be reduced by 5 MPH from the nearest 5 MPH increment of the 85th percentile speed where an engineering study indicates the need for a speed reduction due to existing conditions affecting the safety of the community. The conditions may include existing land use along the street segment, road curvature, number of driveways accessing the road, availability of sidewalks, sight distance, vertical curves, etc.
 5. In January 2009, City Council adopted Resolution No. 09-005 which updated speed limits of the City’s arterial and collector roads.
 6. South River Road, from Navajo to Creston/13th, was in construction during the survey and was not included in the Final Speed Survey adopted by City Council.
 7. South Vine was excluded since staff knew that it would undergo major reconstruction and decided that the speed survey should be performed once the work was complete.
 8. Experimental Station (River Oaks Drive to Buena Vista) and Dallons Drive (Buena Vista to Golden Hill Road) were also added to this most recent speed survey.

ANALYSIS & CONCLUSION:

Attached is the Final Speed Survey Report which includes detailed analysis of how the final speed limit was established. The final recommendation is as follows:

Street Segment	Critical Speed Measured	Recommended Posted Speed
South Vine (Hwy 46 to 1st St)	50 MPH	45 MPH
South River Road (Navajo to Creston/13th)	45 MPH	40 MPH
* Experimental Station (River Oaks to Buena Vista)	N/A	25 MPH
Dallons Drive (Buena Vista to Golden Hill)	40 MPH	35 MPH

* Note: It was determined that Experimental Station road qualifies as a “Prima Facie” road. Therefore the speed limit is 25 miles per hour.

POLICY

REFERENCE: Title 12, Chapter 12.54, Section 12.54.010 of the Municipal Code; Section 22354 of the California Vehicle Code; Caltrans Traffic Manual.

FISCAL IMPACT: None

- OPTIONS:**
- a. Adopt Resolution No. 10-xx approving speed limits for South Vine Street, South River Road, Experimental Station Road, and Dallons Drive.
 - b. Amend, modify, or reject the above option.

Attachments: Resolution
Exhibit A

RESOLUTION NO. 10-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES
ACCEPTING THE COMPLETED SPEED ZONE SURVEY AND AUTHORIZING
THE UPDATE AND ENFORCEMENT OF POSTED SPEEDS ACCORDINGLY

WHEREAS, Municipal Code Section 12.54.010 and 12.54.020 allow for speed limits to be set by resolution of the City Council; and

WHEREAS, the City is required to update its speed zone studies every five years; and

WHEREAS, the City retained TPG Consulting to complete an update of the City's radar speed surveys and an analysis of posted speed zones of certain streets within the City limits; and

WHEREAS, the Police Department and Public Works Department have reviewed the speed studies and concur with the recommendations in the report prepared by TPG Consulting, dated January 15, 2010, attached here as Exhibit A and summarized below:

South Vine Street, Highway 46 to 1st Street	45 MPH
South River Road, Navajo to Creston/13th	40 MPH
Experimental Station Road, River Oaks to Buena Vista	25 MPH
Dallons Drive, Buena Vista to Golden Hill	35 MPH

NOW, THEREFORE, BE IT RESOLVED that the City Council does hereby adopt this resolution amending speed limits within the City limits of Paso Robles as listed on the attached Exhibit A and listed above, and superseding the limits as set forth in Chapter 12.54 of the Municipal Code and all previous resolutions adopting speed limits.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 16th day of March 2010 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

Duane Picanco, Mayor

ATTEST:

Lonnie Dolan, Deputy City Clerk



January 15, 2010

Ms. Ditas Esperanza
City of Paso Robles
1000 Spring Street
Paso Robles, CA 93446

Dear Ms. Esperanza:

TPG Consulting has prepared this Engineering and Traffic Survey to determine the appropriate posted speed limits for four roadway segments in the City of Paso Robles. The study roadway segments are as follows:

1. South Vine Street from State Route (SR) 46 West to 1st Street
2. South River Road from Navajo Avenue to Creston Road/13th Street
3. Experimental Station Road from River Oaks Drive to Buena Vista Drive
4. Dallons Drive from Buena Vista Drive to Golden Hill Road

This report was prepared using the applicable sections of the California Vehicle Code (CVC) and *California Manual for Uniform Traffic Control Devices for Streets and Highways* (*CA MUTCD*). Division 11, Chapter 7, Section 627 of the CVC provides the definition of the Engineering and Traffic Survey required to post speed limits on City streets. Chapter 2B of the *CA MUTCD* further specifies the requirements of the study.

