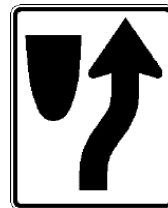




# TRAFFIC GUIDELINES



TRAFFIC ENGINEERING SECTION  
DEPARTMENT OF PUBLIC WORKS  
COUNTY OF SAN DIEGO  
2001



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## **TRAFFIC GUIDELINES**

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**County of San Diego**  
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**San Diego County**  
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## **INTRODUCTION**

Highway and street systems that operate efficiently and safely are essential for dealing with growth and improving the quality of life in San Diego County. Traffic engineering is a key element in achieving and maintaining a safe and efficient road system. To provide outstanding customer service, it is the intent of the County to provide safe and efficient traffic operations on the County-maintained road system by the use of proven traffic engineering principles and sound judgement. Uniform application of traffic laws, rules and regulations, as well as uniformity in the traffic control devices that convey these laws, rules and regulations is needed to provide a safe, effective and accurate basis for regulating traffic flow.

The success of any traffic engineering measure depends heavily upon user understanding and compliance. Most citizens can be relied upon to operate their vehicles in a safe and reasonable manner. Traffic regulations are based upon the expected behavior of motorists under various conditions. Generally speaking, traffic laws that reflect the behavior of the majority of the road users are found to be successful. Laws that arbitrarily restrict the majority of users encourage wholesale violation, and usually fail to accomplish the desired changes in the user's behavior.

Well-founded guidelines are necessary to convey uniform messages and implement realistic, enforceable traffic regulations. The guidelines discussed in this booklet are intended to serve as an aid in addressing various traffic conditions and are to be used in conjunction with engineering knowledge, experience, and judgment. It is not intended that any standard of conduct or duty toward the public shall be created or imposed by the publication of these Guidelines.

Pursuant to Sections 21400 and 21401 of the California Vehicle Code, the State of California, Department of Transportation's (Caltrans) Traffic Manual is adopted in principle and shall constitute the basic guideline for the installation of traffic control devices in the County of San Diego. Traffic control devices will normally be installed and maintained at County expense. However, when traffic-related growth is anticipated as a result of proposed development, funding for traffic control devices may be required from the developer.

The Board of Supervisors must approve the establishment of many of the regulatory traffic control devices described in this booklet. To assist them in determining the need for these various regulatory controls, the Board established the San Diego County Traffic Advisory Committee (TAC). The TAC is a technical group composed of representatives from various agencies and members-at-large. The Committee reviews requests received from the public, other agencies, and various County departments for regulatory controls on roads maintained by the Department of Public Works.

The Committee forwards their technical recommendation on each request for regulatory control to the Board of Supervisors for final action. Community planning and sponsor

groups have the opportunity to provide input to both the TAC and to the Board of Supervisors. The Board of Supervisors makes the final determination concerning these traffic regulatory issues on county-maintained roads.

For operational issues on county-maintained roads, the Department of Public Works makes the final determination. The operational guidelines described herein have been developed and are used by the Traffic Engineering Section of the Department of Public Works.

These Traffic Guidelines have been reviewed by the Traffic Advisory Committee and adopted by the Board of Supervisors.

## **REGULATORY GUIDELINES**

## **ANGLE PARKING**

Angle parking typically provides more parking spaces than parallel parking for the same length of curb space. In areas where there is a heavy demand for on-street parking, the installation of angle parking may be desirable. However, the impaired visibility of motorists exiting an angle parking space should be given strong consideration when evaluating the need for angle parking.

The authority for establishing angle parking is provided in Section 22503 of the California Vehicle Code. When evaluating the installation of angle parking, the following criteria should be considered:

- Angle parking requires considerably more street width than parallel parking. Extra street width is necessary for the parking area plus the room required for parked vehicles to back out of the parking spaces without interfering with through traffic in the adjacent lane.
- Angle parking is potentially more hazardous than parallel parking because of the impaired visibility of the driver.
- Speed and traffic volume of the roadway needs to be reviewed to determine possible conflicts.

Angle parking layouts are described in “Fundamentals of Traffic Engineering”. Caltrans or Institute of Transportation Engineers turning templates shall be used to determine the area necessary for the backing out vehicle to not interfere with through traffic (including bicycles) in the adjacent lane.

The Traffic Advisory Committee reviews requests for angle parking and submits recommendations to the Board of Supervisors.

## COMMERCIAL VEHICLE WEIGHT RESTRICTIONS IN RESIDENTIAL AREAS

The quality of life in a neighborhood may be adversely impacted when large commercial vehicles regularly use a local road as an alternate route to bypass traffic congestion. The regular use of large commercial vehicles on a residential or subdivision street should be discouraged when a reasonable alternate route is available.

