



Adoption of Resolution for Caltrans Highway Design Manual Topic 405: Intersection Design Analysis for Arroyo Vista from Las Mesitas to Ria

AUGUST 14, 2024

Arroyo Vista from Las Mesitas to Ria



Reduction of Speeds on Arroyo Vista

 **City of Rancho Santa Margarita**
Engineering and Traffic Survey (E&TS)

Speed Survey ID: 5
Arroyo Vista
Las Mesitas to Ria

Drafted: July 23, 2024

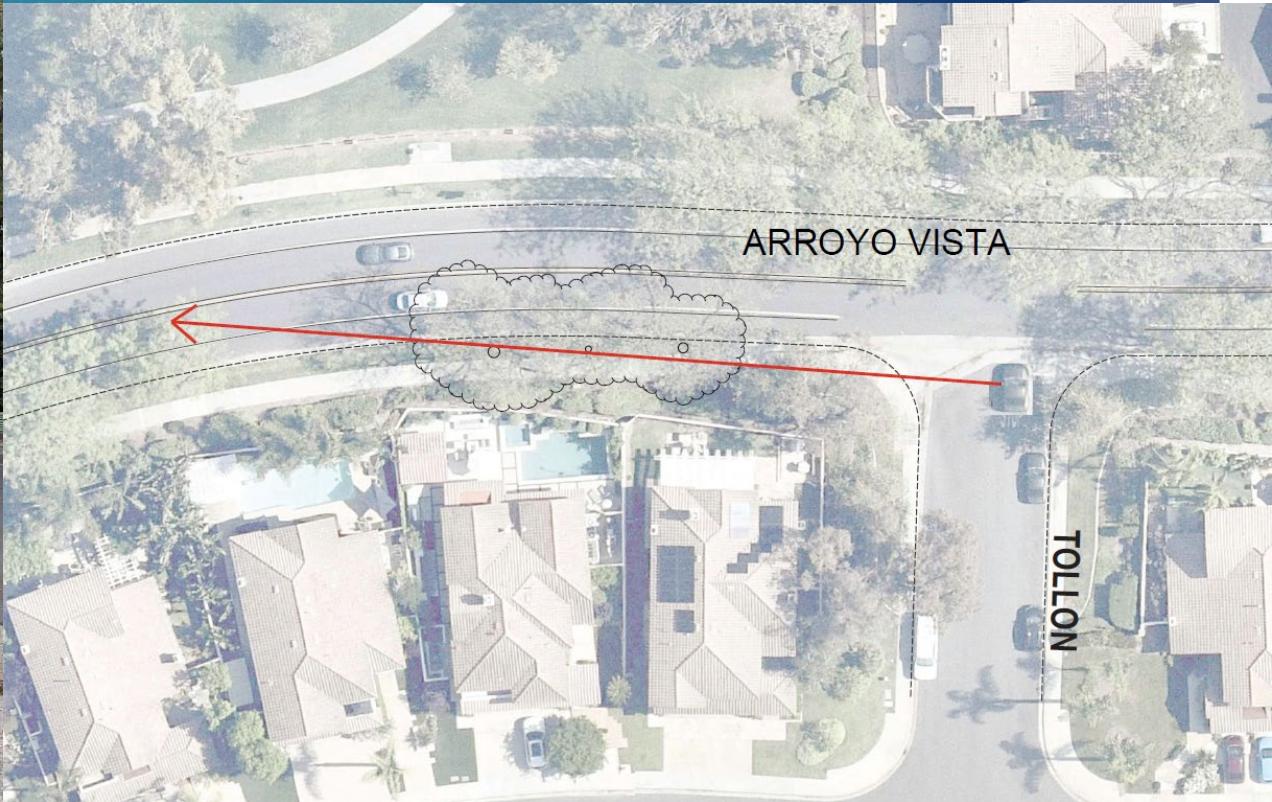
Prevailing Speed Data		Collision History	Recommended
Date of Survey	4/3/2024	Months Evaluated 36	 40 TRAFFIC STATE OF CALIFORNIA
Time of Survey	11:35 AM	Total Collisions 2	30 Posted
85th Percentile	42 mph	Speed Related 0	
50th Percentile	37 mph	Collisions/Million Vehicle Miles 0.5	
10 mph Pace	31-40 mph		
Percent in Pace	71 %		
Traffic Factors		Recommendations	
Average Daily Traffic	3,400	85th percentile speed requires a minimum posted speed limit of 40 mph. Per CVC 22358.6 and AB-43, the speed limit may be reduced up to 12.4 MPH below the 85th percentile speed. Reduce posted speed limit to 30 mph.	
On-Street Parking	Yes		
Painted Bike Lanes	No		
Crosswalks	@ Traffic Signals		
Roadway Features			
Segment Length	1.07 miles		
Visibility	Acceptable		
Facility Type	Local		
Lane Configuration	2 lanes		
Right of Way Width	56 feet		
Adjacent Land Uses			
Residential, open space			
Other			
Curvilinear roadway with cross street stops.			

