

VII. TRAFFIC SIGNING AND STRIPING PLANS

A. INTRODUCTION

Traffic signing and striping plans are required for all General Plan Roads and any roadway that is 56-foot wide curb-to-curb (78' R/W) or wider. Transportation Department may require traffic signing and striping plans for smaller classification roadways.

Traffic signing and striping plans shall be designed as a "stand alone" set of plans. Do not show existing topography, contours, or elevations on signing and striping plans unless such information is necessary to perform the work of the signing and striping portion of the project. No references and/or notes shall be directed to the street plans.

Since striping plans determine whether additional roadway improvements are needed to accommodate pavement and/or striping transitions, striping plans shall be submitted with the first street plan submittal to minimize changes to the street plans at later stages.

B. GENERAL REQUIREMENTS

1. All design shall conform to the latest edition of California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD), Caltrans Standard Plans, Caltrans Standard Specifications, and Riverside County Standards.
2. Computer Aided Drafting and Design (CADD) shall be used to prepare all design plans. Upon completion and final approval of the plans, the County shall be furnished with MicroStation Version 7 files of the designs.
3. Each final plan shall be printed on a 24" x 36" sheet of polyester base film (Mylar) using County Standard Title Block (see exhibit "A".) Self-adhesive or stick-on labels and certificates shall not be used. Final plans shall be signed & stamped by the Registered Civil Engineer responsible for the preparation of the design.
4. Minimum lettering size used for the plans shall be 0.12 inch in height.
5. The title sheet of the "stand alone" plan set shall include but not limited to the following information:
 - a. Project Title
 - b. Vicinity Map with North Arrow -

Project shall be shown in relation to major streets and highways within half-mile radius of project. A larger area shall be used if no major roads exist within that distance. Thomas Brothers Guide and/or any other commercial street map is not acceptable.
 - c. Section, Township and Range (to be shown below the vicinity map)

- d. General notes
 - e. A complete list of Construction notes. Indicate the entity performing each item of work by labeling each construction note with either “by Contractor” or “by County”. The contractor quantities must show on the Construction Cost Estimate.
 - f. Quantity Estimates
 - g. List of symbols and abbreviations used on the project
 - h. Sheet index
6. Each design plan shall include but not limited to the following information:
- a. North arrow, drawing scale and 4” bar scale. North Arrow shall be oriented up or to the right on all plans.
 - b. Tract number and parcel map number of adjacent developments.
 - c. Curbs and gutters, dikes, edge of pavements, right-of-ways and labeled as such.
 - d. Jurisdictional boundaries with respective jurisdictions labeled on each side of the boundary lines.
 - e. Street names of all streets shown with appropriate street suffixes (Ave, Blvd, Rd, etc.) All private streets, driveways, and any road not maintained by the County shall be identified on plans.
 - f. Record centerlines, survey centerlines and/or construction centerlines with stations at 100-foot intervals. Centerline stationing shall correspond with street improvement plan centerline stationing and shall increase from South-to-North or West-to-East. When a conflict occurs, stationing shall start from left to right.
 - g. Roadway and right-of-way dimensions.
 - h. Applicable construction notes. Indicate the entity performing each item of work by labeling each construction note with either “by Contractor” or “by County”. The contractor quantities must show on the Construction Cost Estimate.
 - i. All installations and removals shall be specified on plans with construction note numbers and types.
7. Any project that involves existing or proposed school frontage shall implement school zone signing and striping per CA MUTCD. Plans shall clearly show the school property line, the name of the school, school driveway(s) with entrance and exit markings, and school bus loading zone.