Data Collection

TPG conducted radar speed surveys of the study roadway segments using a radar speed meter. The speed meter was calibrated according to manufacturer's recommendations prior to collection of the data. Measurements were made from an inconspicuously parked unmarked vehicle utilizing consultant personnel. Efforts were made to ensure that the presence of the vehicle in no way affected the speed of traffic being surveyed.

Field data was recorded and later reduced to determine statistical analysis of the roadway's travel characteristics. Vehicles surveyed were selected according to the following techniques:

- Along sections of highway where traffic flows freely, only the lead vehicles of groups of vehicles were recorded.
- In highly concentrated areas, the speeds of lead vehicles were recorded as well as vehicles from varying positions within each group.

A minimum of 100 vehicles was surveyed at each study location, per the recommendations in the *California MUTCD*. For this study, TPG attempted to collect 100 vehicles per direction for all study segments. Where traffic volumes were low or 100 vehicles per direction could not be obtained within a reasonable amount of time, a minimum of 100 total vehicles were surveyed. As such, certain study segments may contain more sample points than others.

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Data Analysis

The data sheets contained in the Appendix B consist of a computer analysis of the radar speed survey information gathered in the field. The data on the sheet begins with the actual location of the data collection consisting of the name of the particular roadway segment of study, followed by the longitudinal location of the checkpoint in relation to an easily identifiable intersection or landmark. This heading is followed by two columns listing other pertinent observed conditions including:

- direction of traffic observed
- roadway cross section
- paved roadway width
- special conditions
- the date
- the day of the week
- the beginning and ending time of the check.

The middle body of the form consists of a summary table of various calculated parameters. An explanation of the data and terms follows:

- The 10 MPH pace speed is the 10 miles per hour increment of observed speeds which contains the greatest number of vehicles. In nearly all cases, the 85th percentile speed and the recommended speed limit lie somewhere within the pace, frequently in the middle to upper ranges. This is an important indicator used to determine appropriate speed limits.

Also provided is the percentage of vehicles traveling at or below the lower limit of the pace, the percentage of vehicles traveling within the pace and the percentage of vehicles traveling above the upper limit of the pace.

The number of vehicles within the pace is an indication of the bunching of vehicular speeds. Ideally, if all vehicles were traveling at or about the same speed, there would be a reduced likelihood of traffic collisions. In speed limit analysis, the higher the number (percentage) of vehicles within the pace, the more consistent the speed distribution.

- The average speed is the total of all the vehicle speeds divided by the number of vehicles in the sample. By definition, 50% of the vehicles will be traveling above and 50% will be traveling below this speed.
- The critical speed (or 85th percentile speed) is that speed at or below which 85 percent of the observed vehicles are traveling. It is a well recognized fact among traffic engineers that most drivers are able to drive at reasonable speeds without the benefit of any speed limits, speed signs, or enforcement. The behavior of traffic is a good indication of the appropriate speed zone that should apply on a particular street section. It is generally felt that at least 85 percent of the drivers operate at speeds that are reasonable and prudent for the conditions pertaining in each situation. Therefore, the 85th percentile speed of a spot speed survey is the primary indicator of a speed limit that might be imposed subject to the secondary factors of accident experience, traffic volumes, road features, or other special situations.

Several lines are provided to list comments/unusual condition. These special conditions, and their influence on the appropriate speed zone limit are described in Section E, Inventory of Street Conditions, which follows.

The bottom portion of the form includes a graphic display of the vehicles observed by speed and percent of total observations, and a table listing vehicle speed in one mile per hour increments, the frequency (number) of observations at each particular speed, the percentage of the total number of observations that number represents, and the cumulative number and percentage of all vehicles checked.

Accident Review

Accidents are a factor of some importance in speed limit establishment. The location and severity of reported traffic accidents are reviewed to determine locations of higher accident incidence. When the review indicates a concentration of reported accidents or an accident rate significantly higher than normal for the type of roadway under study, careful consideration of the accident history should be included in the development of the speed limit. Adequate consideration may then be given to other corrective measures, the degree of enforcement emphasis needed, and the general applicability of any posted speed limit at all.

