

SECTION 4

STREETS

4-1 STREET TYPES AND DESIGN WIDTHS – The standard approved street types and design widths for Sutter County are as follows:

- A. 40 Foot Street – A minor residential street with a right-of-way width of 40 feet, a back-to-back of curb width of 32 feet, and 4 foot sidewalks. See Standard Drawing H-4. A 6-foot planter may be added between the back of curb and sidewalk making the right of way 52 feet.

40 foot streets are normally used when serving 99 or fewer single family residential units. Some duplexes may be included when the street is less than 400 feet long.

- B. 48 Foot Street – A standard residential street with a right-of-way width of 48 feet, a back-to-back of curb width of 40 feet, and 4 foot sidewalks. See Standard Drawing H-4. A 6-foot planter may be added between the back of curb and sidewalk making the right of way width 60 feet.

48 foot streets are normally used for serving more than 99 but fewer than 400 single family residential units and for serving duplex developments.

- C. 60 Foot Street – A collector street with a right-of-way width of 60 feet, a back-to-back of curb width of 51 feet, and 4.5 foot sidewalks. See Standard Drawing H-5. A 6-foot planter may be added between the back of curb and sidewalk making the right of way 72 feet.

60 foot streets are required in all commercial, industrial, and multiple family developments and are normally used in the vicinity of parks, schools and other public facilities in residential areas when serving more than 400 residential units.

- D. 86 Foot Street – A minor arterial street with a right-of-way width of 86 feet, a back-to-back of curb width of 77 feet, and 4.5 foot sidewalks. See Standard drawing H-6. Intersection widening may be required in accordance with Standard Drawings H-11. A 6-foot planter may be added between the back of curb and walk making the right-of-way 98 feet.

86 foot streets shall be required when shown on the Sutter County Major Street and Highway Plan.

- E. 110 Foot Street – A major arterial street with a right-of-way width of 110 feet, a back-to-back of curb width of 101 feet, and 4.5 foot sidewalks. See Standard Drawing H-7. Intersection widening may be required in accordance with Standard Drawings H-11.

110 foot streets shall be required when shown on the Sutter County Major Street and Highway Plan.

- F. Arterial Street Design – 110 foot major arterial streets have a solid non-traversable median between cross street intersections which shall be spaced at least 900 feet apart. Minor street intersections (with right turns only should be no closer than 450 feet from each other or from the cross street intersections. Major driveways which will serve significant traffic volume, as determined by the Director, shall be considered as intersecting streets with regard to spacing, and all other driveways will have right turns only. Driveways should be located as far apart as practical with a minimum of 150 feet between driveways or from driveways to intersections.

All streets 86 feet and wider shall be designed to the appropriate arterial standards regardless of whether they are apparent on the County Master Plan of Streets and Highways. Where streets are constructed with the arterial standard widths, it is intended that they meet all the standards specified herein.

- G. Frontage Road – A street which provides service to abutting property and control of access alongside another street for which direct access is prohibited or undesirable. Frontage roads shall conform to the frontage road standard with a 26 foot paved surface with a barrier curb on one side and curb and gutter and a minimum 4 foot sidewalk on the other side. See Standard Drawing H-7 and Section 4-17(D).
- H. Partial Street – A street for which the full right-of-way cannot be dedicated or the complete street cannot be constructed. Partial street shall be in accordance with Section 4-5.

4-2 STREET CLASS - The standard approved street classes of Sutter County are as follows:

- A. Class "A" Streets - Class "A" street improvements shall be in accordance with Standard Drawings H-4 through H-7 and shall consist of the following:
1. "Asphalt" concrete pavement over an aggregate base, and aggregate subbase as required.
 2. Concrete curb and gutter and sidewalks.
 3. Side slopes not steeper than 2:1 in cuts or 2:1 in fills, or a reinforced concrete retaining wall beginning at the right-of-way line.
 4. Street lights.

Street improvements for all single family residential lots and parcels having a net area of 14,500 square feet or less and a (lot) frontage of 100 feet or less shall be Class "A". The net area shall be considered to be that portion of the lot or parcel exclusive of street right-of-way, fenced easements and fenced parkways. Lot frontage in the case of a corner lot shall mean the side of the lot with the narrowest street frontage.

When considering subdivision improvements, the average lot area and average lot frontage shall be used to determine the street class. Lots in excess of 16,000 square feet shall not be considered in averaging lot areas. Lots having a lot frontage in excess of 125 feet shall not be considered in averaging lot frontage.

Property developments on land zoned or used for duplex, multiple residential business and professional, commercial, and industrial uses shall require Class "A" street improvements, regardless of the individual lot frontage or area.

Single family lots adjacent to 86 foot streets and 110 foot streets shall require Class "A" street improvements when within the limits of the urban area, regardless of the individual lot frontage.

- B. Class “C” street improvements shall be required in zoning AG. Class “C” street improvements shall be in accordance with Standard Drawings H-3.

The normal condition of using 40 foot streets to serve up to 99 single family residential units (Section 4-1(B)) shall also apply to R-1 and R-2 development.

4-3 STRUCTURAL SECTIONS - The following standards for the design of structural sections shall govern the preparation of plans for proposed improvements.

- A. In all areas pavement shall be designed on the basis of the resistance R-value as determined in accordance with the State of California, Department of Transportation, or other approved method.

The thickness of the various structural components shall be determined by the tables, charts, formulas and procedures contained in the State Design Manual, or as directed by the Director.

Minimum traffic index shall be as specified in Table 4-1, or as determined by the Director.