8. Plans shall show any existing or proposed parking restrictions using appropriate signs and markings. County Traffic Engineer shall be consulted in order to determine the needs for any parking restrictions.
9. Access roads will receive centerline striping if it is curvilinear. Straight access roads need no striping. The advisory speed limit sign, W13-1, if required shall show "Speed to be determined in field" on the plans. Route turns must have arrow signs, W1-6; W1-1 or W1-2 with W13-1 (advisory speed sign) may be added if approach is over 500'.
10. Stop sign control requirements:
 - a. At a tee intersection of two Local roads, no Stop control is required.
 - b. At a cross intersection of two Local roads, Stop signs shall be placed on one road to designate the other as the "through road".
 - c. At a tee or cross intersection of a Local road and a Collector or above, Stop sign shall be placed on the Local road to designate the Collector or above as the "through road".
 - d. All-Way Stop Control -
 1. All way stop control is governed by Board of Supervisors Policy G-8. All-way-stop-control is not recommended if the criterion for Policy G-8 is not met.
 2. All-way-stop-control may be placed at an intersection that is within 1500 feet of school property line. The location would also need to be identified as a walking path to school.
 - e. Pavement Marking -
 1. 12" white limit line (or crosswalk) and "Stop" pavement legend shall be installed with the stop sign where the cross street is already striped or will be striped as part of the project.
 2. Where the existing crossroad is not striped, and will not be striped as part of this project, only a "Stop" sign is required.
11. 25 mph speed limit sign, R2-1(25), shall be installed at the entrance roads to residential tracts under the following conditions:
 - a. The residential tract is a Schedule "A" tract
 - b. Entrance road connects to a road having a right of way width of at least 88 feet
 - c. Entrance road qualifies as "Residence District" per California Vehicle Code definition
12. A "No Outlet" sign, W14-2, shall be placed at entrance to a stub street that is over 500' in length, or where the end of the street is not visible from the intersection, or road network from which there is no exit in the newly constructed tract streets.
13. No RVs and Trailers parking sign in accordance with Riverside County Ordinance 413 shall be installed at all entrance roads to residential tracts.

C. DESIGN REQUIREMENTS

1. Traffic signing and striping plans shall use 1"=40' scale minimum. 1"=20' or 1"=10' scale shall be used when additional clarity is required.
2. Centerline and/or lane stripes are required for general plan roads, any roadway that is 56-foot wide curb-to-curb or wider, and any roadway required by the Transportation Department. Pavement less than 500' in length is normally not considered a lane of traffic (lane will not be striped).
3. Show widths of travel lanes at limit line, intersection, and at begin and end of taper.
4. Show centerline stations at begin and end of tapering stripes, and taper ratio adjacent to tapered stripes.
5. Show distances between painted edge line and edge of pavement.
6. Show distances between centerlines and curbs, edge of pavements, and right-of-way.
7. Show existing traffic control devices, pavement markings, and striping up to 200' beyond the project limits or as determined by the Transportation Department with thin line weight and solid line style.
8. Dimension existing and proposed sign and pavement marking locations to the nearest cross street centerline or use centerline station.
9. Show existing striping to be removed with thin line weight and short dashed line style.
10. Show new signing and striping with thick line weight and solid line style.
11. Total quantities of sandblasting and grinding in square feet shall be shown on the plans.
12. Pavement taper formula:
 - a. For low speed roads, tapers on pavement shall be minimum of 2:1 for widening traffic and 10:1 for merging traffic.
 - b. For roads having a speed greater than 25 mph, taper length for merging lanes or lane drops shall follow Caltrans standard:
$$\text{Taper Length (ft)} = \text{Design Speed (mph)} \times \text{Distance Traffic Moves Laterally (ft)}$$
13. Striping taper formula:
$$\text{Taper Length (ft)} = \text{Posted Speed (mph)} \times \text{Distance Traffic Moves Laterally (ft)}$$
$$\text{Taper ratio} = \text{Taper Length (ft)} : \text{Distance Traffic Moves Laterally (ft)}$$
14. Lane drop signing and marking shall be installed per Figure 3B-12 (CA) of CA MUTCD.
15. Type "F" (white) reflector posts shall be installed at all merging lanes or lane drops at 25' intervals. Minimum of 3 reflectors shall be installed.

