STREETS

SEC. 4.01 TYPICAL SECTIONS

(1) Minimum design sections and rights-of-way widths for new street construction, or modification to existing streets, shall be defined as follows:

(a) Continuation of Existing Streets - No street shall have a right-of-way and improved width of less than the street for which it is a continuation, or that identified in the County's Highway Deficiency Report, without specific approval of the Engineer or hearing body responsible for the project approval.

(b) Frontage Improvements - Street frontage improvements required of new or modified land uses shall be in accordance with Chapter 4, Subchapter 5 and Chapter 19, Subchapters 2 and 3 of the Placer County Code.

(c) New Street Construction - New streets which are not a continuation of existing streets, and which are not identified in the County's Highway Deficiency Report, shall be constructed in conformance with Plates 2 through 21, unless otherwise approved by the Engineer or hearing body responsible for the project approval. Right-of-way requirements for widening at intersections shall conform to Plate 25.

SEC. 4.03 DESIGN SPEED

(1) All residential streets shall be designed for a minimum of 25 mph except that dead-end streets which have a maximum length of 1,000 feet and have the potential to serve a maximum of 10 lots, may be designed to a 15 mph standard. Design speeds of 15 to 25 mph may be permitted by the Engineer where traffic and site conditions warrant. Minimum 25 mile per hour sight distance shall be maintained at every street intersection.

(2) Design speed for collector and arterial streets and for commercial/industrial streets shall be as specified by the Engineer.

(3) The improvement plans shall show the minimum design speed for the street system. Design speeds shall be calculated as specified in the California Department of Transportation "Highway Design Manual". Reference Fig. 203.2 "Comfortable Speed on Horizontal Curves" chart. For minor interior streets within a residential subdivision which serve less than 50 units, Table 203.2, "Standards for Curve Radius" may be used in lieu of Figure 203.2. However, minimum sight distance standards must be met.

SEC. 4.04 STREET LIGHTING

(1) Street lighting shall be installed as directed by the Engineer. Unless otherwise approved by the Engineer or hearing body, the following street intersections shall be lighted:

(a) Intersection of new subdivision streets when minor street has an A.D.T. of 350 vehicles or more and the major street has a design speed of 35 mph or greater.

(b) Intersections of new local street/collector where the cumulative volume of both streets equals 8,000 A.D.T. at the Community Plan buildout or within 10 years.

(c) At locations where lighting is required to maintain the design speed sight distance on roadways (such as on vertical or horizontal curves) as directed by the Engineer.

(2) Unless otherwise specified, luminaries shall be high pressure sodium type of sufficient wattage to produce light distribution in accordance with recommendations of the current edition of the "Caltrans Traffic Manual", and "Caltrans Standard Plans". The standard fixture type shall be a flat-bottom, cobra-head design which directs light downward to the roadway surface as efficiently as possible. Mounting pole height, type and location shall be as approved by the Engineer.

SEC. 4.05 GEOMETRICS AND PROFILES

(1) The following standards for the design of geometrics and profiles for proposed improvements shall govern the preparation of plans for such improvements.

(a) Grades and Cross Slopes

1. Minimum grade on new streets shall be 0.50%.

2. Minimum grade of a Portland cement concrete gutter section construction on existing street shall be 0.25%.

3. Cross slope to crown on new streets shall be 2.0%. (Intersections and super-elevations excepted.)

4. Maximum grade on new streets shall be 15%. In snow areas, the grade shall not exceed 10%, unless otherwise approved by the Engineer.

SEC. 4.05(a) (Continued)

5. The maximum grade of cul-de-sacs in snow areas shall not exceed 6%.

6. The grade of the pavement surface across an intersection shall not be more than 6.0%.

7. The vertical alignment of the major road in an intersection shall govern over the vertical alignment of any minor road when designing the intersection.

(b) Valley Gutters

1. Valley gutters will be allowed only on urban minor and urban secondary residential streets, and only with the specific approval of the Engineer based on review of hydraulic calculations. (Ref: Plate 31).

2. Valley gutters shall be used in driveways in preference to culverts, if feasible.

(c) Vertical Curves

1. Vertical curve design shall be as specified in the California Department of Transportation "Highway Design Manual", to provide the minimum stopping sight distance for the design speed and in no case shall have a length of less than 50 feet unless approved by the Engineer. For drainage purposes and upon approval of the Engineer, vertical grade breaks, not exceeding 2% algebraic grade difference, shall be allowed on roads of design speed up to and including 25 mph, provided they are placed a minimum distance apart so that they provide the equivalent vertical sight distance of a vertical curve for the same design speed, and in no case shall be spaced closer than 200 feet apart.

(d) Horizontal Curves

1. Unless conditions warrant and when approved by the Engineer, changes in direction of the streets shall be made with horizontal circular curves, with the edges of the pavement and curb lines parallel to and equidistant from the centerline of the right-of-way.