TABLE 4-1

Street Classification	Minimum Traffic Index	Minimum Structural Section		
		AC	AB	ASB
Minor Residential	5.0	2 ½"	8"	
Standard Residential	6.0	3 ½"	8"	
Collector	7.0	3 ½"	8"	
Industrial/Commercial	8.0	3 ½"	8"	6"
Minor Arterial	9.0	5"	8"	6"
Major Arterial	10.0	5"	8"	6"

- B. The minimum allowable thickness of roadbed section shall be as follows:
1. 6" Portland cement concrete and 4" aggregate base on 20 foot streets (alleys).
 2. 2 ½" asphalt concrete and 8" aggregate base on 40 foot streets serving single family residential and duplex developments.
 3. 3 ½" asphalt concrete and 8" aggregate base on 48 foot and 60 foot streets.
 4. 5" asphalt concrete, 8" aggregate base, and 6" aggregate subbase on 86 foot and 110 foot streets.
 5. The minimum structural section for industrial and commercial streets shall be 3 ½" asphalt concrete, 8" aggregate base, and 6" aggregate subbase unless otherwise specified by the Director.
 6. Developments shall use paving sections established by the Director for streets other than 40 and 48 foot streets where such special structural sections have been established.
 7. In transition areas from one street width to another street width standard, the heavier structural section shall be used in the transition area.
 8. As an alternative to the preceding structural sections, total asphalt concrete structural sections may be specified to the following minimum thicknesses:
 - a. 5-1/2 inches of asphalt concrete equals 2 inches of asphalt concrete and 6 inches of aggregate base.
 - b. 6 inches of asphalt concrete equals 3 inches of asphalt concrete and 6 inches of aggregate base.
 - c. 9 inches of asphalt concrete equals 3 inches of asphalt concrete, 6 inches of aggregate base and 6 inches of aggregate subbase.

Total asphalt concrete sections shall receive the specific approval of the Director.

- C. Portland cement concrete streets may be constructed with the approval of the Director.

4-4 PROFILE STANDARDS - The following standards for the design of profiles shall govern the design of proposed improvements. See Section 3-6(D).

- A. The minimum grade on new streets shall be 0.5 percent, including the curb and gutter grade around intersection corner roundings. Curb and gutter elevations on crest and sag vertical curves shall be adjusted to meet the 0.5 percent minimum grade.
- B. The minimum grade of gutter sections constructed on existing streets shall be 0.20 percent.
- C. Standard cross slope on new streets shall be 2.0 percent.
- D. The minimum cross slope on widening shall be 1.5 percent and the maximum cross slope shall be 3.0 percent. The cross slope of the widening shall conform to the cross slope of the existing pavement whenever possible.
- E. When two streets intersect, neither street shall have a grade greater than 3.0 percent for a minimum distance of 40 feet measured from the curb line of the intersecting street, except in unusually rough terrain, as determined by the Director. The centerline of the lesser intersecting street shall meet the cross slope at the projected lip of the gutter. Cross slope may be reduced to 1.0 percent within the intersection, if necessary.
- F. The minimum vertical curve length allowable at the intersection of two grades shall be 50 feet. Vertical curves on residential and collector streets may be omitted where the algebraic difference in grades does not exceed 2.0 percent. The minimum vertical curve data to be computed and shown on the plans shall consist of the point of intersection elevation, the tangent gradients, the middle ordinate and the length of curve.
- G. The design speed and minimum stopping sight distance over any segment of roadway shall be as follows unless a lesser design speed is specifically approved by the Director:

<u>Street Type</u>	<u>Recommended Design Speed</u>	<u>Minimum Stopping Sight Distance</u>
40 foot R/W	25 MPH	150 feet
48 foot R/W	30 MPH	200 feet
60 foot R/W	35 MPH	250 feet
86 foot R/W	55 MPH	500 feet
110 foot R/W	55 MPH	500 feet

Stopping sight distance is measured from the drivers' eyes, which are assumed to be 3.5 feet above the pavement surface, to an object 0.5-foot high on the road.

- 4-5 PARTIAL STREETS - Partial streets may be permitted by the Director along the boundary of a subdivision or property of the developer where the full right-of-way cannot be dedicated or where the complete street cannot be constructed, but will ultimately be constructed with adjacent development.

The minimum right-of-way width shall be 40 feet or one-half of the proposed right-of-way, whichever is greater.

Partial streets shall be constructed to a complete geometric and structural section for a minimum paving width specified by the following:

- A. On 40 and 48 foot streets, the pavement width shall be 24 feet.
- B. On 60 foot streets, the pavement shall extend five feet past centerline for a total of 28 feet.

The intersection pavement edges shall have a minimum radius of 13 feet on the uncompleted side. All other edge of pavement radii shall be 25 feet or greater.

When paving partial construction of an ultimate street development, the edges of the current pavement shall be protected by use of 2" x 6" approved headers, construction grade, or by paving a minimum of one foot additional width of aggregate base material beyond the edge of pavement to the grade and depth of the adjacent structural section.

- 4-6 OFFSET INTERSECTION -

- A. Streets intersecting any 40 foot, 48 foot, or 60 foot industrial or residential collector street from opposite sides shall have their centerlines meet, or the offset between centerline intersections shall be a minimum of 200 feet.

- B. Streets intersecting any 86 foot street from opposite sides shall have their centerlines meet, or the offset between centerline intersections shall be a minimum of 300 feet.
- C. See Section 4-1(F) for intersection spacing requirements for 86 foot and greater streets where there are median dividers.

4-7 CUL-DE-SAC - Cul-de-sac streets shall be terminated with a bulb which shall have right-of-way and back of curb radius dimensions conforming to Standard Drawing H-8 and the following:

<u>Approach Street</u>	<u>R/W Radius</u>	<u>Back of Curb Radius</u>
40 foot street	50 feet	46 feet
48 foot street	50 feet	46 feet
industrial street	56 feet	51.5 feet
60 foot street	56 feet	51.5 feet

No cul-de-sac shall exceed 600 feet in length as measured from the projected edge of gutter or edge of pavement to the center of the bulb.