Path: Z:\Shared\UcJobs\15600-16000\15900\15904\05_Design\GIS\maps\20240610SpeedSurveyWorkbook.mxd

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.

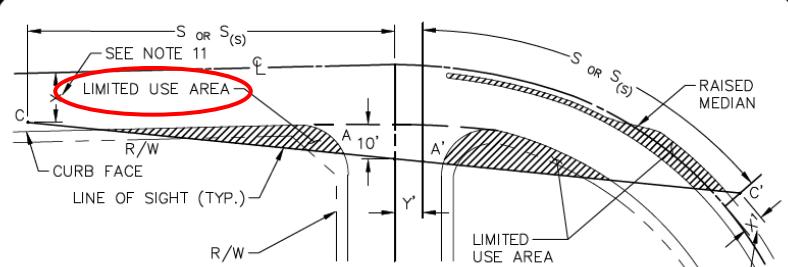
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Intersection of Arroyo Vista & Tollen



Orange County Standard Plan 1117

Intersection Site Distance

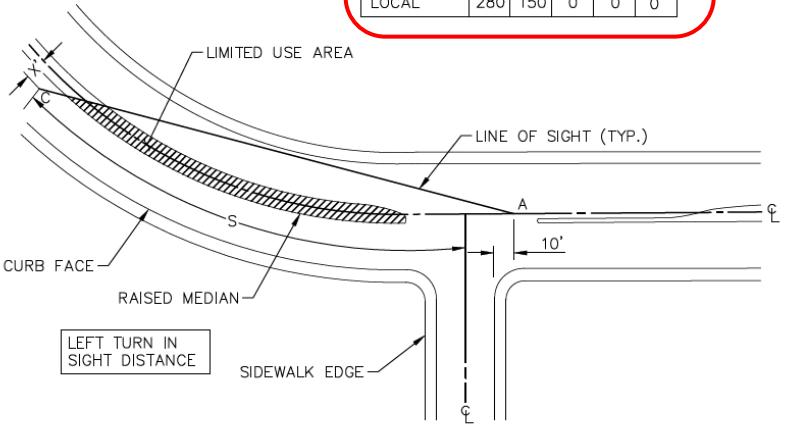


LEFT AND RIGHT TURN OUT
AND CROSS TRAFFIC
SIGHT DISTANCE

	DISTANCE (FT.)				
	S	S _(s)	Y'	X	X'
MAJOR	660	580	37	37	13
PRIMARY	610	500	25	25	13
SECONDARY	550	430	18	18	6
COMMUTER	500	360	0	0	0
COLLECTOR	390	250	0	0	0
LOCAL	280	150	0	0	0

NOTES:

1. THE DISTANCE S REPRESENTS THE INTERSECTION SIGHT DISTANCE MEASURED ALONG THE CENTERLINE OF THE ROAD. THE INTERSECTION SIGHT DISTANCE IS THE DISTANCE REQUIRED TO ALLOW 7½ SECONDS FOR THE DRIVER ON THE CROSS ROAD (OR LEFT TURN POCKET) TO SAFELY CROSS THE MAIN ROADWAY OR TURN LEFT WHILE THE APPROACH VEHICLE TRAVELS AT THE ASSUMED DESIGN SPEED OF THE MAIN ROADWAY.
2. THE DISTANCE S SHOULD BE INCREASED BY 20 PERCENT FROM THE AMOUNT SHOWN ON THE TABLE ON SUSTAINED DOWNGRADES STEEPER THAN 3 PERCENT AND LONGER THAN ONE MILE.
3. POINTS A AND A' ARE THE LOCATIONS OF A DRIVER'S LINE OF SIGHT (3.5 FOOT EYE HEIGHT) TO ONCOMING VEHICLES (4.25 FOOT OBJECT HEIGHT) LOCATED AT POINTS C AND C' WHILE IN A VEHICLE AT AN INTERSECTION 10 FEET BACK FROM THE PROJECTION OF THE CURB LINE. IN NO CASE SHALL POINTS A OR A' BE LESS THAN FIFTEEN (15) FEET FROM THE EDGE OF THE TRAVELED WAY.
4. THE DISTANCE Y' IS THE DISTANCE MEASURED FROM THE CENTERLINE OF THE MAIN ROAD TO THE FAR RIGHT THROUGH TRAVEL LANE. THE DISTANCE Y' IS EQUAL TO ZERO FOR T-INTERSECTIONS. THE DISTANCE X IS THE DISTANCE MEASURE FROM THE CENTERLINE OF THE MAIN ROAD TO THE CENTER OF THE FAR RIGHT THROUGH TRAVEL LANE. THE DISTANCE X' IS THE DISTANCE MEASURED FROM THE CENTERLINE OF THE MAIN ROAD TO THE CENTER OF THE TRAVEL LANE NEAREST THE CENTERLINE OF THE ROAD.
5. THE LIMITED USE AREA IS DETERMINED BY THE GRAPHICAL METHOD USING THE APPROPRIATE DISTANCES GIVEN IN THE ABOVE TABLE. IT SHALL BE USED FOR THE PURPOSE OF PROHIBITING OR CLEARING OBSTRUCTIONS IN ORDER TO MAINTAIN ADEQUATE SIGHT DISTANCE AT INTERSECTIONS.
6. THE LINE OF SIGHT LINE SHALL BE SHOWN AT INTERSECTIONS ON ALL LANDSCAPING PLANS, GRADING PLANS AND TENTATIVE TRACT PLANS WHERE SAFE SIGHT DISTANCE IS QUESTIONABLE. IN CASES WHERE AN INTERSECTION IS LOCATED ON A VERTICAL CURVE, A PROFILE AT THE LINE OF SIGHT MAY BE REQUIRED.
7. OBSTRUCTIONS SUCH AS BUS SHELTERS, WALLS OR LANDSCAPING WITHIN THE LIMITED USE AREA WHICH COULD RESTRICT THE LINE OF SIGHT SHALL NOT BE PERMITTED.
 - A. PLANTS AND SHRUBS WITHIN THE LIMITED USE AREA SHALL BE OF THE TYPE THAT WILL GROW NO HIGHER THAN 12 INCHES ABOVE THE GROUND AND SHALL BE MAINTAINED AT A MAXIMUM HEIGHT OF 12 INCHES ABOVE THE GROUND. MAINTENANCE AT A LOWER HEIGHT MAY BE REQUIRED ON CREST VERTICAL CURVES PER NOTE 6 ABOVE.
 - B. A PROFILE OF THE LINE OF SIGHT MAY BE REQUIRED TO VERIFY 12 INCHES MINIMUM VERTICAL CLEARANCE ABOVE VARIABLE HEIGHT OBSTRUCTIONS SUCH AS SLOPE LANDSCAPING, PLANTS AND SHRUBS.



COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Approved *Khalid Bazmi*, County Engineer

Revision: August 2018

INTERSECTION SIGHT DISTANCE

STD. PLAN

1117

SHT. 1 OF 3

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Approved *Khalid Bazmi*, County Engineer