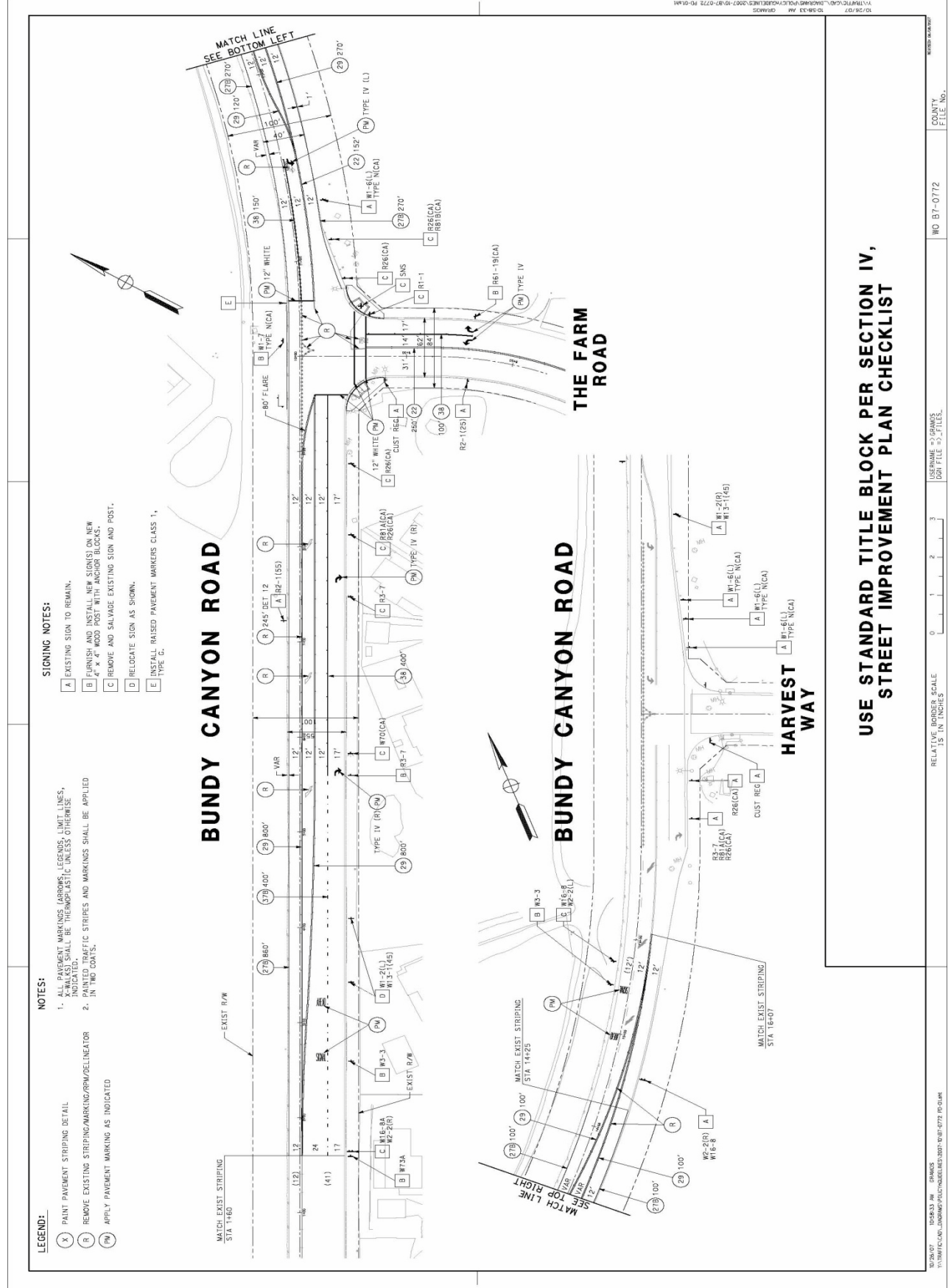
16. Minimum left-turn pocket length, lane width, and pocket transition length at general plan highway crossing for Secondary Highway or above shall be per County Ordinance 461.
17. Minimum left-turn pocket length at minor crossing is 100', but may be extended to 150' or 200' for facilities that generate higher frequency of left turn movements and/or truck traffic. Standard transition for left turn pocket shall be 120'. A 90' transition may be allowed where conditions do not allow for the standard length, and must be accompanied by a written justification for a substandard installation. Two-way left-turn lane is to be painted where a road has multiple access points; otherwise a painted median is acceptable.