Data Evaluation

The data evaluated for each roadway segment includes the existing posted speed limit, the observed and measured prevailing vehicle speeds, a review of the most recent three-year traffic collision history and an inventory of any special physical characteristics of the roadway and adjacent development. Based on this information, the following evaluations were prepared:

1. *South Vine Street from State Route (SR) 46 West to 1st Street*

The study segment of South Vine Street was analyzed in the 2008 Speed Zone Survey Update for the City of Paso Robles. Since that time, the roadway has been reconstructed to include curb, gutter, and bike lanes on both sides of the road and complete resurfacing of the road. The 2008 report showed a critical speed of 50 mph and a recommended posted speed of 45 mph. The recommended speed limit was reduced from 50 mph due to the curvature, limited sight distance, rural access points, and speed related accidents.

The roadway was surveyed after completion of the roadway reconstruction. Based on the data collection, the speed profile on South Vine Street is nearly identical as was observed in 2008 (10 mph pace speed, average speed, and critical speed). The roadway reconstruction did not affect the curvature of the roadway or the location and frequency of access points. There have also been 2 speed related accidents since the 2008 report. Therefore, it is recommended that the posted speed limit be posted at 45 mph.

2. *South River Road from Navajo Avenue to Creston Road/13th Street*

South River Road parallels the Salinas River on the east side. No access to development occurs along the study segment. There are minor horizontal and vertical curves and minimal shoulders. The west side of the road is mostly immediately adjacent to a vertical grade. No roadway improvements (curb/gutter/sidewalk) are located along the majority of the study segment. Limited improvements are located at the north and south end of the segment. In the past 3 years, only 3 accidents have occurred

on the study segment of South River Road. Of those 3 reported accidents, only 1 accident was speed related and was a property damage only (PDO) accident.

The survey data shows that the study segment has a critical speed suggesting a 45 mph speed zone with a currently posted speed limit of 40 mph. The roadway conditions suggest that the allowed 5 mph reduction in the measured critical speed is warranted. Therefore, it is recommended that the posted speed limit be posted at 40 mph.

3. *Experimental Station Road from River Oaks Drive to Buena Vista Drive*

Experimental Station Road is a 0.4 mile long segment through a residential oriented area. The north side of the road is nearly built-out with newer homes and improved with curb, gutter, and sidewalks. There are also 2 large trees which intrude into the roadway on the north side of the street. The south side of the road, on the eastern end, is similarly improved. The remainder of the south side of the road is unimproved with infrequently spaced rural style homes. The segment is currently posted at 30 mph. The roadway currently meets the housing density requirements for the prima facie 25 mph speed limit for a “residential area”. One accident has occurred on the roadway in the past 3 years. The accident was a DUI and caused a fatality to the driver of the only vehicle involved.

The measured critical speed suggests a 35 mph speed limit. The density of homes fronting the street qualifies for a prima facie residential district. There is a somewhat conflicting nature of the adjacent development and the intruding trees suggest a reasonable reduction in the measured critical speed. The fatal accident should not have a bearing on the suggested speed since it was caused by the driver driving under the influence of alcohol. Therefore, it is recommended that the posted speed limit be posted at 25 mph.

4. *Dallons Drive from Buena Vista Drive to Golden Hill Road*

The study segment of Dallons Drive is currently posted at 35 mph. The west 2/3 of the segment consists almost entirely of switchback horizontal curves with relatively small tangent sections between the curves, while the remainder of the segment is relatively straight. The west end of the segment is bounded by Cuesta College on the north side, the middle of the segment has a small area of residential development, and the east end has growing commercial development. In between each of the development “areas” there is undeveloped, unimproved roadway. The residential area does not meet the density for a prima facie 25 mph zone. Two accidents have occurred on the study segment during the past 3 years. Both accidents were speed related and both occurred along horizontal curves in the roadway.

The speed data collected for the study roadway suggests a critical speed of 40 mph. Based on the curvature of the roadway and the frequent changes in developed and undeveloped adjacent areas, a reduction in the measured critical speed is recommended. The speed related accidents also suggest that the horizontal curvature of the roadway will benefit from a reduced speed limit. Therefore, it is recommended that the posted speed limit be posted at 35 mph.

Conclusions and Recommendations

As discussed in the previous sections and shown in the attached analysis worksheets, Table 1 shows the recommended speed limits for the study roadway segments.