SEC. 4.05(d) (Continued)

2. Where a design speed is specified by the Engineer or hearing body, the horizontal curve design shall be as specified in the California Department of Transportation "Highway Design Manual", Figure 203.2 entitled "Comfortable Speed on Horizontal Curves" except as outlined in Sec. 4.03 for minor interior streets of a residential subdivision. Super-elevation may be used only with approval of the Engineer and in no case shall exceed 6 percent slope. Super-elevations are strongly discouraged in snow areas..

3. Where no design speed has been specified, the radius of curvature at the centerline of the street shall not be less than the following:

a. Primary Streets and Expressways 650 feet

b. Industrial Streets 200 feet

c. Minor and Secondary Streets
Above 3500 feet elevation - 150 feet.
Below 3500 feet elevation - 75 feet.

4. For roads with centerline curve radii of 75-100 feet, additional surface width shall be added to the inside of the curve to make a minimum half width of 13 feet, centerline to edge of pavement. For curves 101-175 feet radius, the additional surface shall make a minimum half width of 11 feet. Conform tapers shall extend 25 feet from the B.C. and E.C. of the curve. Any deviation from these standards must be approved by the Engineer.

5. 90 degree elbows shall conform to Plate 19 and shall only be allowed, as approved by the Engineer, on urban or rural minor residential standard roads serving less than 50 units.

(e) Cul-de-sacs

1. The minimum radius for right-of-way lines in cul-de-sacs shall be per Plates 7, 20A, and 20B. Cul-de-sacs with rolled curb and gutter shall have a minimum radius of 35 feet to the edge of pavement or a radius of 37.5 feet to the edge of pavement where curb and gutter is not required unless otherwise specified by the Engineer. Minimum radius cul-de-sacs will be signed for no parking.

SEC. 4.05(1) (Continued)

(f) Driveway Requirements

1. A single driveway is defined as a vehicular access that serves no more than two buildings, with no more than three dwelling units on a single parcel, and any number of accessory buildings. For the purposes of this section, a shared driveway is defined as a vehicular access that serves a maximum of two single family residences or two commercial buildings on separate lots with any number of accessory buildings. Shared driveways shall not have the potential for access to any additional future lots. An accessory building is any building used as an accessory to residential, commercial, recreational, industrial, or educational purposes as defined in the California Building Code, 1989 Amendments, Chapter 11, Group M, Division 1, Occupancy that requires a building permit.

2. Portland Cement concrete driveways shall not be permitted within the County right-of-way where there are no Portland Cement concrete curbs and gutters. (Ref: Plate 28).

3. No driveway shall be allowed within 10 feet of a side property line on a commercial development unless shared driveways are approved. (Ref: Plate 24).

4. The minimum width for commercial driveway section shall be 12 feet (one-way travel) or 25 feet (two-way travel) and the maximum 35 feet with a minimum of 22 feet approved separation between driveways, measured at the right-of-way line. (Ref: Plate 24).

5. Commercial driveway entrances shall conform to Plates 22, 23, 24, and/or 27.

6. All single and shared residential driveways shall provide a minimum 10 foot traffic lane, a 15 foot by 15 foot wide paved apron with a minimum of 2" Type "B" AC over 4" Class 2 AB at the edge of County road, and unobstructed vertical clearance of 15 feet along its entire length.

a. Driveways exceeding 150 feet in length, but less than 800 feet in length, shall provide a turnout near the midpoint of the driveway. Where the driveway exceeds 800 feet, turnouts shall be provided no more than 400 feet apart.

b. Roadway turnouts shall be a minimum of 10 feet wide and 30 feet long with a minimum 25 foot taper on each end.

SEC. 4.05(f) (Continued)

c. A turnaround shall be provided at all building sites on driveways over 300 feet in length, and shall be within 50 feet of the building.

d. Unless otherwise approved by the Engineer, turnarounds will meet the parcel map cul-de-sac or hammerhead standard. (Ref.: Chapter 19, Plate 7)

e. Driveways shall have a maximum grade of 16%, a minimum centerline radius of 50 feet and be capable of supporting a 40,000 pound (H-20) load. Applicants for any subdivision may be required to demonstrate these standards can be met prior to tentative approval of the subdivision.

f. Comparable driveway alternatives may be allowed with the approval of both the Engineer and the CDF/Fire entity.

7. Shared residential driveways shall be designed and constructed to the following minimum standards:

a. A minimum paved section of 2" AC over 4" Class 2 AB, 18 feet wide with two one foot shoulders. Clear pavement widths shall be widened one foot on each side when AC dike is added for drainage and/or cut slopes.

b. Minimum length requirements of the shared driveway shall be 40 feet from the ultimate edge of pavement of the road which it intersects before it splits into separate single driveways.

c. An unobstructed vertical clearance of 15 feet shall be provided along the entire length of the shared driveway.

d. Items 3, 4, 5 and 6 of Sec. 4.05(f) shall also apply to shared residential driveways.

8. Gate Entrances

a. Gate entrances shall be at least two feet wider than the width of the traffic lane(s) serving that gate.

SEC. 4.05(f) (Continued)

b. All gates providing access from a road to a driveway shall be located at least 30 feet from the roadway and shall open to allow a vehicle to stop without obstructing traffic on that road.