Pursuant to Section 35712 of the California Vehicle Code, commercial vehicles exceeding a gross weight of 14,000 pounds may be prohibited on a County-maintained road located in a residential or subdivision area. For purposes of this section, residential/subdivision areas are defined as areas that predominately contain dwelling units (homes, apartments, condominiums, etc.) along the roadway.

Commercial vehicle weight restrictions may be considered when an alternate route is identified and any one of the following conditions exists:

- Prohibiting of commercial trucks can be reasonably expected to substantially reduce conflicts with pedestrians, bicyclists, or parked vehicles and improve the quality of life (less noise, pollution, etc.).
- Commercial truck traffic would have a detrimental effect on the structural condition of the roadbed.
- The roadway geometrics (grade, alignment, width, etc.) are substandard for truck traffic.

When identifying an unrestricted alternate route, the following conditions should be considered:

- The use of the alternate route will not result in excessive out-of-direction travel.
- The alternate route is a Through Highway or on the General Plan Circulation Element.
- The alternate route has sufficient capacity to accommodate the added truck traffic without a subsequent reduction in level of service.
- The roadbed conditions and roadway geometrics on the alternate route are suitable for truck traffic.

It should be noted that weight restrictions do not completely eliminate heavy vehicles on a route. Commercial vehicle weight restrictions do not apply to vehicles operated by, or on behalf of, a public utility in connection with the installation, operation, maintenance,

or repair of its facilities. Additionally, they do not apply to vehicles making deliveries or picking up goods or materials at locations on the restricted roadway.

The Traffic Advisory Committee reviews requests for commercial vehicle weight restrictions in residential areas and submits recommendations to the Board of Supervisors.

## **EQUESTRIAN CROSSINGS**

Equestrian crossings are intended to delineate locations with heavy equestrian concentration or demonstrated equestrian usage connecting well-defined equestrian trails. When an equestrian crossing is established, it shall be designated with equestrian warning signs and pavement markings.

Establishment of equestrian crossings as defined in Section 21805 of the California Vehicle Code should be evaluated on the basis of an engineering study for the purpose of reducing vehicular/equestrian conflict.

When performing an engineering study, consideration should be given to the following:

- There is a demonstrated equestrian demand.
- The crossing will connect well-defined equestrian trails.
- The posted speed limit on the road should not exceed 45 MPH.
- The available sight distance for both motorists and equestrians is compatible with the prevailing vehicular speed.

The Traffic Advisory Committee reviews requests for equestrian crossings and submits recommendations to the Board of Supervisors.

## **GOLF CART USE ON COUNTY ROADS**

Section 21716 of the California Vehicle Code states that golf carts cannot be operated on a roadway with a speed limit greater than 25 MPH. The authority to establish combined use of the roadway is provided by Section 21115 of the California Vehicle Code. Combined use of County-maintained roadways by unlicensed golf carts and motor vehicles is solely intended to provide access to, and facilitate the use of, golf facilities. Authorized use of the roadway for unlicensed golf carts is not intended to promote use of the roadway for activities such as running errands, picking up mail, etc.

Combined use of the roadway by golf carts may be authorized only in those communities where:

- The proposed roadway is adjacent or provides access to a golf course.
- The proposed roadway is between the golf course and the place where golf carts are parked or stored.
- The proposed roadway is within or bounded by a real estate development offering golfing facilities and is designed and constructed so as to safely permit the use of regular vehicular traffic and also the driving of golf carts.

The use of golf carts shall not be permitted until the prescribed rules and regulations regarding speed and other operating standards are adopted and the appropriate signs giving notice thereof are posted along the roadway. For purposes of combined road use, a "golf cart" includes a low-speed vehicle as defined in California Vehicle Code Section 21250.

The Traffic Advisory Committee reviews requests for combined use of the roadway and submits recommendations to the Board of Supervisors.

## **GOLF CART CROSSINGS**

When a golf course is located on adjacent sides of a County-maintained road, the golf cart driver may be required to cross the roadway to continue play. Random crossings of the roadway are not consistent with driver's expectations. Designated crossings reduce the random use of the roadway and channel the carts to a specific location where signs and pavement markings are used to alert motorists of possible crossing. The authority to establish golf cart crossings is provided by Section 21115.1(a) of the California Vehicle Code. For the purposes of this section, a "golf cart" includes a low speed vehicle as defined by the California Vehicle Code Section 21115.1(c).

When evaluating a site for installation of a golf cart crossing, consideration shall be given to the following:

- The posted speed limit shall not be greater than 45 MPH.
- The crossing shall be immediately adjacent to a golf course.
- The crossing shall be constructed at approximately 90 degrees to the direction of travel.
- Construction of a golf cart path over or under the roadway is not feasible.
- The available sight distance for motorists and drivers of golf carts is compatible with the vehicular speed.

The Traffic Advisory Committee reviews requests for the installation of golf cart crossings and submits recommendations to the Board of Supervisors.

