A FUNDAMENTAL REVIEW OF SPEED ZONING AND ENFORCEMENT

by

The Orange County Multidisciplinary Traffic Committee

PREFACE

A special ad hoc committee was formulated in 1976 by the Orange County Traffic Engineering Council for the purpose of providing a unified review of the traffic speed control in California. The committee members represented traffic engineering, law enforcement and the courts.

The committee's goal was to provide a systematic review of the development, enforcement and judicial processing of prima facie speed limits from a multi-disciplinary standpoint. It is the belief of the committee that through increased awareness and improved education of the process of speed limit development and administration, the practitioners in the traffic engineering, enforcement and judicial disciplines will be better able to deal with their responsibilities.

INTRODUCTION

Since the beginning of the "motor era," society has been concerned with effectively tempering the behavior of the vehicle operator. Driving behavior is largely a matter of individual attitude and~ while the majority of drivers can be expected to behave rationally, a non-conforming attitude can be seen in certain drivers.

Effective speed zoning and speed control are among the top traffic management concerns of local officials. This review of established principles for effective and equitable speed zoning and enforcement is intended to improve confidence in this greatly misunderstood and often controversial aspect of traffic management. In addition to reviewing the fundamental steps in completing an Engineering and Traffic Survey, additional guidelines for improving the quality of the survey are provided. There is a need to strengthen overall confidence in proven speed zoning methods and equally important, to promote the credibility of those methods with elected officials, enforcement agencies, and with the general public.

It is necessary to identify a fundamental purpose for speed zoning:

> *Speed zoning is the application of engineering and traffic survey methods toward the development of speed regulations. The purpose of speed regulations, in turn, is to provide realistic guidance to the driving public and to provide equitable enforcement against the occasional excessive-speed violator.*

The principal aim of engineering and enforcement efforts in realistic speed zoning is to improve safety and to improve traffic flow conditions.

The enforcement of excessive speed is not a question of posted limits and enforcement "tolerance." It is a matter of correlating physical features with variable conditions to

arrive at a reasonable and prudent speed for a given period. Any “set tolerance" that is accepted and used as routine for enforcement is improper and in conflict with the basic speed law in California.

The great majority of our national traffic regulations recognize that traffic laws, as other laws, cannot be effectively enforced without the consent and voluntary compliance of the public majority. Speed laws can be classed into three basic types:

* **Maximum Speeds**
* **Prima Facie Speeds**
* **Basic Speed**

While the basic speed law always applies, this part of the discussion deals with prima facie or posted speed regulations intermediate between typical 25 mph business, residence, and school zones and the maximum speed limit. In every instance, State law provides that these intermediate zones be established lion the basis of an engineering and traffic survey." California's Vehicle Code defines Engineering and Traffic Survey:

CVC 627 Engineering and Traffic Survey, as used in this coder, means a survey of the highway and traffic conditions in accordance with methods determined by the Department of Transportation for use by state and local authorities.

An Engineering and Traffic Survey shall include among other requirements deemed necessary by the Department consideration of the following:

a. Prevailing speeds as determined by traffic engineering measurements.
b. Accident records.
c. Highway, traffic, and roadside conditions not readily apparent to the driver.

The Administrat1ve provisions outlines in California's Traffic Manual, Section 8.03, provide specific guidelines for selecting proper speed limits.

* PREVAILING SPEEDS:

A basic consideration of reasonable and prudent speed must include an assumption that the greatest majority of motor vehicles will normally travel at a speed that is reasonable and prudent. This philosophy automatically takes into account that the drivers have recognized the physical features and variable conditions; and have adjusted their speed accordingly. An engineering concept known as the 85th percentile appears to substantiate this assumption. It very simply says that 85 out of 100 motor vehicles will normally travel at or below a speed which is reasonable and prudent.

* ACCIDENT RECORDS

Accidents should not be used as a causal justification for posting arbitrary speed limits. Where appropriate, accident rates should be computed. Properly determined rates should then be compared to rates on similar roadways. Significantly higher rates should alert the Engineer to identify point-concentration (curves, intersection, etc.) accidents and should alert enforcement officials to the need for selective enforcement programs for accident reduction. Identification of necessary engineering corrective measures may include traffic control devices (signs, signals, markings, etc.) or roadway construction improvements.