D. GENERAL NOTES

The following general notes shall be shown on the title sheet:

1. All material and work shall conform to the latest edition of Caltrans Standard Plans and Standard Specifications, and California Manual on Uniform Traffic Control Devices.
2. The Contractor shall notify Underground Service Alert, (800) 227-2600, and all concerned utility companies at least two working days in advance of excavation.
3. All traffic stripes, pavement markings, and signs shall be reflectorized and in standard sizes. All striping and marking details shall match Caltrans Standard Plans details. Stencils for pavement marking shall match Caltrans Standard Plans.
4. The Contractor shall remove all conflicting stripes, pavement markings, and raised pavement markers in accordance with the plans and as directed by the Engineer. Word or symbol pavement markings shall be removed by sandblasting or grinding a rectangular area covering the whole marking.
5. All crosswalks shall have 10 feet in between the 12-inch white or yellow stripes.
6. All double yellow stripes shall have 3-inch painted black line separating the yellow stripes.
7. The County shall install painted traffic stripes in accordance with the plans with all incurred costs borne by the Developer/Applicant. The County reserves the right to require the Contractor to install painted traffic stripes. Painted traffic stripes and painted pavement markings (if allowed) shall be applied in two coats.
8. The Contractor shall apply pavement markings including crosswalks, limit lines, and stop bars using thermoplastic material. All other traffic stripes shall be painted in two coats.
9. The Contractor shall furnish and install raised pavement markers (RPMs) within seven working days of roadway striping. All existing RPMs within the project area shall be replaced in kind or removed in accordance with the plans, or as directed by the Engineer.

10. The Contractor shall install standard size sign panel on 4" x 4" wood post and 48" sign panel on 4" x 6" wood post with anchor blocks, fastened with hex bolts and nuts per Caltrans Standard Plan RS2, unless otherwise noted. The exact location of all signs shall be determined in the field by the Engineer.
11. The Contractor shall remove signs in accordance with the plans and as directed by the Engineer. The Contractor shall deliver removed signs to the County Yard or as directed by the Engineer.
12. The Contractor shall layout (cat-track) the proposed signing, striping and markings in accordance with the plans within three working days of final paving. Contact County Traffic Operations at (951) 955-6896 to obtain approval of layout prior to actual installation.
13. The Contractor shall coordinate all signing and striping works through Engineer prior to opening new roadways and/or existing roadways to new signing and striping in accordance with the plans.



COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

**PREFERED MICROSTATION
LEVELS, COLORS AND PLOTTED LINE WEIGHTS**

TO BE USED FOR ALL DRAWINGS
ELECTRONICALLY SUBMITTED TO THE COUNTY

	COLOR	WEIGHT
LEVEL 1		
TITLE BLOCK	RED	.70mm
EXISTING STREET IMPROVEMENTS	WHITE	.25mm
RIGHT-OF-WAY LINES	RED	.70mm
LEVEL 2		
CONDUCTOR SCHEDULE	BLUE	.35mm
POLE SCHEDULE	BLUE	.35mm
PHASE DIAGRAM	BLUE	.35mm
SENSOR TABLE	BLUE	.35mm
LEVEL 3		
ALL NEW SIGNAL EQUIPMENT	GREEN	.50mm
NEW CONDUIT	GREEN	.50mm
NEW DETECTOR LOOPS	GREEN	.50mm
LEVEL 4		
EXISTING STRIPING, SIGNING AND MARKINGS	BLUE	.35mm
LEVEL 5		
PROPOSED STRIPING, SIGNING AND MARKINGS	GREEN	.35mm
LEVEL 6		
ALL UTILITIES	WHITE	.25mm
LEVEL 7		
TEXT	BLUE	.35mm
DIMENSIONS	BLUE	.35mm
SPECIFIC DETAILS (NORTH ARROW, USA ALERT)	GREEN	.50mm
LEVEL 8		
PROPOSED STREET IMPROVEMENTS	GREEN	.50mm
LEVEL 9		
CENTERLINES	WHITE	.25mm
LEVEL 10		
AREAS FILLED WITH HATCHED LINES	WHITE	.25mm
LEVEL 11		
AREAS CONAING HATCHED LINES	GREEN	.50mm
LEVEL 12		
EXISTING SIGNAL EQUIPMENT	WHITE	.25mm