## **MID-BLOCK CROSSWALKS**

Motorists normally expect pedestrians to cross a road at an intersection. The California Vehicle Code re-enforces this expectation by recognizing the existence of marked and unmarked crosswalks at an intersection.

Mid-block pedestrian crossings are not consistent with driver expectation and should be used with great care. The installation of a marked, mid-block crosswalk should only be considered when an engineering study indicates it is necessary to channel pedestrians to a specific location where signs and pavement markings are used to alert motorists of possible crossings.

When evaluating a request for a mid-block crosswalk, the following criteria should be considered:

- The distance between adjacent intersections exceeds 800 feet.
- There is a demonstrated pedestrian demand.
- The posted speed limit on the road should not exceed 45 MPH.
- The establishment of parking prohibitions adjacent to the marked crosswalk on each side of the road to provide better visibility for both pedestrians and motorists.
- The sight distance for pedestrians is sufficient, based upon the prevailing speed of traffic.

The Traffic Advisory Committee reviews requests for a mid-block crosswalk and submits recommendations to the Board of Supervisors.

## ONE-WAY STREETS

Nearly all County-maintained roads were originally designed for two-way traffic. Conversion to one-way operation may be considered for a variety of reasons including increased traffic usage, conflicts among vehicular flows, conflicts between pedestrians and vehicles, and congestion and collisions. Minor streets and/or alleys may also be reviewed for one-way operation because of limited width or to prevent through traffic within a neighborhood.

Conversion of two-way streets to one-way operation should only be done when an engineering study indicates that the overall advantages significantly outweigh the disadvantages. When considering the establishment of a one-way street, the following issues should be considered:

- Potential increase in traffic capacity.
- Potential reduction in the number of traffic collisions.
- Changes in travel times and distances.
- The flow of traffic can be effectively controlled either to or away from specific locations.
- Eliminated turning movements may shift to other locations and may cause or exacerbate traffic concerns in the area surrounding the converted streets.
- Revised traffic patterns may cause confusion and/or adverse operations for transit vehicles, emergency vehicles, and other users.

Appropriate signs shall be placed on designated one-way streets to indicate lawful traffic movement.

The Traffic Advisory Committee reviews requests for one-way streets and submits recommendations to the Board of Supervisors.

## PARKING REGULATIONS

Various parking regulations may be used to improve traffic or pedestrian safety, traffic flow, or access to public transit. Typically, input from affected property owners is solicited prior to establishing a parking prohibition. Signs may be used as an alternative or under special conditions as a supplement to painted curbs. Listed below are the parking regulations authorized in the California Vehicle Code (CVC) and County Code of Regulatory Ordinances (CCRO) and a description of their use:

- Red Curb - No Parking (CVC Sections 21458 and 22500.5, CCRO Sections 72.135 and 72.115)

Red curb indicates no stopping, standing, or parking, whether the vehicle is attended or unattended; except that a bus may stop in a red zone designated as a bus loading zone. In areas without curb or where the parking prohibition is extensive in length, signs may be used to designate the parking restriction.

- Yellow Curb - Commercial Vehicle Parking for Loading (CVC Section 21458, CCRO Section 72.135)

Yellow curb indicates stopping only for the purpose of loading or unloading passengers or freight. The installation of yellow curb will normally be considered at locations where there is insufficient access to abutting or nearby commercial property and there is evidence of double parking.

- White Curb - Passenger Loading (CVC Section 21458, CCRO Section 72.135)

White curb indicates stopping for either the loading or unloading of passengers at locations adjacent to points of public assemblage (theaters, hotels, churches, public agencies, etc.) and for depositing mail in an adjacent curb-side mailbox.

- Green Curb - Time Limit Parking (CVC Section 21458, CCRO Section 72.135)

Green curb indicates time limit parking of one hour or less. Time limit parking may be established where short-time parking limits could be expected to benefit the public. For time limit parking areas greater than one hour, signs shall be used to indicate time limit parking.

- Blue Curb - Disabled Parking (CVC Section 22511.7, CCRO Section 72.135)

Blue curb indicates parking limited exclusively to the vehicles of disabled persons as defined by the Department of Motor Vehicles.

- Height Restriction Near Intersections (CVC Section 22507)

Parking prohibitions for vehicles six feet or more in height (including any load thereon) may be established within 100 feet from an intersection. Such restrictions are designated with signs.

- No Parking - Tow Away Zone (CVC Section 22651, CCRO Section 72.125)

Where parking prohibitions have not been effective or are not expected to be effective, Tow-Away Zones may be established. Such restrictions are designated with signs.

The Traffic Advisory Committee reviews requests for parking restrictions and submits recommendations to the Board of Supervisors.

## **SPEED LIMITS**

A properly established speed limit serves two primary purposes: to assist motorists in determining the maximum safe speed during favorable conditions and to assist law enforcement in controlling the unreasonable motorist. The basic concept is that most people can be relied upon to behave in a reasonable manner. Properly established speed limits reflect reasonable human behavior, and should not attempt to alter, control, or manipulate that behavior.