TABLE 1: RECOMMENDED SPEED LIMITS	
<i>Roadway Segment</i>	<i>Recommended Posted Speed</i>
South Vine Street from State Route (SR) 46 West to 1 st Street	45
South River Road from Navajo Avenue to Creston Road/13 th Street	40
Experimental Station Road from River Oaks Drive to Buena Vista Drive	25
Dallons Drive from Buena Vista Drive to Golden Hill Road	35

Thank you for the opportunity to provide you with this analysis. If you have any additional questions, please feel free to contact me by email (whutcheson@tpgconsulting.net) or phone (559/739-8072).

Sincerely,



Wally Hutcheson, TE
Associate Engineer

Attachments: Speed Calculation Worksheets



TPG CONSULTING, INC.

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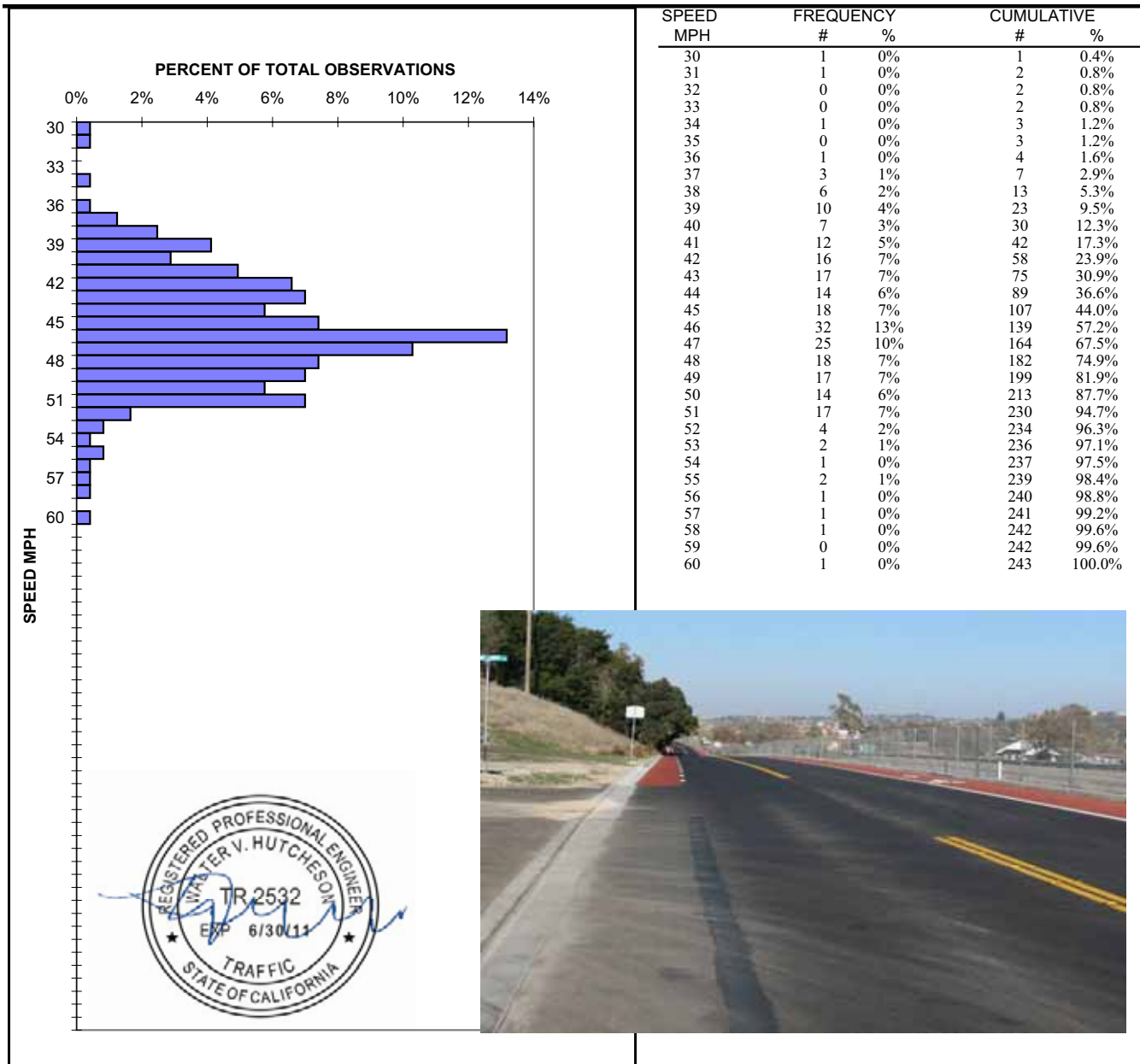
LOCATION: SOUTH VINE STREET
DIRECTION: NORTH-SOUTH
ROAD X-SECTION: 2-LANE UNDIVIDED
PAVED WIDTH: 30 FT
BUSINESS OR RESIDENCE DISTRICT: NO