Revision: August 2018

INTERSECTION SIGHT DISTANCE

STD. PLAN

1117

SHT. 2 OF 3

COUNTY OF ORANGE, OC PUBLIC WORKS DEPARTMENT

Approved *Khalid Bazmi*, County Engineer

Revision: August 2018

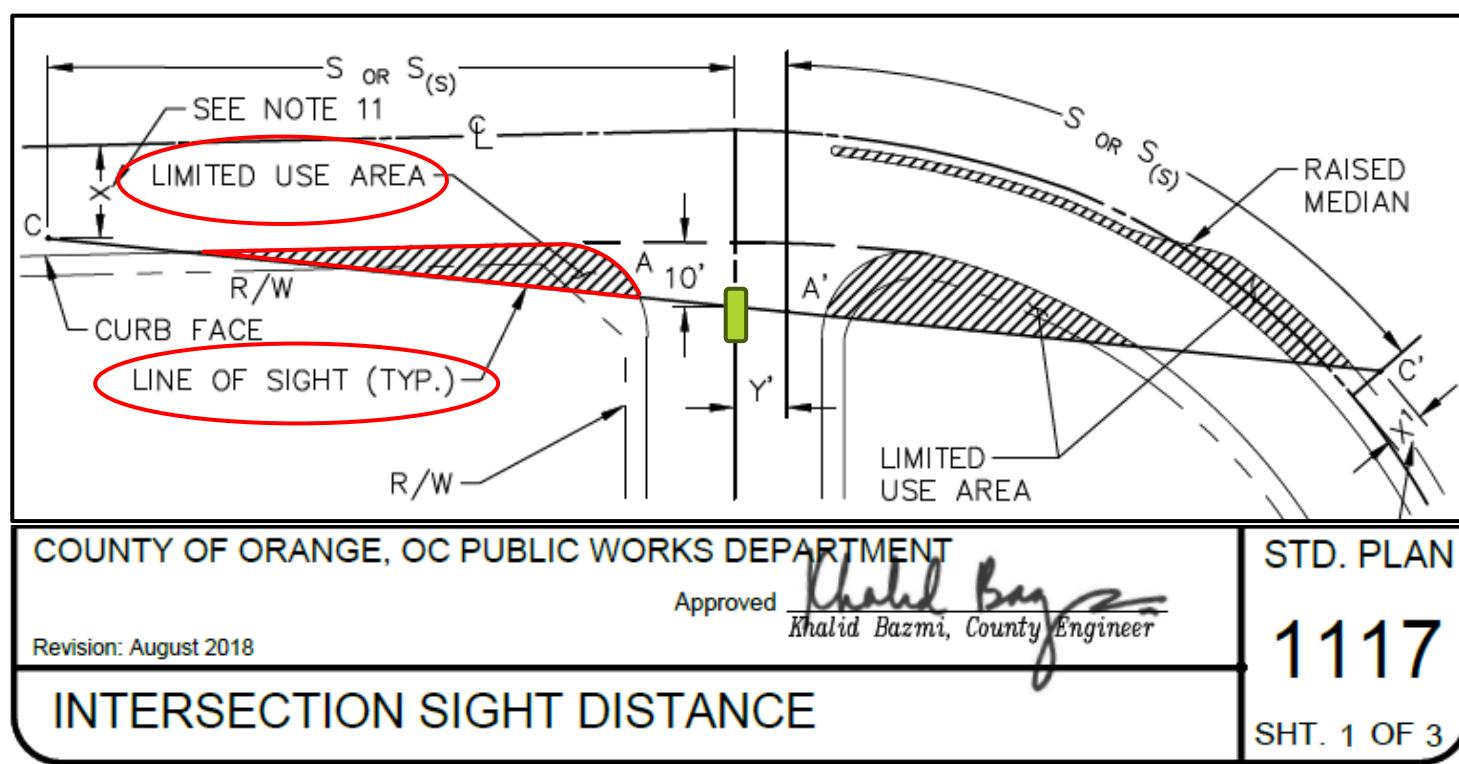
INTERSECTION SIGHT DISTANCE

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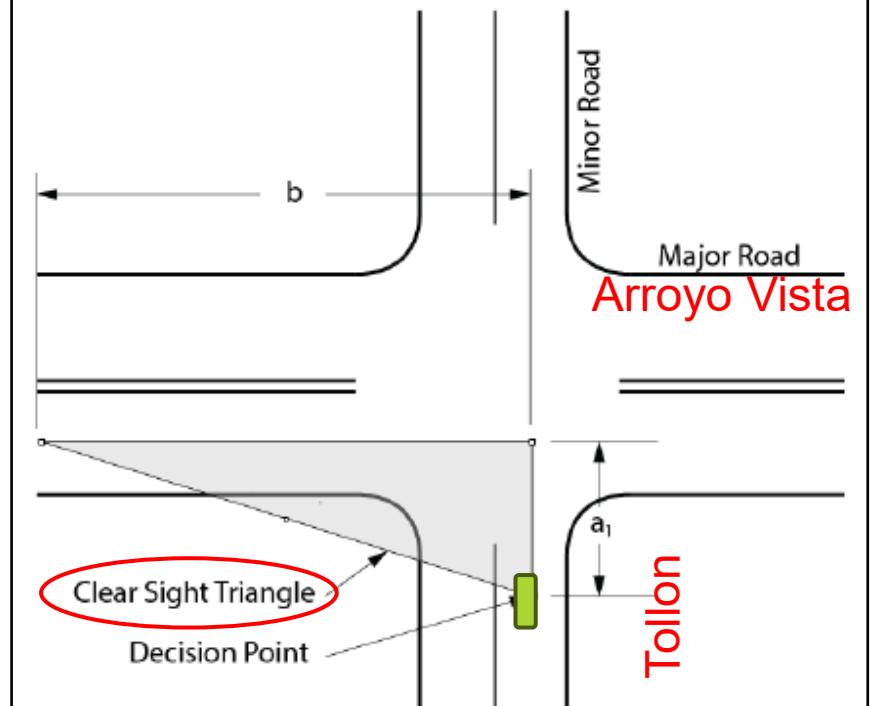
SHT. 3 OF 3

Orange County Standard Plan 1117 vs. Caltrans Highway Design Manual Topic 405



Caltrans Highway Design Manual

Figure 405.1
Corner Sight Distance (b)



Orange County Standard Plan 1117 vs. Caltrans Highway Design Manual Topic 405

Topic 405 – Intersection Design Standards

405.1 Sight Distance

(1) *Stopping Sight Distance*. See Index 201.1 for minimum stopping sight distance requirements.

(2) *Corner Sight Distance*.

(a) General. At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle, bicyclist or pedestrian stopped on the minor road and the driver of an approaching vehicle on the major road that has no stop. Line of sight for all users should be included in right of way, in order to preserve sight lines.

See DIB 79 for 2R, 3R, certain storm damage, protective betterment, operational, and safety projects on two-lane and three-lane conventional highways.

Adequate time should be provided for the stopped vehicle on the minor road to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed. The visibility required for these maneuvers form a clear sight triangle with the corner sight distance b and the crossing distance a_1 or a_2 (see Figure 405.1 as an