California's Basic Speed Law prohibits anyone from driving "at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property." Speed limits can be either posted or unposted. Drivers are expected to know and obey all posted and unposted speed limits. Drivers must also be aware that it is possible to be ticketed for speeding when traveling at a speed below a properly posted speed limit when conditions are less than ideal.

### **SPEED LIMITS ESTABLISHED BY CALIFORNIA LAW**

State law establishes the following maximum speed limits that cannot be exceeded under any circumstance:

- **55 MPH - Posted or Unposted**
  - All trucks and vehicles towing a trailer
  - Conventional two lane highways (roadways).
- **65 MPH - Posted or Unposted**
  - Conventional three lane or more highways (roadways).
  - Freeways.

State law also establishes prima facie speed limits, defined as those that are reasonable and prudent under normal conditions. Examples of blanket prima facie speed limits are as follows:

- **15 MPH - Unposted**
  - All Alleys.
  - Intersections with limited visibility.
  - Unsignalized railway grade crossings with limited visibility.
  - Near campgrounds, campsites, or concentrations of people or animals.
- **25 MPH - Unposted or Posted**
  - Business Districts.
  - Residence Districts.

- 25 MPH - Posted
  - Senior Centers.
  - School zones when children are present.
  - Playgrounds in public parks when children are expected to be present.

#### SPEED LIMITS ESTABLISHED BY COUNTY ORDINANCE

California law also allows the County Board of Supervisors to establish speed limits based on an Engineering and Traffic Survey. The method for conducting this survey is defined in the Caltrans Traffic Manual. An important element of this survey is the prevailing speed of the overwhelming majority of drivers on the road and is defined in the Manual as the speed at which 85 percent of motorists are traveling at or below. The Manual indicates that the speed limit should normally be set at the first 5-MPH increment below the 85<sup>th</sup> percentile speed. The 85<sup>th</sup> percentile speed is measured under off-peak, free-flowing traffic conditions during clear and dry daylight conditions.

The Engineering and Traffic Survey also considers other factors such as development density, pedestrian and bicyclist safety, physical road features, collision experience, traffic characteristics, and conditions not readily apparent to the driver. Based on these factors, the speed limit may be established an additional 5-MPH below the otherwise normally established speed limit.

Establishing a speed limit that is not justified by an Engineering and Traffic Survey should be done with great care as studies have shown that an unjustified speed limit generally results in increased collision rates. In addition, an unjustified speed limit may make violators out of a reasonable majority of drivers and runs the risk of being an illegal speed trap and becoming unenforceable.

The Traffic Advisory Committee reviews requests for speed limits established by County Ordinance and submits recommendations to the Board of Supervisors.

## **STOP SIGNS**

A stop control may be considered at an intersection where existing conditions suggest the need to provide a greater level of right-of-way assignment. A stop sign should not be considered as a “cure-all” or used as a substitute for less restrictive alternatives. Often, improving the sight distance at an intersection can eliminate the need for a stop control.

A stop control is used to assign right-of-way and should not be used to regulate the speed of traffic. Studies have demonstrated that although motorists reduce their speed in the immediate vicinity of the stop sign, they quickly resume their previous speed a short distance beyond the stop control.

### ONE OR TWO-WAY STOP CONTROL

The establishment of a one or two-way stop control should be considered when one of the following conditions exists:

- On a minor street where a safe approach speed to the intersection is less than 10 MPH.
- On a County-maintained road where it intersects a State Highway. At these locations, Caltrans determines the need and maintains the stop sign if installed.
- At the intersection of two main roads. Determining which road should be stopped depends on approach speeds, volumes and turning movements.
- At intersections where a combination of high speed, restricted visibility and collision history indicates a need for the level of control provided by a stop sign.
- Three or more reported right-angle collisions have occurred in a twelve-month period that may have been correctable by the installation of a stop control.

### ALL-WAY STOP CONTROL

An all-way stop control installation is usually more effective at locations where traffic volumes on the intersecting roads are nearly equal. An all-way stop control installation generally proves to be inconsistent with driver expectation and inefficient at low volume intersections. Studies have demonstrated a higher than expected level of violation of stop controls at locations where an unwarranted all-way stop control installation was installed. As a result, unwarranted all-way stop control installations should be discouraged.

An all-way stop control installation may be considered when any one of the following conditions exists:

- The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour for any 8 hours of an average day, and the combined vehicular and pedestrian volume from the minor street or highway must average at least 200 units per hour for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour.

When the 85<sup>th</sup> percentile approach speed exceeds 40 MPH, the minimum vehicular volume warrant is 70% of the above requirements.

- At an intersection having a demonstrated collision pattern as evidenced by five or more reported collisions in a twelve-month period of a type susceptible to correction by an all-way stop control. Such collisions include right angle, right and left-turn collisions as well as pedestrian collisions.