FIRST STREET TO STATE ROUTE 46 WEST

DATE: 12/2/2009
DAY: WEDNESDAY
TIME: 02:00 PM
OBSERVER: NS

RECOMMENDED SPEED LIMIT	POSTED SPEED LIMIT		10 MPH PACE SPEED	AVERAGE SPEED	CRITICAL SPEED
45	45		42 - 51	46	50
	<= >		< IN >		<= >
	44% 56%		17% 77% 5%		85% 15%

COMMENTS/UNUSUAL CONDITIONS: NEWLY INSTALLED CURB/GUTTER/BIKE LANES. MINIMUM RESIDENTIAL ACCESS. HORIZONTAL & VERTICAL CURVATURE AND PROXIMITY TO SR 101 CREATE LIMITED SIGHT DISTANCE. NO SHOULDERS AVAILABLE FOR DISABLED VEHICLES.



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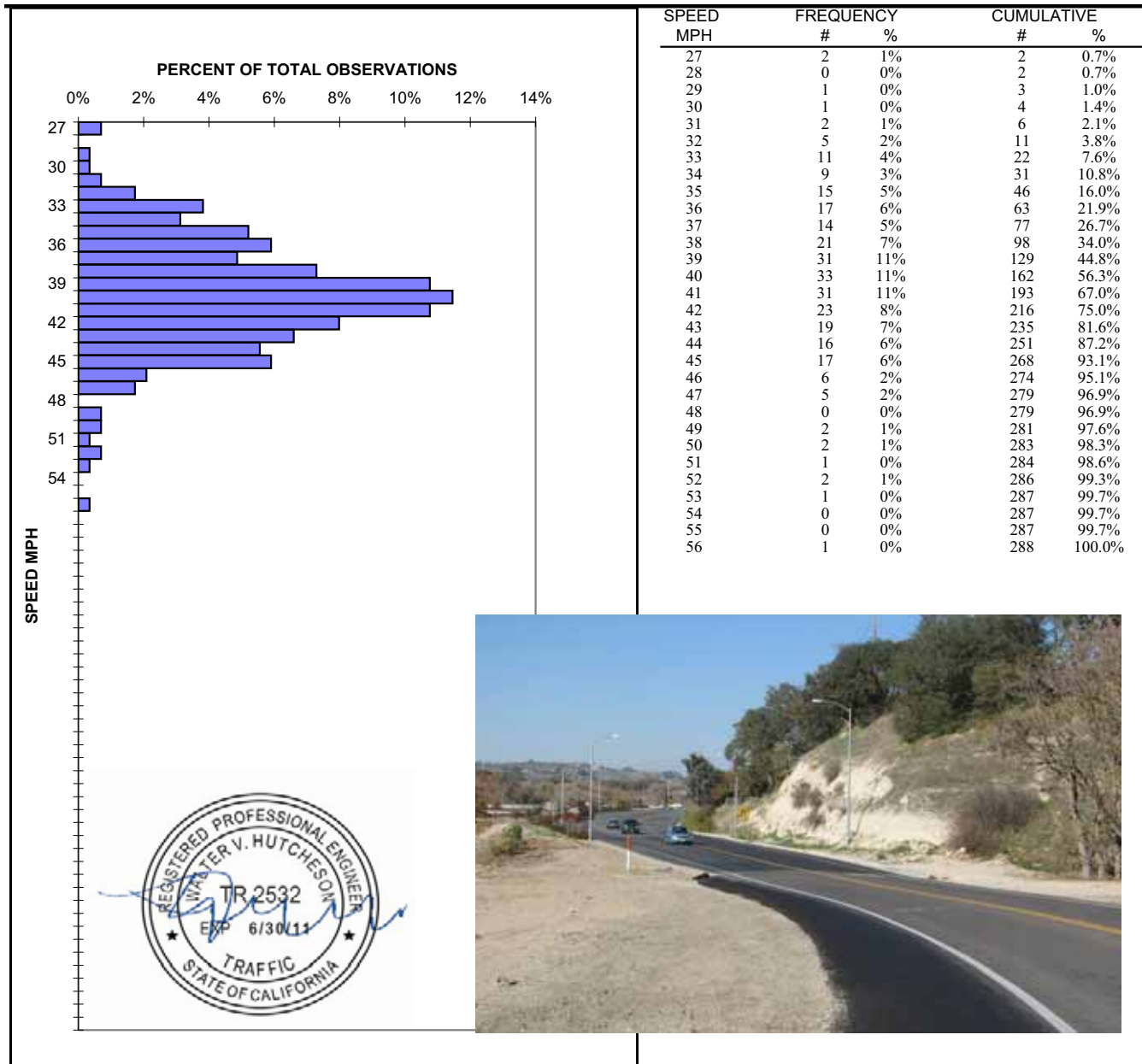
LOCATION: SOUTH RIVER ROAD
DIRECTION: NORTH-SOUTH
ROAD X-SECTION: 2-LANE UNDIVIDED
PAVED WIDTH: VAR
BUSINESS OR RESIDENCE DISTRICT: NO