A hammerhead bulb with a right-of-way and geometric dimensions conforming to Standard drawing H-9 may be approved by the Director in lieu of the standard cul-de-sac when there is no vehicular access from the development. Special turnaround designs may be approved by the Director under unusual topographic or other conditions.

4-8 ELBOW INTERSECTION - Elbows shall be required at right angle intersections in accordance with Standard Drawing H-10. Only under unavoidable or extreme conditions will an elbow other than $90^{\circ} \pm 5^{\circ}$ be permitted by the Director. Elbow intersections are not allowed on 86 foot and 110 foot streets.

4-9 CENTERLINE RADII - The curve data (delta angle, length, tangent and radius) for all centerline curves shall be computed and shown on the plans. The minimum radius curve for 40 foot streets shall be 200 feet.

The minimum radius curve for 48 foot streets shall be 300 feet with the exception that 48 foot streets exceeding 1,000 feet in length and functioning as collectors serving over 99 lots and connecting to 86 foot or 110 foot streets shall have a minimum radius curve of 500 feet.

The minimum radius curve for 60 foot streets shall be 500 feet.

The minimum radius curve for 86 foot and 110 foot streets shall be 2,000 feet.

Special consideration will be given to unusually difficult alignment problems. Any exception to the above minimum radius requirements shall be approved by the Director.

Where a centerline radius on a major street is less than the above requirements is approved by the Director, superelevation may be required.

A minimum tangent length of 200 feet is required between reversing curves on 60 foot and larger streets.

- 4-10 SIGHT DISTANCE AT INTERSECTIONS – Streets shall not be designed with intersections on the inside of curves or at any location in general where sight distance will be inadequate for drivers to tell if they can safely enter the traffic flow or cross the street. The minimum distance from an intersection to a curve shall be the applicable minimum sight distance listed below. Exceptions may be made by the Director for especially difficult design circumstances only if visibility easements to provide adequate sight distances are established. In lieu of visibility easements, additional street right-of-way may be dedicated. Minimum intersection design sight distance standards shall be as follows:

Minimum Sight Distance

<u>Type Street Being Entered</u>	<u>Recommended Design speed (MPH)</u>	<u>Minimum Sight Distance*</u>
40' R/W	25	280'
48' R/W	30	330'
60' R/W	35	390'
86' R/W	55	500'
110' R/W	55	550'

*Distance measured from an entering driver's eye position to the position of the closest approaching vehicle's far front corner.

The entering driver's eye position shall be assumed 3 feet to the right of the entering street's centerline, 3.5 feet above the pavement surface, and 11 feet clear of the nearest vehicle lane on the street being entered.

The position of the closest approaching vehicle's far front corner shall be assumed 3 feet from the edge of the nearest approaching vehicle lane and 4.25 feet above the pavement surface for each direction of travel.

Major driveways serving significant traffic volume, as determined by the Director, shall be considered as intersecting streets with regard to sight distance.

All streets and driveways shall conform to Standard Drawing H-14 for visibility requirements, as well as to the requirements herein.

Visibility easements shall describe an area to be maintained clear of any and all obstructions to a clear view from the adjacent streets. No sign, hedge, structure, natural growth, fence, or other obstruction of any kind whatsoever to a clear view, higher than 2'6" above the nearest pavement surface (or traveled area where no pavement exists) shall be installed or maintained or shall be permitted to be installed or maintained within the easement area.

Visibility easements shall be identified on subdivision maps.

All visibility easement areas (or additional street right-of-way provided in lieu of) between fences or walls and curbs or sidewalks shall be improved as follows:

- C. Standard portland cement concrete sidewalk shall be placed in all areas having a width of 3 feet or less, and in all areas within intersection corner roundings.
- D. All areas having a width greater than 3 feet and not within intersection corner roundings shall be surfaced with 2 inches of asphalt concrete or other impervious, non-raveling surfacing subject to the approval of the Director. Soil sterilization shall be applied in accordance with the manufacturer's instructions.

4-11 RIGHT-OF-WAY RADII - Minimum right-of-way radii for intersection corner roundings shall be in accordance with the Standard Drawings and the following:

<u>Street Type</u>	<u>R/W Radius</u>
40 foot	20 feet
48 foot	20 feet
48 foot*	25 feet
60 foot, 86 foot and 110 foot arterials	35 feet

*Intersections with a wider street.

When two streets of different widths intersect, the radius for the narrower street shall apply, except that when a 48 foot street intersects a wider street, the radius for the wider street shall apply.

- 4-12 RIGHT-OF-WAY WIDTHS - Right-of-way widths shall be in accordance with these standards for the type of street under consideration, and the Standard Drawings, or as required by the director. Right-of-way widths at 86 foot and 110 foot street intersections shall be in accordance with Standard Drawings H-6 and H-7 or as required by the Director.

In no instance, without specific approval of the Director, shall a street have a right-of-way width which is less than that of the street for which it is a continuation. Minimum transitions from a wider to a narrower right-of-way width at 86 foot and 110 foot street intersections shall be approved by the Director.

Right-of-way widths on 60 foot streets at intersections where the right-of-way width of the continuation of the street beyond the intersection increases and at intersections that have unusually high traffic volumes shall be widened as determined by the Director.

Building setbacks, landscaping requirements and parking requirements shall be based on the ultimate right-of-way width regardless of the location of existing public street improvements or right-of-way lines.

- 4-13 BUS STOPS - Bus stops with paved shelter pad areas shall be required on 86 foot streets and 110 foot streets, at all intersections with 48 foot or larger streets.