example of corner sight distance at a two-lane, two-way highway). Dimensions a_1 and a_2 are measured from the decision point to the center of the lane. The actual number of lanes will vary on the major and minor roads. There should be no sight obstruction within the clear sight triangle.

Topic 405 (Design Speed):

The minimum corner sight distance (feet) should be determined by the equation:

$1.47V_m * T_g$, where V_m is the design speed (mph) of the major road and T_g is the time gap (seconds) for the minor road vehicle to enter the major road.

Orange County Std. Plan 1117

DISTANCE (FT.)

	S	$S_{(s)}$	Y'	X	X'
MAJOR	660	580	37	37	13
PRIMARY	610	500	25	25	13
SECONDARY	550	430	18	18	6
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Arroyo Vista from Las Mesitas to Ria



City of RSM Municipal Code

Title 11 – Streets and Sidewalks

- ▶ Sec. 11.01.020. - Adoption of plans, specifications and regulations
- ▶ RSM Municipal Code Section 11.01.020 states that the City Engineer shall, from time to time, submit to the City Council for approval standard plans and specifications for the construction, improvement and maintenance of roadways within the City, and for the use of such facilities.
- ▶ Upon approval and adoption by resolution, said standard plans and specifications, shall be enforced by the City Engineer and the Director of Planning.

Recommendations

- ▶ Adoption of Resolution adopting Caltrans Highway Design Manual Topic 405 – Intersection Design Standards for the Roadway Segment of Arroyo Vista From Las Mesitas to Ria