CRESTON ROAD TO NAVAJO AVENUE

DATE: 12/2/2009
DAY: WEDNESDAY
TIME: 01:00 PM
OBSERVER: NS

RECOMMENDED SPEED LIMIT	POSTED SPEED LIMIT		10 MPH PACE SPEED	AVERAGE SPEED	CRITICAL SPEED
40	40		36 - 45	40	44
	<= >		< IN >		<= >
	56% 44%		16% 77% 7%		85% 15%

COMMENTS/UNUSUAL CONDITIONS: VERTICAL AND HORIZONTAL CURVES THROUGHOUT. CURB, GUTTER & SIDEWALK ON NORTH AND SOUTH ENDS ONLY. VERTICAL GRADES ON BOTH SIDES OF ROADWAY. MINIMAL SHOULDERS. MINIMAL ADJACENT DEVELOPMENT OTHER THAN SOUTH END.



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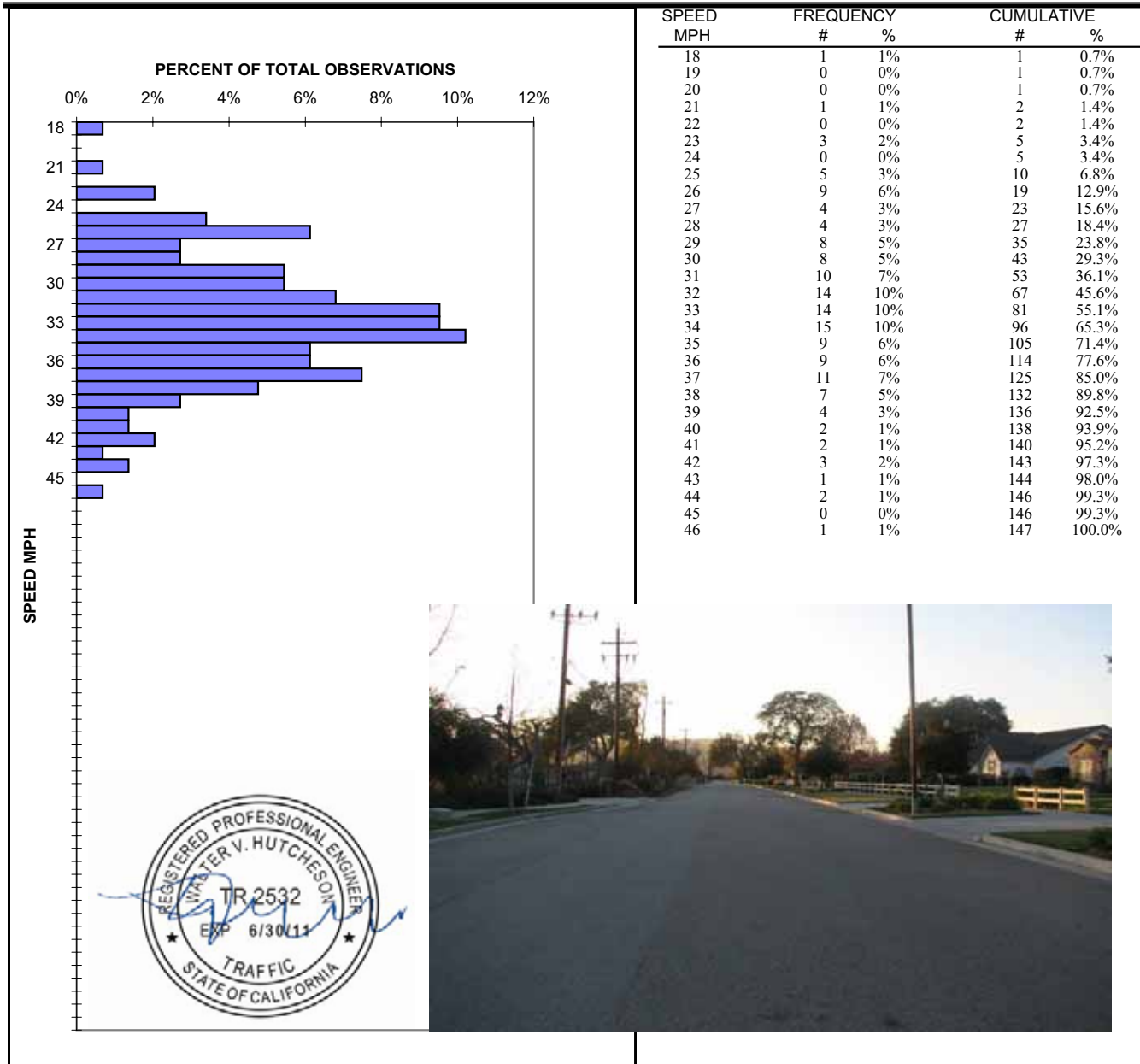
LOCATION: EXPERIMENTAL STATION ROAD
DIRECTION: EAST-WEST
ROAD X-SECTION: 2-LANE UNDIVIDED
PAVED WIDTH: VAR
BUSINESS OR RESIDENCE DISTRICT: NO

RIVER OAKS DRIVE TO BUENA VISTA DRIVE

DATE: 12/2/2009
DAY: WEDNESDAY
TIME: 04:00 PM
OBSERVER: NS

RECOMMENDED SPEED LIMIT	POSTED SPEED LIMIT		10 MPH PACE SPEED	AVERAGE SPEED	CRITICAL SPEED
25	30		29 - 38	33	37
	<= >		< IN >		<= >
	29% 71%		18% 71% 10%		85% 15%