Bus stops shall be located on the far right hand side of the intersection, unless otherwise ordered by the Director, and shall be in accordance with Standard Drawing H-15.

Where intersections are too widely spaced to provide satisfactory bus stop intervals, as determined by the Director, mid-block bus stops and turnouts may be required.

Bus stop turnouts may be required at locations as determined by the Director.

Sidewalks shall be 6 feet wide at bus stops with an 11 foot wide section to accommodate bus shelters as shown on Standard Drawing H-15.

Type 2 curbs shall be required at all bus stops and turnouts in accordance with Standard Drawing H-15.

4-14 INTERSECTION WIDENING - Pavement widening at intersections shall be in accordance with the following:

- A. Pavement widening shall be required at intersections of 86 foot and 110 foot streets in accordance with Standard Drawing H-11.
- B. Pavement widths on 60 foot streets at intersections where the right-of-way width on the continuation of the street beyond the intersection increases and at intersections that have unusually high traffic volumes shall be widened as determined by the Director.
- C. The Director may determine longer widening than the minimum standards shown on Standard Drawing H-11 is necessary at certain special case important intersections.
- D. Private roads shall be required to accommodate "U" turns at all signals. A minimum outside clear 44 foot radius pavement path shall be required.
- E. Where the projected curb lines do not line up and straight crosswalks cannot be accommodated, the Developer shall be required to install guidestrips. The design, materials, and location shall be determined by the Director.

4-15 PARTIAL PAVEMENT WIDENING - Partial pavement widening shall be terminated in accordance with the following:

- A. Partial pavement widening shall be terminated with the end of the pavement perpendicular to the street unless otherwise specified below. A 2" x 6" redwood header board shall be required at the pavement ending.
- B. Partial pavement widenings that terminate adjacent to an intersection or driveway shall be tapered 45 degrees to the street if right-of-way is available.
- C. The end of a partial pavement widening that terminates a traveled lane in the direction of travel shall be tapered one foot per one foot of pavement offset per 5 MPH increment of design speed. The design speed used in determining the taper shall be that given in the table in Section 4-4(G).

- D. Pavement tapers for the termination of partial street widening different from the above may be required by the Director.

4-16 PAVEMENT CORNER RADII - The minimum edge of pavement radii for intersection corner roundings shall be in accordance with the Standard Drawings and the following:

Class "A" Streets

<u>Street Type</u>	<u>E.P. Radius (C. & G. Lip)</u>
40 foot	26.5 feet
48 foot	26.5 feet
48 foot*	31.5 feet
All others	31.5 feet

*Intersects with a wider street.

When two streets of different widths intersect, the radius for the narrower street shall apply, except that when a 48 foot street intersects a wider street, the radius for the wider street shall apply.

Partial Streets and Class "C" Streets

All intersection pavement edges on partial streets and Class "C" Streets shall have a minimum radius of 25 feet.

4-17 DEVELOPER'S PAVEMENT, SIGNAL, AND STREET LIGHT RESPONSIBILITY -

- A. Development shall conform to the centerline established by the Director.
- B. Where the existing pavement section does not generally meet the current standard and/or the centerline grade and alignment are not satisfactory to the Director, the Developer shall be responsible for the pavement section to the centerline on all streets within, adjacent, and contiguous to his project.

The Developer shall overlay any areas beyond the centerline where the design centerline grade deviates from the existing. The Developer shall

also be responsible for overlaying any low areas where the new pavement meets the existing pavement to maintain a uniform cross slope.

- C. When making a connection to an existing street end, the Developer shall be responsible for removing and reconstructing up to a maximum of twenty feet of the existing roadway to make a satisfactory connection as required by the Director.
- D. The Developer shall be responsible for all of the structural section and pavement on all new streets within, adjacent, and contiguous to the project, including frontage roads.
- E. All temporary approaches to existing roadways required as a result of the development shall be at the Developer's expense. The temporary approaches shall be paved with the structural section to be determined individually for each situation.
- F. The Developer shall be responsible for relocating existing traffic signals and street lights, and installing new traffic signals and street lights as necessary for new street and driveway locations. The Developer shall also be responsible for relocating existing traffic signals and street lights as necessary for the installation of new curbs or new curbs and sidewalks at locations where there are no existing curbs or curbs and sidewalks.

The County will prepare the traffic signal relocation construction plans to be given to the Developer within 45 days after being requested.

- G. The Developer shall be responsible for constructing or modifying curbed median islands where required by these standards, or when required for traffic control as a result of the development, as determined by the Director.
- H. The Developer shall be responsible for bus stops, bus turnouts, and intersection widening as shown on Standard Drawings H-15 and H-11 and in accordance with Sections 4-13 and 4-15 of these Standards.
- I. The Developer shall be responsible for all drainage facilities (bridges, pipes, culverts, and appurtenances) crossing new streets within, adjacent, and contiguous to the project.
- J. The Developer shall be responsible for all on-site modifications to allow for access for the disabled, including but not limited to: guidestrips, sidewalk ramps, etc. The Developer will not be responsible for remedial

road work or delineation for the disabled outside of the limits of his project.

4-18 TRENCHING IN EXISTING PAVED ROADWAYS - Crossings other than perpendicular crossings of existing roadways and all trenching in high traffic locations shall provide for select backfill material and increased structural section depth over the standard for the particular roadway. Boring may be required on 86 foot and 110 foot streets where, in the opinion of the Director, high peak hour traffic volumes or other unusual conditions exist. No trenching will be permitted on any street which has either been constructed or overlaid within the last three years.