> *"Accident Study – A final check on the reasonableness of the proposed speed limit is an analysis of accidents on the portion of roadway proposed for speed zoning. If a check of the two-year accidents history shows an abnormal proportion of tyOCpes of accidents limit should be further reduced. This is a judgement situation and usually will not be a factor on most streets."*

Arbitrarily, unrealistic speed zones cannot be expected to reduce accidents and may, in fact, adversely affect traffic safety by confusing drivers and increasing speed dispersions.

* ROADWAY CHARACTERISTICS:

Perhaps the most misunderstood element in the Engineering and Traffic Survey definition is the phrase "consideration of the roadway and roadside characteristics not readily apparent to the driver." This statement appears to suggest that physical roadway elements should be weighed to justify arbitrary speed zones below the observed prevailing speeds. The Traffic Engineer, however, must keep two basic survey elements in mind:

1. The survey observes prevailing speed at free flow locations.
   Roadway characteristics which the driver can see and analyze can be expected to cause him to adjust his speed and to increase his alertness for responding to changing roadway conditions.
2. Physical characteristics which a normally alert and competent driver cannot see, such as hidden intersections, dips, curves, lane-drops, or any roadway feature deserving warning devices (crosswalks, signals, schools, etc.) must be properly identified through appropriate traffic control devices.

California Vehicle Code Section 627 states that an engineering and traffic survey shall be done in accordance with methods determined by the Department of Transportation and shall include consideration of at least prevailing speed determined by traffic engineering measurements, accident records, and highway, traffic and roadside conditions not readily apparent to the driver. The Vehicle Code does not state how these factors will be used in a determination of speed posting, only that they will be considered.

Enforcement officers should be able to correlate physical

features such as visibility, surface conditions, and highway width with variable conditions like weather, traffic volumes and time of day to arrive at a reasonable and prudent speed for existing conditions at a particular time and location. An automatic tolerance as used by some police departments cannot be supported by fact or defended in court when radar is used; however, it has carried over to radar enforcement and is commonly accepted as the only "fair" thing to do by the police, the courts, and the public. This automatic tolerance is generally from 5 to 15 mph and is not based on the physical features or variable conditions set forth in the Vehicle Code, but rather, is based upon department policy or individual officer preference.

The basic speed law (22350 CVC) states that no person shall drive a vehicle upon a highway at a speed that is greater than reasonable and prudent having due regard for weather, visibility, traffic, and surface and width of highway, and in no event at a speed which endangers the safety of persons or property. This is the key to the entire subject of speed enforcement in California. It is obvious from the wording of the basic speed law that the legislature recognized that conditions affecting safe speeds change, and so may safe speed themselves. This is further supported by 22358.5 CVC "downward speed zoning":

> *22358.5 - It is the intent of the Legislature that physical conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to a driver, in the absence of other factors, would not require special downward speed zoning, as the basic rule of Section 22350 is sufficient regulation as to such conditions.*

Vehicle Code Section 22352 deals with "prima facie speed limits," meaning on the face of it and before further examination. This also shows that the legislature recognized

that reasonable and prudent speed could be variable. Even though certain prima facie speeds were established by the legislature, local authorities are given further latitude in posting speeds under certain conditions. In all cases of upward or downward speed zone changes, the 1egislature mandates an engineering and traffic survey, thus underlining the importance of rational and reasoned speed zoning. It is unquestionably the law, both by legislative mandate and by well founded reason that speed zoning ought to be rationally related to the data collected in a recent engineering and traffic survey. Section 22352 CVC is definitive only and not a violation, therefore, 22350 CVC "basic speed law," must be used for enforcement (other than maximum speed law, which is absolute).

Speed not in excess of those posted is presumed to be lawful unless clearly proven to be in violation of the basic speed law (22351a CVC). The fact that a speed was less than the posted limit is, in itself, adequate to establish a fact or presumption that it was reasonable and prudent, unless, there is evidence presented to refute it.

Conversely, speed in excess of that which is posted or set forth in the Code as prima facie speed is, on its face, unlawful unless the defendant established by competent evidence that it did not constitute a violation of the basic speed law (22351b CVC). It is extremely important, however, that the enforcement officer possess the training and background to be able to establish a violation of the basic speed law in the first place.

If the enforcement officer is to do a competent job of speed enforcement, he must be well trained in how to apply the variable conditions to a "norm" (the engineering and traffic survey) to arrive at a speed that is reasonable and prudent

for the location, time, and conditions. The engineering and traffic survey must be competent and must document conditions that support a discrepancy of more than 4 mph difference between the 85th percentile and the posted limit.