COMMENTS/UNUSUAL CONDITIONS: THE ROADWAY SEGMENT MEETS DENSITY REQUIREMENTS FOR A PRIMA FACIE 25 MPH ZONE. UNIMPROVED ON SOUTH SIDE OF ROAD. IMPROVED ON NORTH SIDE AND EASTERN END OF SOUTH SIDE. MIX OF RURAL AND TYPICAL SUBURBAN HOMES. 2 TREES ENCROACHING ON ROADWAY R/W.



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LOCATION: DALLONS DRIVE
DIRECTION: EAST-WEST
ROAD X-SECTION: 2-LANE UNDIVIDED
PAVED WIDTH: VAR
BUSINESS OR RESIDENCE DISTRICT: NO

BUENA VISTA DRIVE TO GOLDEN HILL ROAD

DATE: 12/2/2009
DAY: WEDNESDAY
TIME: 10:00 AM
OBSERVER: NS

RECOMMENDED SPEED LIMIT	POSTED SPEED LIMIT		10 MPH PACE SPEED	AVERAGE SPEED	CRITICAL SPEED
35	35		29 - 38	35	40
	<= >		< IN >		<= >
	55% 45%		8% 72% 20%		85% 15%

COMMENTS/UNUSUAL CONDITIONS: CONTINUOUS HORIZONTAL CURVES THROUGHOUT WEST 2/3 OF THE SEGMENT. BIKE LANES THROUGHOUT. COLLEGE ON WEST END, LIMITED RESIDENTIAL MID, DEVELOPING COMMERCIAL ON EAST END. SPEED RELATED ACCIDENTS ASSOCIATED WITH CURVES.