The Traffic Advisory Committee reviews requests for stop signs and submits recommendations to the Board of Supervisors.

## THROUGH HIGHWAYS

The establishment of a Through Highway assigns right-of-way to motorists traveling on a road carrying a high volume of daily traffic. Typically, the flow of traffic is improved on a road designated as a Through Highway because all intersecting roads are regulated by stop controls or traffic signals.

A Through Highway, as defined by Section 600 of the California Vehicle Code, may be considered on a road carrying predominantly through traffic when one of the following conditions exists:

- 2,000 or more vehicles a day travel on the proposed Through Highway.
- On roads where the daily traffic volume is at least 1,000 vehicles and any one of the following conditions exists:
  - Is a regularly scheduled public transit route.
  - Is a logical extension of an existing Through Highway.
  - Serves as a Residential Collector route or is identified as a Circulation Element road on the County General Plan.
- 50% or more of the intersections between the limits of the proposed Through Highway are currently controlled with stop signs or traffic signals.

The Traffic Advisory Committee reviews requests for Through Highway designations and submits recommendations to the Board of Supervisors.

## TRAFFIC SIGNALS

Traffic signals are traffic control devices that assign right-of-way to motorists, bicyclists, pedestrians, and equestrians. They are intended to:

- Reduce the frequency of violation of right-of-way.
- Assign the orderly movement of traffic.
- Ensure the efficient flow of traffic along a given route.
- Provide gaps for vehicles, pedestrians, bicyclists, and equestrians to safely cross or enter a heavily traveled road.

Unwarranted traffic signals may cause:

- Excessive delay, waste of energy, and increased air pollution.
- Disregard for signal indications.
- Increased collision frequency.
- Use of alternate routes to avoid delays.

Nationally recognized warrants establishing minimum criteria for traffic signal controls as outlined in Chapter 9 of the Caltrans Traffic Manual shall be used to evaluate proposed locations for traffic signals. Satisfaction of a warrant does not automatically constitute justification for a traffic signal.

The Traffic Advisory Committee reviews requests for traffic signals and submits recommendations to the Board of Supervisors. Locations approved by the Board of Supervisors are placed on the County's Traffic Signal Priority List. The actual construction of a traffic signal is dependent on its ranking on the list and available funding.

## **YIELD SIGNS**

A yield control is used to formally assign right-of-way at locations where motorists are experiencing uncertainty as to whom has the right-of-way. Often, improving the sight distance can eliminate the need for a yield control.

A yield control may be considered when any one of the following conditions exists:

- On the minor road of an intersection where it is necessary to assign right-of-way to motorists on the major road, but where a stop control would be overly restrictive and the safe approach speed exceeds 10 MPH.
- Where there is a separate or channelized right-turn lane without an adequate acceleration lane.
- At an intersection where the results of an engineering study indicate conditions are susceptible to improvement by the use of a yield control.

The Traffic Advisory Committee reviews requests for a yield control and submits recommendations to the Board of Supervisors.

## **OPERATIONAL GUIDELINES**

## **BIKEWAYS**

The term “bikeways” is used for all facilities that are specifically installed or signed for bicycle travel. Bicycle facilities may be installed on roads identified on the County’s Circulation Element Bicycle Network. Typically, facilities are constructed on the Bicycle Network Circulation Element as a continuation of an existing bikeway facility or as a connecting link between population centers and recreational/scenic areas. The three different categories of bicycle facilities are:

- Class I Bikeway - Bike Path or Bike Trail

A completely separated right-of-way facility designated for the exclusive use of bicyclists and pedestrians with cross flows by motorists minimized.

- Class II Bikeway - Bike Lane

A restricted right-of-way facility within the paved roadway designated for the exclusive or semi-exclusive use of bicyclists with through travel by motor vehicles or pedestrians prohibited. Typically, a parking prohibition is established in conjunction with a bike lane unless there is sufficient room for a parking lane.

- Class III Bikeway - Bike Route

A bike route is designated by signs and shared with pedestrians and motorists.

Proposed bikeway projects are reviewed and prioritized by the Department of Public Works’ Bicycle Coordinator for available funding consideration.

## CENTERLINE STRIPING

Yellow centerline striping separates traffic traveling in opposite directions and provides important guidance to motorists. On roads where a continuous centerline is not used, short sections may be used to control the position of traffic at specific locations, such as around curves, over hills, adjacent to barriers, and on approaches to intersections, railroad crossings, and bridges. Centerline striping need not be at the geometrical center of the pavement.

