City of Walnut Creek

STREET STANDARDS

Adopted by the City Council
February 4, 1992

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INTRODUCTION

The design of all new public and private streets shall conform to these street design standards. These standards are not intended to require the City or property owners to widen or improve existing City streets including those in newly annexed areas. If existing streets need to be widened to provide additional capacity, these standards would be used for the design of the project.

The design and layout of these streets shall conform to public safety and welfare requirements, provide for the immediate and future needs of the general public, and reflect the conservation and environmental preservation goals and requirements of the City as contained in the General Plan.

This document is comprised of two sections: Street Development Standards and Street Engineering Standards. The first section deals with required street width, length, parking, sidewalk requirements, turnarounds, and driveways. The second section deals with horizontal and vertical alignment, sight distance, structural section design, traffic control devices, and street lighting.

DEFINITIONS

Public Street - Any street for which the fee title or right-of-way is owned by the City or has been offered for dedication to the public and has been accepted by the City Council. Also, a street which has been used by the general public and is not restricted to specified property owners.

Private Street - Any street right-of-way easement not dedicated to or accepted by the City as a public street and which is restricted to specified property owners.

Major Arterial - The function of a major arterial is to move large volumes of traffic at relatively high speeds. Typically, this kind of street varies from four to six lanes in width; parking, loading, and access to individual properties are prohibited.

Arterial - Arterial streets along with major arterials connect the various sections of the City and provide access to freeways. The are intended to carry high volumes of traffic and provide a means to divert traffic from neighborhood streets.

Collector Street - A street that carries local traffic from one neighborhood to another and to the arterial street system. These streets serve a dual purpose by providing a means for local-through traffic within an area and for direct access to adjacent land uses.

Local Streets - Streets whose primary purpose is to provide direct access to adjacent land uses. Through traffic movement is discouraged on these streets. Local streets shall include residential feeder, residential drive, residential local, and residential lane as defined in Table 1.

Cul-de-sac - Cul-de-sac is a street which connects to another street only at one end.

Public Utility Easement (PUE) - Any property outside of the public right-of-way specifically dedicated for the installation and maintenance of public utilities.

Stub Streets - A street which connects to another street only at one end and will be extended at some future date.

Block - A block is the length of the frontage along the property line between consecutive streets intersecting the frontage.

General Plan - The current General Plan of the City of Walnut Creek as adopted by the City Council and any amendments.

Hillside Areas - Those areas where the average ground slope of the terrain exceeds 15% as defined in Title 10, Chapter 2, Article 14 of the Walnut Creek Municipal Code.

Rural Area - The residential area identified as rural character neighborhoods on Figure 4-8 of the Transportation Element of the General Plan.

Core Area - The area shown on the Core Area Land Use Map, Figure 2.2, of the General Plan.

Average Daily Traffic (ADT) - The average daily traffic (ADT) is the average total number of vehicles traversing a street during a 24 hour period on a typical weekday.

Standard Specifications - The City Standard Specifications approved by Council resolution and any amendments.

Standard Plans - The City Standard Plans as approved by the City Engineer and any revisions.

Tree Ordinance - Title 3, Chapter 8 of the Walnut Creek Municipal Code

Zoning Ordinance - Title 10, Chapter 2 of the Walnut Creek Municipal code

STREET DEVELOPMENT STANDARDS

GENERAL

Right-of-way widths, pavement width, sidewalks, paths, bicycle lanes and other design features shall be in accordance with the requirements of the City's General Plan, adopted City policies, and these requirements.

Except in previously approved planned developments, all new streets serving five (5) or more dwelling units shall be public streets.

STREET WIDTH

Street width must consider residential density, probable peak traffic volume, parking needs and controls, availability of off-street parking, probable vehicle speeds and limitations imposed by sight distances, climate, terrain and maintenance needs. The minimum width which will assure reasonable satisfaction of all foreseeable needs shall be provided.

Table 1 shows the minimum standards for streets. Table 2 shows the minimum standards for streets in rural or hillside areas. In the tables the local street classification has been divided into five types. They are residential feeder, residential drive, residential local, residential lane, and private shared driveway. The type of local street to be used in a development is dependent on the density of the development and the length of the street. For each type there is a maximum length, minimum right-of-way width, minimum street width, number of travel lanes, parking requirements, sidewalk requirements, maximum grade and street termination type. Figures 1 through 7 are typical cross sections of the various residential street types.

Sidewalks within the commercial portion of the Core Area shall be a minimum of 10 feet wide.

All streets must have a minimum of ten feet (10') behind the face of curb for public utility use. If the right-of-way behind the face of curb is less than ten feet, a Public Utility Easement (PUE) will be required to provide ten (10') feet for utility access behind the face of curb.

STREET LENGTH

The length of a block shall not be less than two hundred feet (200') nor exceed one thousand feet (1,000').

Cul-de-sacs shall have a maximum length of nine hundred feet (900').

TURNAROUNDS

Turnarounds shall be provided for all cul-de-sacs and driveways which are longer than one hundred fifty (150') feet.

Turnarounds shall generally be circular in design. T or hammerhead turnaround designs are acceptable on residential local, residential lane, and private driveways. The minimum radius of a turnaround is shown on Table 1 and Table 2. Turnaround designs are shown in Figures 8 and 9.

A temporary turnaround shall be provided at the ends of stub streets when the distance to the end from the nearest intersection exceeds one hundred fifty (150) feet, serves five or more units and the end of the street is not visible from the last intersecting street.

In commercial areas, turnarounds shall be designed to accommodate the turning radius of the largest service vehicle expected to use the street or the turning radius required by the fire district, whichever is greater.