4-19 TESTING OF MATERIAL - Testing of materials to be utilized in work performed under the Caltrans Standard Specifications shall be performed in accordance with the methods of the Laboratory of the State of California, Department of transportation. Signed copies of the test results, as required, shall be submitted to the Director. Test results shall show clearly the name of the individual and firm performing the tests, as well as the name of the project, the date of sampling, and the date of testing. Tests performed by the County will be charged to the Developer as part of inspection billing.

The tests indicated in the Caltrans Standard Specifications will be the minimum required. In large developments or those developments presenting special problems, a more comprehensive and extensive testing program may be required. Such conditions will be evaluated and an appropriate testing program prescribed on an individual basis.

4-20 STREET NAMES - All roads and streets within an improvement shall be named by the Developer subject to the approval of the Director. No duplication of names already in use or previously proposed will be permitted. Sound-alike names or names with more than 13 spaces are not acceptable.

Street name signs shall be furnished and erected by the Developer. Street name signs shall conform to the requirement of the Standard Specifications and these Design Standards.

Street names and street name sign locations shall appear on plans submitted for approval. Sign details shall be as shown on Standard Drawing H-16.

Private roads paved with asphalt or portland cement concrete and serve five or more residences shall have street name signs installed in accordance with Section 4-21 below. Street name signs for private roads may be the same as for public streets (Standard drawing H-16) except the words "Private Road" shall be added.

Also, a separate additional sign shall be placed on the same post saying, "Not a County Road," which shall be 9 inches wide, 8 inches high, and have 1-3/4 inch high black letters on a white background.

4-21 STREET SIGN LOCATIONS - Street sign locations shall conform to the following:

- A. Two street name sign installations (with four sign plates on each post) are required at each intersection where one or both of the intersecting streets has a right-of-way width of 60 feet or greater. At a four-way intersection, the installations shall be located on both far right-hand corners of the intersection relative to the street having the greater right-of-way or relative to the more important street if right-of-way widths are equal.

At a "Tee" intersection, the first installation shall be located on the far right-hand corner of the intersection, relative to the through street, and the second installation shall be located adjacent to the through street at a point in line with the centerline of the terminating street. One sign plate may be omitted from the standard four-plate installation at the "Tee" intersection sign locations where an approach street does not exist.

- B. For highways with frontage roads, the street name sign installations shall be located in the divider strip between the frontage road and the main traveled lanes of the highway. All other requirements shall be as outlined above, except only one sign will be required (in the divider strip in line with the centerline of the minor street) when there is no opening in the divider strip for access to the main highway.
- C. On streets having a right-of-way width of 60 feet or greater, the street name sign installations shall be located adjacent to the more important street, at the end of the curb return. On streets with right-of-way widths less than 60 feet, the street name sign installations shall be located at the midpoint of the curb return.
- D. Street name signs shall be placed on street light poles wherever possible, in accordance with Standard Drawings H-17.

4-22 TRAFFIC SIGNS - All cul-de-sac and dead-end (stub) streets greater than 250 feet in length and all cul-de-sac and dead-end (stub) streets less than 250 feet in length where the curb at the centerline of the end of the street is not visible from the standard driver's eye position at the entering intersection shall be posted with a standard 24" x 24" code W53 (Not a Through Street) sign. The bottom of the sign shall be a minimum of 7 feet above the sidewalk. The standard location

for the W53 sign is on the right hand side at the tangent point of the corner rounding, 6 inches (minimum) from the back of the sidewalk.

All hammerhead street ends shall be posted with a standard 24" x 24" Code W-31 (end) sign, and a standard 18" x 18" red Type N marker. The red type N marker shall be mounted below the W31 sign, on the same post. The top of the red Type N marker shall be a minimum of 4 feet above the sidewalk. The standard location for the W31 - Red Type N installation is in the head of position, facing traffic, approximately 3 feet to the right of the prolongation of the street centerline, 6 inches (minimum) from the back of sidewalk.

The sign posts shall be 4" x 4" S4S treated douglas fir (State of California, Spec. No. 56-2.02B).

- 4-23 PERMANENT BARRICADES - Where improvements are temporarily terminated on a street proposed to be extended in the future, the improvements shall include a permanent type barricade at the end of the street extending completely across the right-of-way to prohibit access and to serve as a warning to the public. The barricade shall be constructed, erected, painted, and signed in accordance with Standard Drawing H-21. When necessary, barricades may be lengthened by making the 2" x 8" plank continuous with splicing at the posts.

Gates may be required where streets stub into public park areas or like areas.

Timber barricades with SW-44 signs and Type "L" markers in accordance with Standard Drawing H-22 will be required where partial street widening terminates at the far end of the widening in the direction of traffic. If the ground beyond the pavement constriction is free of fixed objects and relatively flat, the Director may approve the placement of delineators on 6 foot spacing in lieu of a timber barricade and signs.

Sidewalk barricades shall be constructed at the end of sidewalks where pedestrians cannot safely continue beyond the end of the sidewalks. Sidewalk barricades shall conform to Standard Drawing H-23.

- 4-24 STREET TREES - Permission to remove any tree in County rights-of-way or easements shall be obtained from the Director in advance (Tree Removal Permit or Encroachment Permit required).

All trees removed from within the ultimate right-of-way shall be replaced with trees approved by the Director.

Trees shall not be planted any closer than five feet from the back of sidewalks adjacent to County streets.

Where there are four foot minimum planters adjacent to the sidewalks, the planters shall be widened to accommodate the planting of trees.