Centerline striping may be installed on paved County-maintained roads that are a minimum of 20 feet in width when any one of the following conditions is met:

- On all General Plan Circulation Element roads having an average daily traffic volume of 400 vehicles or more.
- On non-General Plan Circulation Element roads having an average daily traffic volume of 400 vehicles or more, provided that one of the following conditions is met:
  - The alignment is curvilinear.
  - There is little or no shoulder area.
  - The road traverses a hilly or mountainous area.
- On roads subject to reduced visibility due to climatic conditions (such as snow, fog, or sandstorms) and having an average daily traffic volume of 400 vehicles or more.
- On roads that provide primary access to recreation areas or military reservations.
- On roads where an engineering study indicates a demonstrated problem that may be correctable by centerline striping.
- If none of the above conditions are met, centerline striping will be considered on roads where 75% of returned ballots from an organized ballot vote indicate that affected property owners desire centerline striping, and where the organized residents, responsible agency, or association places a deposit sufficient to cover all installation costs. County personnel will perform the striping installation and all subsequent maintenance work.

The use of centerline striping on streets less than one-half mile in length in residential areas should be minimized because it may provide a false indication that it is a through route.

## EDGE STRIPING

Edge striping is intended to assist motorists in determining the limits of the traveled way. It also serves as a visual reference during adverse weather and visibility conditions and discourages driving on road shoulders that have less structural strength than the traveled way.

On roads with existing centerline striping, edge striping may be installed when any one of the following conditions exists:

- On roads in hilly or mountainous areas that have unpaved shoulders less than 8' in width.
- On roads that have shoulders (paved or unpaved) less than 8' in width and there is no contrasting color or texture between the traveled way and the road shoulders.
- On roads where it may be desirable to separate a 12' minimum traveled way from an 8' minimum parking lane.
- At other locations where a demonstrated problem exists that may be correctable by the installation of edge striping.

## FLASHING BEACONS

A flashing beacon may be used to supplement existing warning or regulatory traffic control devices and alert motorists to a high judgement condition.

Flashing beacons should be used sparingly and only at locations where an engineering study may determine a beacon is needed or where existing traffic control devices have been determined to be ineffective. The inappropriate use of flashing beacons may reduce the effectiveness of other justified flashing beacon installations.

Typical locations for flashing beacon installation may include the following:

- School Zones
- Fire Stations
- Traffic Signs
  - Signal ahead signs
  - Stop signs
  - Advance warning signs
- Gates

Flashing beacons should be operated only during those hours for which the hazard or regulation exists. Criteria for flashing beacons are outlined in Chapter 9 of the Caltrans Traffic Manual.

## **GUARDRAIL**

Guardrail is intended to reduce the severity of run-off-the-road type of collisions. Since guardrail is itself a fixed object, it should only be installed where the severity of striking the guardrail is expected to be less than the severity of leaving the roadway and going down an embankment or striking another fixed object.

The primary contributors to the severity of run-off-the-road type of collisions are embankment height, embankment slope, and clear recovery area. Guardrail may be installed on County-maintained roads at embankment slopes, fixed roadside objects, or structure approach locations when it is determined guardrail will reduce collision severity in accordance with the guidelines outlined in Chapter 7 of the Caltrans Traffic Manual.

Locations meeting the conditions described above will be evaluated, ranked, and placed on the Department's Guardrail List. Each year, high-ranking guardrail locations will be scheduled for installation depending on available funding and constructability. Locations further down on the Guardrail List may be constructed ahead of schedule if an individual or agency shares the construction costs equally with the County.

## INTERSECTION CROSSWALKS

Section 275 of the California Vehicle Code recognizes the existence of marked and unmarked crosswalks at an intersection. An unmarked crosswalk is considered to exist within the prolongation or connection of the boundary lines of a sidewalk at an intersection where the intersecting roadways meet at approximately right angles.

Marked (painted) intersection crosswalks are intended to channel pedestrians to a desirable location where warning signs and pavement markings can be used to alert motorists of possible crossings. Studies have demonstrated pedestrians are more likely to be struck by a vehicle within a marked crosswalk than within an unmarked crosswalk. This experience is attributed to a false sense of security often assumed by pedestrians when utilizing a painted crosswalk. Therefore, in the interest of pedestrian safety, the installation of a painted crosswalk must be a carefully considered action. Painted crosswalks should only be installed where there is evidence that the advantages to the pedestrian clearly offset the potential "false sense of security" phenomenon.

When evaluating a request for a marked crosswalk, the following guidelines should be considered:

- Ten or more pedestrians cross at the desired location during any one-hour of the day.
- The posted speed limit does not exceed 45 MPH.
- The sight distance for pedestrians is sufficient, based upon the prevailing speed of traffic.
- Adequate illumination exists or will be provided at the proposed crosswalk site.
- The proposed location will define a pedestrian route across a complex intersection.
- The proposed location will reduce pedestrian exposure to vehicles.

The guidelines for evaluating a request for a marked school-related crosswalk are described in the County's "School Traffic Safety Policies and Warrants" booklet.

## **MEDIAN OPENINGS**

Median openings provide for left-turns and U-turns on divided roadways. Guidelines for median openings have been established to facilitate traffic movement and promote traffic safety.