(g) Earth Slopes

(1) Slopes shall be two to one (2:1) or flatter. Steeper slopes may be approved by the engineer due to soil conditions, terrain, or where excessive slopes would be required to meet the 2:1 requirement. Terraced slopes shall be as shown on Plate 51. Erosion control of slopes shall be provided for as specified in this manual, or as directed by the engineer. The plans or special provisions shall designate the requirements for this work.

(h) Street Intersections

(1) All streets shall intersect as nearly as possible at right angles. (Ref. Plate 27).

(2) Streets entering on opposite sides of any given street shall have their centerline directly opposite or shall be offset by at least 150 feet.

(3) The minimum distance between streets entering an expressway or primary street shall be 800 feet.

(4) Block lengths should not exceed 1500 feet.

(5) Intersection designs with left turn lanes shall conform to requirements outlined in the current edition of the Caltrans Highway Design Manual for layout and sight distance.

SEC. 4.07 ROADBED DESIGN

(1) Unless otherwise required by project conditions of approval, or subject to the following provisions, the minimum allowable thickness of roadbed on new or reconstructed streets section shall be 3" Type A asphalt concrete and 8" Class 2 aggregate base:

(a) If the developer and/or his private engineer feel their development is in an area where favorable soil conditions are encountered, they may retain a California Registered Civil Engineer or Geotechnical Engineer to prepare a pavement design report on the basis of the resistance factor "R" which shall be filed with the engineer for his approval. However, in no case will the structural section be less than 6" Class 2 aggregate base and 2.5" type A asphalt concrete.

(b) In those areas considered by the Engineer as being critical soil condition areas, it may be required that the section shall be designated on the basis of the resistance factor "R" by a Private Engineer. Any revised section proposed by the private engineer shall be submitted to the Engineer for his approval and shall be supported by a soils report.

(c) The Engineer may require a pavement design report for Collector, Industrial and Arterial streets, and any other situations involving anticipated heavy vehicles or large traffic volumes.

(d) For restoration, repairs, and minor improvements on an existing street, where no other structural standard is specified, the minimum thickness shall be as cited above, or to match existing, whichever is greater.

(2) In all cases involving a structural section design, the traffic index shall be furnished by the Engineer.

(3) Flexible pavement structural section design may incorporate Caltrans, AASHTO, or any other design methodology acceptable to the Engineer.

SEC. 4.07 (Continued)

(4) The use of alternate road building materials will be allowed if supported by a comprehensive pavement design study prepared by a registered civil engineer or Geotechnical engineer and approved by the Engineer. These alternate road building materials may include, but not be limited to, the following:

- Subgrade stabilizing and/or isolating geotextiles and grids
- Pavement stress absorbing interlayers
- Soil and subgrade stabilizing admixtures

- Use of recycled materials in the manufacture of subbase, subgrade, and asphalt concrete
- Rubberized asphalt concrete
- Subbase drainage facilities
- Concrete
- Pavers / Paving stones
- Porous pavement

(5) Positive structural section drainage facilities may be required in low permeability soils, in accordance with recommendations of a Geotechnical report. Drainage system design shall be in accordance with the California Department of Transportation Highway Design Manual, or other method approved by the Engineer. At minimum, subbase drainage shall be provided at all sag points in impermeable soils.

Sec. 4.08 DEAD-END ROADS

(1) Unless an alternative circulation or mitigation plan has been reviewed and approved by the Engineer and the California Department of Forestry, the maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served:

- parcels zoned for less than one acre: 800 feet
- parcels zoned for 1 acre to 4.99 acres: 1320 feet
- parcels zoned for 5 acres to 19.99 acres: 2640 feet
- parcels zoned for 20 acres or larger: 5280 feet
- All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply.

(2) Where parcels are zoned 5 acres or larger, turnarounds shall be provided at a maximum of 1320 feet.

(3) Each dead-end road shall have a turnaround constructed at its terminus.

SEC. 4.09 MATERIALS AND CONSTRUCTION

Materials and construction shall be as specified in the County General Specifications.

SEC. 4.11 SIGNING AND BARRICADES

(1) Street Names

(a) All roads and streets within a development shall be named by the subdivider/developer in accordance with Chapter 23 of the County Code and the addressing policy approved by the County. Names already in use or previously proposed will not be approved. Extensions of collector or arterial streets shall continue with existing road names and the names shall not change when crossing intersections.

(2) Signs

(a) Signs and other traffic safety devices shall befurnished and installed in accordance with the approved plans or as required by the Engineer. Appropriate warning signs shall be installed when the design speed for any portion of the road is less than 25 miles per hour.

(b) Street name signs shall conform to the requirements of these specifications. (Ref: Plate 46).

(c) Street signs shall be visible and legible from both directions of vehicle travel for a distance not less than the stopping sight distances required for the design speed.

(3) Permanent Barricades

(a) Where improvements cover only a portion of the ultimate improvement, and where an improved street is proposed to be extended in the future, the improvements shall include a permanent type barricade at the end of surfacing to serve as a warning to the public. The barricade shall be in accordance with Plate 45.