Approved trees for planting in County rights-of-way and public easements are listed as follows (desired trees not listed may be planted with the approval of the Director):

Deciduous Street Trees

<u>Botanical</u>	<u>Common Name</u>
<i>Alnus cordata</i>	Italian Alder
<i>Celtis australis</i>	European Hackberry
<i>Celtis sinensis</i>	Chinese Hackberry
<i>Fraxinus uhdei</i>	Evergreen Ash
<i>Liquidamber burgundy</i>	Burgundy Sweet Gum
<i>Nyssa sylvatica</i>	Tupelo Sour Gum
<i>Pistacia chinensis</i>	Chinese pistache
<i>Platanus acerifolia</i> "Bloodgood"	London Plane Tree
<i>Platanus acerifolia</i> "Yarwood"	London Plane Tree
<i>Pyrus calleryana</i> "Bradford"	Bradford Pear
<i>Quercus coccinea</i>	Scarlet Oak
<i>Quercus lobata</i>	Valley Oak
<i>Quercus rubra</i>	Red Oak
<i>Sapiium sebiferum</i>	Chinese Tallow Tree

Evergreen Street Trees

<u>Botanical</u>	<u>Common Name</u>
<i>Laurus nobilis</i>	Grecian Laurel
<i>Quercus agrifolia</i>	Coast Live Oak
<i>Quercus ilex</i>	Holly Oak
<i>Quercus suber</i>	Cork Oak
<i>Ulmus parvifolia</i>	Chinese Elm

Umbellularia californica

California Laurel

Confier Street Trees

Botanical

Common Name

Calocedrus decurrens

Incense Cedar

Ginkgo biloba

Maidenhair Tree

Pinus halepensis

Allepo Pine

Pinus anea

Italian Stone Pine

4-25 DRIVEWAYS - Driveways shall be in accordance with Standard Drawings H-12, H-18, H-19, and H-14 as applicable, and the following:

- A. Driveways entering Class "C" Streets shall meet the property line at such a grade and elevation as to permit conversion to a Class "A" street without regrading the driveway beyond the property line. The maximum driveway slope shall be 10 percent except in unusual terrain conditions and specifically approved by the Director.
- B. No driveway will be allowed within 5 feet of a side property line on a commercial development. Exceptions may be approved by the Director for joint driveway or in unusual cases. Joint driveways may be required by the Director and a joint use driveway agreement will be required prior to approval of improvement plans.
- C. The minimum width for a single family residential and duplex driveway shall be 12 feet. Residential and duplex driveways with plus grades shall have a rise of no more than 8 inches above the back-of-sidewalk grade at a point 7 feet from the back of sidewalk. Maximum residential and duplex driveway width shall be 35 feet.
- D. All commercial and multiple family developments shall install commercial driveways as shown on Standard Drawing H-19, except as otherwise provided in this section. The design of major driveways which will serve significant traffic volume, as determined by the Director, shall be based on the width, cross section, and geometrics of a 60 foot public street. The standard multiple family and commercial driveway width shall be 45 feet on 86 foot and 110 foot streets and 35 feet on streets of 60 feet or less in width. Lesser widths may be approved by the Director. Driveways on 86 foot and 110 foot streets shall have a minimum clear spacing of 150 feet between driveways. Lesser spacing may be approved

by the Director when warranted by conditions at a particular site. Exceptions should be obtained as early as possible, prior to submissions of improvement plans or development plans.

A center median up to 10 feet wide may be approved by the Director for certain driveways. The normal driveway width shall be increased by the median width.

- E. The standard driveway for industrial developments shall be commercial driveway, 45 feet wide, as shown on Standard drawings H-19.
- F. When driveways are abandoned or relocated, the driveway sections shall be removed and replaced with standard curb and gutter, sidewalk and planters.
- G. When street frontage improvements are existing with Type 1 curb and gutter, commercial driveways shall be installed for all accesses serving more than four single dwelling units.
- H. Driveways entering levee roads and driveways entering commercial property on all roads shall have a slope not exceeding 5 percent for a minimum distance of 20 feet, measured from the edge of existing pavement. Driveways normally used by vehicle towing house or boat trailer shall have special requirements to be determined on an individual basis by the Director.
- I. The nearest edge of driveways shall not be closer than 50 feet to the end of existing or future traffic medians. Medians shall be reconstructed and/or lengthened to conform to this section if necessary, as determined by the Director.
- J. Visibility requirements for driveways shall be in accordance with Standard Drawing H-14 and Section 4-10. Increased visibility requirements may be required for driveways serving a significant amount of truck traffic.
- K. Major commercial driveways which will serve significant traffic volume, as determined by the Director, shall be considered as intersecting streets and shall conform to the requirements of Section 4-6 regarding offsets.
- L. Driveways near major intersections shall be no closer than 150 feet from the present or future intersection curb return. Exceptions may be granted by the Director. Exceptions should be obtained as early as possible, prior to submission of improvement plans or development plans.

M. Driveways and private roads accessing public streets with no curbs and gutters and sidewalks shall be paved with dust-free surfacing (either asphalt concrete or a double chip seal). Driveways and private roads accessing public roads with sidewalks and/or curbs and gutter shall be paved with concrete or asphalt concrete. See Standard Drawing H-13.

4-26 PEDESTRIAN LANES - Pedestrian lanes within a development shall be constructed with a minimum of 3-5/8 inches of portland cement concrete, Class "B", for the full width of the easement.

The maximum grade for pedestrian lanes shall be 8.33 percent.

Pedestrian lanes, where situated between lots, shall be fenced with chain link fencing from the street right-of-way to the back lot line. These fences shall be 6 feet high from the building setback line to the back lot line and 36 inches high from the building setback line to the street right-of-way line.

Cross fencing to control access shall be placed at the street ends of all pedestrian lanes.

All pedestrian lanes shall have lighting installed in accordance with Section 4-38.

4-27 HANDICAP RAMPS - Sidewalk ramps for handicapped pedestrians shall be constructed at all street intersections and at other locations where required by the Director, in accordance with Standard Drawings H-20, as applicable.