Median openings may be permitted at all intersections with public roads, except where the Director of Public Works determines that such openings may impair the movement of traffic or create other traffic problems.

Mid-block median openings that permit left turns into and out of adjacent driveways may be allowed when all of the following conditions exist:

- The property to be served is a major traffic generator.
- The median opening is not less than 600 feet from the centerline of any intersecting road or any other existing or proposed mid block median opening.
- The Director of Public Works determines that the geometric design of the proposed median opening is acceptable and will not interfere with the operation of the roadway.
- All costs of construction are borne by the requesting party.

When evaluating a request for a median opening, specific consideration should be given to roadway speed, traffic volumes, median length needed for back-to-back left turn pockets, and available sight distance.

## **ON-STREET PARKING DELINEATION**

Delineation for parallel parking may be installed when justified by heavy parking demand, as determined by an engineering study.

Parking stall delineation should be performed in accordance with common engineering practice and the following publications:

- Caltrans Traffic Manual
- Institute of Transportation Engineers, Traffic Engineering Handbook
- Institute of Transportation Studies, Fundamental of Traffic Engineering

Angle parking delineation shall only be installed at locations where angle parking has been legally established by County ordinance.

## REFLECTORIZED PAVEMENT MARKERS

Reflectorized Pavement Markers (RPM's) are intended to provide additional nighttime visibility for the guidance or channelization of traffic.

RPM's will only be installed in conjunction with existing centerline or edgeline striping. In general, all new roads accepted into the County-maintained system will receive centerline striping and centerline RPM's. Existing County-maintained roads without RPM's may be reviewed for centerline RPM installation. Edgeline RPM's will only be installed on roads where an engineering study indicates a demonstrated problem that may be correctable by edgeline RPM's.

RPM's shall not be installed:

- On unpaved roads.
- On roads above 3,000 feet in elevation (commonly known as the snow line) or roads that require snow plowing.
- In areas of drifting sand or rockslides.
- On roads surfaced with road-oil mix.

## RESIDENTIAL TRAFFIC PROGRAM

Residents often express concern regarding the excessive speed and/or volume of traffic on the streets adjacent to their homes. To address this concern, the Department of Public Works (DPW), in conjunction with the California Highway Patrol, has developed the Residential Traffic Program in an attempt to improve the quality of life on neighborhood streets. This evolving program is designed to calm traffic on local streets so residents will feel more secure in their neighborhoods. The program focuses on reducing speeds and cut-through traffic on residential streets by using the three E's:

- Education - Residents receive the information and tools to become active participants in addressing their neighborhood traffic concerns.
- Engineering - Engineering principles are used to develop traffic calming strategies that address community-identified traffic issues. Solutions can include traffic control devices ranging from the least restrictive (signing and striping) to the more restrictive (one-way streets and barricades).
- Enforcement - Targeted police enforcement supports the traffic-calming plan developed by residents and DPW.

For further information on this program, please consult the Residential Traffic Program guidelines adopted by the Board of Supervisors.

## **SCHOOL TRAFFIC SAFETY**

To address school traffic safety issues, a publication entitled "School Traffic Safety Policies and Warrants" has been reviewed by the Traffic Advisory Committee and the San Diego County Board of Education and has been adopted by the Board of Supervisors. This publication addresses several school traffic safety related issues including, but not limited to, the following:

- School Safety Advisory Committee
- School Responsibilities
- County Department of Public Works Responsibilities
- Parental Responsibilities
- California Highway Patrol Responsibilities
- Signs and Markings
- Flashing Yellow Beacons
- School Crossing Traffic Signals
- School Safety Patrols
- Adult Crossing Guards
- Pedestrian Walkways
- School Area Parking and Loading Controls

For further information regarding school traffic safety issues, contact the Traffic Engineering Section of the Department of Public Works.

## **STREET LIGHTING**

There are three different ways street lighting is furnished on public roads in the unincorporated area of the county.

### Safety Lighting

Street lighting at spot locations solely for traffic safety considerations is commonly known as "safety lighting" and is administered by the Traffic Engineering Section of the County Department of Public Works. Safety lighting will be installed and maintained by the County under the following conditions:

- At locations where unusually frequent or severe nighttime collisions have occurred if they are susceptible to correction by illumination.
- At all traffic signals.
- At channelized intersections where an engineering study indicates a demonstrated problem exists that may be correctable by safety lighting.
- At any location where alignment, construction, grade, sight distance, or other factors constitute a confusing or unsatisfactory condition or where experience has indicated the ineffectiveness of other devices.

### San Diego County Street Lighting District

The County Street Lighting District provides area-wide street lighting in developed areas. Streetlights are generally installed by developers and maintained through the Street Lighting District by assessments on annual property tax bills.

Residents desiring streetlights in a developed area must complete a petition and ballot process. Streetlights will only be installed after 50% of the affected property owners consent to the initial and annual assessments and the proposed lighting is approved by the Board of Supervisors.