The Vehicle Code proh1bits the use of a "speed trap" which is defined as; a) a measured section of highway where a veh1cle is times and speed then calculated; or, b) a section of highway which has not had an engineering and traffic survey conducted within five years, and where enforcement involves radar. The indication in the second type of speed trap is that even though a prima facie speed may be involved in a business or residential district, it must be supported by an engineering and traffic survey.

Although this appears to be in direct opposition to the setting of certain speeds as specified in the prima facie speed limit section (22352 CVC), it does lend further credence to the idea that the legislature intended that the basic speed law be the paramount concept in speed enforcement. It also precludes a section of highway that "technically" fits a prima facie posting from having a speed posting lower than a reasonable and prudent speed, which would of course, be a speed trap.

Section 40802(b) of the California Vehicle Code -- the anti-speed trap legislation -- and two recent cases construing that section, namely People v. Halopoff, 60 Cal.App.3rd, Supp, and People v. Sterritt, _Ca1.App.3rd_, make clear that radar enforcement of speed zoning cannot be used unless the posted limit is “justified by an engineering and traffic survey conducted within five years of the date of the alleged violation."

It appears from the point of view of the bench officer hearing speed violation trials (whether radar of

conventionally enforced) that both the legislature and the court may have overlooked the dictates of Sections 22350 and 22351. Section 22351 establishes that the "basic speed law" set forth in 22350 shall prevail over the "prima facie" limits established by Section 22352. As most battle-seasoned bench officers have come to know, the prima facie speed, otherwise known as the "posted speed," becomes only a benchmark or guideline when interpreting 22350. The traffic officer is expected to have an opinion as to the maximum safe speed pursuant to the visible roadway conditions embodied in the 22350 criteria of "reasonable and prudent having due regard for weather, visibility, the traffic on and the surface and width of, the highway…" Hence, while the citation may be issued for 45 in a 25 zone, the officer's opinion may not establish 25 as the maximum safe speed, but some other speed, except perhaps in a school lone.

The legislature and the court in the previously mentioned cases Simply did not address themselves to two very important points:

1. No parameters were set forth by which the word "justified" and prudent having and the surface and width be issued for 45 in a 25 may be measured.
2. An engineering survey establishing the 85th percentile is supposed to be conducted under optimum conditions of "off-peak hours with fair weather and no unusual conditions prevailing." What if there is inclimate weather, darkness or unusual traffic conditions which either reduce or increase the "reasonable and prudent" or safe speed from the posted speed? Did the legislature and the court intend that no radar could be utilized then, or only under the same conditions that prevailed at the time of the survey?

It is these unresolved questions that require the interpretation that 22350 should prevail, both in letter and spirit. It is, therefore, suggested that in radar enforcement of speed zones, the arresting officer, before setting up his radar location, should form his own opinion of the maximum "safe speed" should be rationally related to the speed recommendations resulting from the recent engineering and traffic survey. This interpretation of the relevant statutes renders "posted speeds" or prima facie speeds as the benchmarks or guidelines contemplated in the “basic speed law" set forth in Sections 22350 and 22351, thereby permitting the prudent driver to deviate from such posted speeds when it is safe to do so. Therefore, if the officer's opinion of the maximum safe speed and later that of the bench officer, reasonable relates to the speed recommendations from an engineering and traffic survey, along with any other salient factors apparent to the driver, then we can be assured of reasonable limits and eliminate the danger of speed traps.

In every case, certain elements need to be proven by the prosecution:

1. Defendant was driving;

2. Engineering and Traffic Survey completed within five years (for radar use);

3. maximum safe speed for time and conditions;

4. and, defendant's speed was in excess thereof.

Under the above interpretation, it has been suggested that the fine assessed a speed violator be based upon the difference between the officer's opinion as to the maximum safe speed and the alleged speed, rather than the difference between the posted speed and the alleged speed. This question is one that requires further consideration and is beyond the scope of this committee.

CONCLUSIONS

Engineering must promote acceptance of speed zoning methods through competent, standardized procedures. Enforcement must take into consideration the criteria established by the Vehicle Code in arriving at a reasonable and prudent speed and not allow so called "enforcement tolerance" to play a part in speed enforcement. The court must understand the speed zoning process and the method of determining reasonable and prudent speed to properly adjudicate violations.

When posted speeds are substantiated by a competent survey and enforcement officers have been sufficiently acquainted with the principles involved in the survey, as well as trained in the application of variable conditions, proper court presentations can be made to support enforcement of the basic speed law.

RECOMMENDATIONS

To be developed.