Intersections with Type 1 (rolled) curbs shall have fully depressed ramps in accordance with Standard Drawing H-20.

Intersections with Type 2 (vertical) curbs shall have sloped ramps in accordance with Standard Drawings H-20.

At "T" intersections, two ramps shall be constructed in the appropriate positions on the far side of the through street, opposite the ramps at the corner roundings of the intersecting street.

4-28 CURB AND GUTTER - Curb and gutter shall be installed adjacent to all developments in accordance with Standard Drawing H-1 and the following:

A. Type 1 Curb and Gutter: All developments and all locations not included in B through E below, or as required by the Director.

B. Type 2 Curb and Gutter: Industrial subdivisions.

- C. Type 2 Curb and Gutter: Frontage roads; parks; unfenced schools; open space areas; public facilities; 60 foot streets with commercial and multi-family (not duplex) developments.
- D. Type 2 Curb and Gutter: Within the curb return areas of all intersections of 86 foot and 110 foot streets, and at all bus stops. (See Standard Drawings H-15.
- E. Type 2 Curb and Gutter: 86 foot and 110 foot streets.

4-29 CROSS GUTTERS - No cross or valley gutters will be allowed.

4-30 BARRIER CURBS - Barrier curbs shall be in accordance with these standards and Standard Drawing H-2. Barrier curbs shall be required at all locations where parking will be allowed in a front yard.

Barrier curbs shall be required at bus stops behind a sidewalk where the slope is toward the sidewalk (to prevent sheet flow across the sidewalk). Under sidewalk drains shall be used to remove drainage collected at the back of the barrier curb, as necessary to prevent any flow across the sidewalk. (See Standard Drawings H-24.

Barrier curbs shall be required adjacent to a sidewalk where the slope behind the sidewalk is greater than 4:1 and the slope is away from the sidewalk (for pedestrian safety). Where a retaining wall is allowed, creating a dropoff adjacent to the sidewalk, a minimum 36 inch high barrier fence is required in lieu of the barrier curb at the back of the sidewalk (see Section 4-32 below). Lot grading shall be done so as to not require fencing immediately adjacent to intersections and driveways in violation of the sight distance and visibility requirements.

4-31 SIDEWALKS - Sidewalks shall be in accordance with these standards and the Standard Drawings.

The standard width for all sidewalks shall be 4 or 4.5 feet except as specified below.

All **school** developments shall have eight foot sidewalks along all frontages except that six foot sidewalks may be used along fenced play areas where no access is provided, as determined by the Director.

Sidewalks may be 4 feet wide only for single family, duplex, or industrial development on streets with 48 foot or narrower rights-of-way.

All sidewalks adjacent to **business or commercial** developments shall be 4.5 feet wide, including those which are in an MP zone.

Sidewalks shall be 6 feet wide at **bus stops** as shown on Standard Drawings H-15.

Where utility poles and other obstructions are situated within street-side sidewalks, a minimum of four feet of clear uninterrupted sidewalk area shall be provided. Where it is necessary to widen the sidewalk beyond its standard width to attain the four foot clearance, the widened area shall extend a minimum of five feet beyond each side of the obstruction and a ten foot taper on each side of the widening shall be required.

In certain special case situations, with approval by the Director, sidewalks may be separated from the curb by lawn or approved landscaping. The distance between the back of the curb and the edge of the sidewalk may vary (meandering sidewalk), but shall not be less than 6 feet nor more than 25 feet, except at transitions. Type 2 curb and gutter shall be required at all locations where the sidewalk is separated from the curb.

Where sidewalks end in fill areas, the fill shall be extended beyond the end of the sidewalk for a minimum distance of six feet. As an alternate, a cut-off wall may be constructed at the end of the sidewalk.

Sidewalk barricades shall be required in accordance with Standard Drawing H-23 where satisfactory provision cannot be made for pedestrians to safely continue beyond the terminus of the sidewalk.

- 4-32 FENCES - Fences or walls shall not encroach upon visibility easements required by Section 4-10. All fences and walls are subject to the visibility requirements.

Fences and walls may require modification to accommodate street light poles and/or foundations.

When a barrier fence is required by the conditions described in Section 4-30, "Barrier Curbs," the barrier fence shall be three feet high, shall be chain link type (or another type approved by the Director), shall be placed at the back of sidewalk, and shall conform to the visibility requirements described herein.

- 4-33 PRIVATELY OWNED BRIDGES - Bridges intended for the sole use of the occupants of a multi-family type development or any bridge on a private road shall be designed to withstand an H-20 load. Other design features of the bridge, including but not limited to, widths, railings, clearances, and materials shall be in conformance with County and State Standards. A soils report prepared by a

qualified soils engineer will be required. Design calculations signed by the Consulting Engineer and including the registration number, expiration date, and stamp shall be required.

- 4-34 STREET TERMINATIONS - Vehicular access shall not be permitted from the end of a stubbed street. To obtain vehicular access, the street shall be extended through the property or properly terminated with a standard cul-de-sac bulb. In cases where no access is provided to the end of the street, a modified cul-de-sac bulb may be approved by the Director. (See Section 4-7 of these Standards.)
- 4-35 STREET LIGHTS REQUIRED - Street lights shall be required for all lots and parcels being developed or constructed upon unless excepted by Section 4-36. In addition, street lights may be required for lots and parcels containing existing structures which are being improved or altered, depending on the nature and extent of the work.
- 4-36 STREET LIGHTS NOT REQUIRED - Street lights shall not be required under the following circumstances:
- A. Single family residential subdivision having an average lot street frontage of more than 125 feet but not more than 200 feet will not be required to install a street light system along the streets, but shall, as a minimum, be required to install street lights at all intersections, cul-de-sacs, and at other locations deemed essential for safety.
 - B. Street lights are not required for single family residential subdivisions with an average lot street frontage of more than 200 feet. In determining the average lot street frontage, lots not designed for single family residential use shall not be considered.
 - C. For planned developments, residential, commercial, or industrial developments where the internal streets are not offered for dedication, a street lighting system will not be required for the internal non-dedicated streets, but shall be provided by the developer on the external public street frontage.
- 4-37 LIGHTING PLAN DETAILS - The improvement plans shall show and identify all street lights to be installed, all existing lights in the immediate vicinity of the project, conduit and conductor runs, service points, trees, and all applicable provisions and details specified in these standards.