The Special Districts Section of the Department of Public Works administers this type of street lighting.

### San Diego Gas & Electric (SDG&E) "Dusk to Dawn" Street Lighting Program

For a monthly fee, residents can arrange for SDG&E to install a "dusk to dawn" light at their residence. Contact SDG&E for details on this program.

## **TEMPORARY ROAD CLOSURES**

In general, road closures are not acceptable, as they are a burden to the motoring public. However, there are occasions where a temporary inconvenience to the motoring public can be deemed acceptable. In these cases, requests for temporary closure of County-maintained roads will follow a permit application process.

### **PARADES AND SPECIAL EVENTS**

The Department of Public Works (DPW) may issue special event permits in accordance with Sections 72.249.5 and 72.249.6 of the County Code of Regulatory Ordinances for the temporary closure of roads for parades and similar community events. A request should be submitted to DPW's Traffic Engineering Section not less than 30 days prior to the proposed date of special event to ensure adequate coordination with public service agencies (law enforcement, fire departments, etc.). Requests that come in less than 30 days may result in the special event permit application being denied.

Temporary road closures shall not unduly inconvenience traffic. The duration of the road closure must be within a reasonable time limit, generally not to exceed eight hours. No road closure shall be permitted for more than 24 hours without the approval of the Board of Supervisors. Applicants for block parties need to provide a signed petition from a majority of the residents affected by the temporary road closure stating that the residents are in concurrence with the temporary road closure.

Adequate signing for detours associated with a temporary road closure shall be in accordance with the Caltrans Traffic Manual and the San Diego County Regional Standard Drawings. Informational signs informing the public of the temporary road closure shall be posted at least 7 days in advance of the event. Newspaper ads informing the public of the temporary road closure may be required at least 2 weeks in advance of the event.

The applicant may be required to make a deposit for signs and barricades borrowed from DPW. When barricades and signs are obtained from DPW, the applicant is responsible for their pickup, placement, and return. There will be a charge if DPW is requested to provide traffic control to support the event. The applicant shall provide a certificate of insurance as evidence of commercial general liability with a \$1,000,000 per occurrence limit of liability for the event with a separate additional insurance endorsement naming the County of San Diego, its agents, officers and employees as additional insured. Applicants for block parties do not need to provide insurance.

### **WORK WITHIN A COUNTY-MAINTAINED ROAD**

In conformance with the adopted County Road Policy, a temporary road closure may be granted to perform work or traffic studies within the road right of way. For construction projects, the applicant must justify the proposed temporary road closure by proving to

DPW's Construction Inspection Section that there is no reasonable alternative from a construction standpoint. DPW shall review and approve, modify, or deny such a request based on the safety and convenience of the public.

The applicant should submit a temporary road closure application at least 21 days in advance of the desired start of work to DPW's Traffic Engineering Section. In addition, the request must include the length of time for the proposed closure and an agreement by the applicant to place and adequately maintain all necessary barricades, warning signs, and lights associated with the closure. Signing for temporary road closure detours must be in accordance with the Caltrans Traffic Manual and the San Diego County Regional Standard Drawings.

If the temporary road closure is approved, the applicant shall post informational signs per the approved permit that inform the public of the temporary road closure at least 7 days in advance of the event. The applicant may be required to place ads in local newspapers per the approved permit that inform the public of the temporary road closure at least 7 days in advance of the closure. The applicant shall provide notification to affected emergency services and school districts at least 7 days in advance of the road closure. The applicant shall provide notification of the road closure to affected residents and businesses at least 2 weeks prior to the start of the disruptive construction activity.

## **REFERENCES**

### **County Traffic References**

- County Board of Supervisors Policies, Section J - Roads, Streets, and Highways
- County Code of Regulatory Ordinances, Title 7 - Highways and Traffic, Division 2 - County Traffic Code
- County Public Road Standards
- County Department of Public Works, Director's Policies and Letters of Instruction
- County School Traffic Safety Policies and Warrants
- County Residential Traffic Program
- County Road Policy

### **State Traffic References**

- Caltrans Traffic Manual, Highway Design Manual, and Maintenance Manual
- Caltrans Traffic Sign Specifications and Policies
- California Vehicle Code (CVC), Department of Motor Vehicles

### **Federal Traffic References**

- Manual on Uniform Traffic Control Devices (MUTCD), U.S. Department of Transportation
- Highway Capacity Manual, Transportation Research Board

### **Professional Traffic References**

- "A Policy on Geometric Design of Highways and Streets", American Association of State Highways and Transportation Officials (AASHTO)
- "Traffic Engineering Handbook", Institute of Transportation Engineers
- "Fundamentals of Traffic Engineering", Institute of Transportation Studies, University of California at Berkeley
- "Realistic Speed Zoning", Automobile Club of Southern California