On subdivision plans, the street lights shall also be shown on a separate plan. The following shall be required on the street light only plan, even though

duplications may be involved. Subdivision street light plans shall include a vicinity map or equivalent, utility poles, public utility easements, names of adjacent subdivisions, intersecting property lines, a legend, north arrow, appropriate scale (1" = 10' to 1" = 100'), all existing street lights on both sides of any street, and all trees within the vicinity of the conduit runs or proposed street lights.

4-38 LIGHTING DESIGN STANDARDS - Street lighting shall be designed in conformance with these specifications, the current edition of the Sutter County Standard Construction Specifications, and the "American National Standard Practice for Roadway Lighting" of the American Standards Institute, except that the average horizontal maintained footcandles for the various street classifications shall be as shown in Table 4-2. Data and calculations supporting the satisfaction of the above requirements shall be submitted for review, or the predetermined design standards included herein shall apply.

TABLE 4-2

Street Classification	St. Type & R/W Width	Type Street Light	Normal Mounting Height	Average Maintained Footcandle	Maintenance Factor
Major Arterial	110'	A	30'	.59	.65
Minor Arterial	86'	A	30'	.40	.65
Collector	60'	A	30'	.26	.65
Residential	40'/48'	B	20'	.12	.70
Pedestrian Lane	-	B	14'	.17	.70

1. Lumens used to calculate the Average Maintained Footcandle shall be 80% of initial lumen value rated by the lamp manufacturer.

4-39 STREET LIGHT DESIGN DETAILS - Design details for street lights are as follows:

- A. Intersections - Intersections shall have at least one street light unless excepted by Section 4-36.
- B. Cul-de-sacs - All cul-de-sacs exceeding 130 feet in length, measured from the street light location at the intersection to the right-of-way line at the end of the cul-de-sac, shall have street light within the bulb.
- C. Pedestrian Lanes - Street lights shall be placed at both ends of pedestrian lanes.
- D. Spacing - Maximum street light spacing, measured along the street centerline, shall conform to Table 4-3 except on 86-foot streets with a 1,000-foot radius horizontal curve or less, in which case the maximum spacing is 170 feet. Note that on Table 4-3 light spacing for 86-foot and 110 foot street is based on a one-side arrangement. Spacing on all other streets is based on a two-side arrangement. The one-side spacing arrangement is a system whereby the street light spacing relates to the distance between street lights all on the same side of the street. The two-side arrangement relates to the distance between street lights taking into consideration the street lights on both sides of the street.
- E. Street Light Poles - All street light poles shall be of galvanized steel, aluminum or concrete, except as provided for by Item "F" below. All pole construction and materials shall conform to the standards outlined in the Standard Construction Specifications, and the Standard Drawings contained therein. Poles shall be identified on the plans or in the special provisions. Identification shall be by "pole series catalog numbering procedure" as shown in the Standard Construction Specifications for galvanized steel poles, or by construction material, by bolt circle diameter, by luminaire mounting height, by pole dimensions and by length of mast arm for other approved poles.

TABLE 4-3

Street Classification	Street Type and R/W Width	Type Street Light	Normal Mounting Height	High Pressure Sodium Lamp Wattage	Front On Lot	Back On Lot	Light Distribution Pattern Midblock Location
					Spacing (one side only)		
Major Arterial	110	A	30'	250	220	220	III
Minor Arterial	86	A	30'	150	220	250	III

Collector	60'	A*	30'	150	220'	II
Residential	48'	B	20'	100	200'	II
	40'	B	20'	100	240'	II

1. Lamp wattage shown is for high pressure sodium lamp only. Design criteria must be submitted for all other lamps.
2. Spacing may be adjusted $\pm 10\%$ to allow for driveways.
3. Back-on lot spacing may be adjusted to 330 feet if both sides of the street are lighted.

*Single family and duplex family zoning shall be type "B" street light (100 watt). 20' mounting height.

The Director may approve special or unusual designs if the character of the surrounding neighborhood warrants unusual design. Where special or unusual design street light poles not specified in the Standard Construction Specifications are to be used, the developer shall supply to the County additional poles to be used for future pole replacement. The minimum number of replacement poles to be supplied to the County shall be 10% of the poles being installed with any fractional percent being rounded up to the next whole number.

- F. Street Lights on Existing Utility-Owned Poles - Where there are permanent existing (or necessary planned) utility owned poles adjacent to the roadway, the street lights may be installed upon the utility pole in lieu of the poles required.
- G. Luminaires - The type of street light and the appropriate wattage shall be specified on the plans. The luminaires shall be high-pressure sodium type with internal ballasts. All luminaires shall conform to the standards outlined in the Standard Construction Specifications.

The light pattern for each luminaire shall be specified on the plans. The light pattern for each luminaire shall be obtained from Table 4-3.

- H. Service - All street light systems shall have underground service provided.
- I. Photo Cell - A single photo cell receptacle shall be provided on the luminaire nearest to the service point for multiple service containing four

or more lights. All other light systems shall have a photocell in each luminaire.