ACCESS TO PARCELS

No building permit shall be issued nor shall any tentative subdivision map be approved unless all lots are provided with approved access to and from a public street.

Private streets shall access public streets by way of a driveway. Gated communities are prohibited.

No driveway access shall be permitted on Ygnacio Valley Road. Other arterials or major arterials may be designated as limited access streets, as determined by the Transportation Administrator. Access may be required to be taken from other local or collector streets. If permitted along arterials, access may be required to be combined with an existing access to adjacent properties to minimize the number of access points along the street frontage. Access from major traffic generating developments, as determined by the Transportation Administrator, may require the installation of a curb return type entrance and provision of acceleration and/or decceleration lanes along the frontage.

EXCEPTIONS

Exceptions to the Street Development Standards may be granted by the Planning Commission or Zoning Administrator when approving a Tentative Map. Such exceptions shall be requested to the City Engineer who shall recommend to the body approving the Tentative Map whether the exception should be granted. Exceptions to these standards shall not be granted unless the following findings are made:

a) Specific physical limitations preclude the development of the street according to these standards; such as a tree protected under the Tree Ordinance, creek considerations,

important rock outcroppings, and severe and unique topographic conditions.

b) The exception request is a minor adjustment to these standards. The primary intent is not to increase development density which would not otherwise occur without the exception.

c) Granting the request is not likely to generate similar requests because it is based on unique conditions of the subject site and not based on characteristics generally found in the vicinity and on similar properties.

d) Denial of the request would result in extreme practical hardship in the development of the site as provided by the Zoning Ordinance and General Plan.

e) Granting the exception shall not result in other negative environmental effects.

STREET ENGINEERING DESIGN STANDARDS

Street design shall conform to the CALTRANS Highway Design Manual, Standard Specifications, and Standard Plans except as modified in these design standards. The City Engineer may approve modifications or alternative design proposals to these engineering design standards when, as determined by the City Engineer, they are consistent with these general principles and requirements.

HORIZONTAL ALIGNMENT

Street layout shall be based on evaluations of a variety of factors including topography, soil characteristics, geologic conditions, drainage patterns, length and character of streets, types and locations of abutting land uses, vehicle speeds and street classification. Horizontal alignment of residential streets shall be based on the terrain, sight distance and speed using the CALTRANS Highway Design Manual.

For central angles of less than one degree on local streets or streets of lower classification, or less than 30 minutes on collector streets or streets of higher classification, no horizontal curve is required.

Superelevation design shall be in accordance with the CALTRANS Highway Design Manual and shall not be detrimental to other needs.

Compound curves, reverse curves or broken back curves should be avoided in residential areas and will not be permitted on the design of nonresidential streets.

The minimum radii of curvature on centerline of collector and wider streets shall be five hundred feet (500'). All other streets shall have a minimum radius of two hundred feet (200'). There shall be a tangent between all reversed curves at least one hundred fifty feet (150') long on all streets.

Streets shall intersect as nearly as possible at right angles. The maximum deflection at an intersection shall not exceed 15 degrees unless otherwise approved by the City Engineer in consideration of topographic features. The centerline of intersecting streets shall be on tangents or on curves with a centerline radius of greater than 600 feet for a distance of 100 feet from the center of the intersection. Streets may be offset within the right-of-way to improve the intersection angle in difficult alignment situations.

At intersections, curb return radii shall be 27 feet and 30 feet for 50 foot and 60 foot wide right-of-way residential streets, respectively. Curb return radii for arterial streets, and for streets in commercial areas shall be based on projected traffic use.

VERTICAL ALIGNMENT

Vertical alignment shall assure that grades can be negotiated during adverse weather conditions by emergency vehicles as well as passenger vehicles and that sight distances are adequate for safety. Pedestrians and cyclists shall be considered in the design of grades. The alignment shall consider the contours of the site to minimize grading, drainage needs, environmental, preservation and conservation goals, and important aesthetic values.

Vertical curves shall be designed in accordance with CALTRANS Highway Design Manual criteria. Broken back vertical curves will not be permitted.

The maximum gradient for all non-hillside streets except residential lane and driveways is fifteen percent (15%). The maximum gradient for residential lane, driveways, and any classification of hillside street is twenty percent (20%).

Minimum grade along the gutter line is five tenths percent (0.5%).

The gradient within one hundred (100) feet of the centerline at an intersection should not exceed ten percent (10%) for residential streets and six percent (6%) for those streets classified as residential collector or higher. The preferred intersection gradient of arterial streets is a maximum of two percent (2%). In hillside areas, the preferred maximum intersection gradient is ten percent (10%). Special design may be necessary to conform to the topography and natural features. Proper sight and stopping distances shall be provided. In no case shall the intersection gradient exceed fifteen percent (15%).

Driveways

Grades > 12% should be P.C.C. due to difficulty rolling A.C.

Grades of driveways shall be limited to a maximum of twenty percent (20%). Driveways with grades over fifteen percent (15%) shall have grade transitions and grooved pavement. Driveway entrances shall be designed to prevent scraping the underside of passenger vehicles. Driveways with grades over fifteen (15%) shall have their profile approved by the City Engineer.

PAVEMENT CROWN

The minimum crown slope shall be one percent (1%) at intersections and two percent (2%) at all other locations unless otherwise approved by the City Engineer. The maximum crown slope when conforming to existing conditions shall not exceed four percent (4%).

STRUCTURAL SECTION DESIGN

Street structural sections shall be designed in accordance with the CALTRANS Highway Design Manual and this section.

The structural design of the street shall include determination of the thickness of aggregate subbase, aggregate base and surface asphalt concrete to be placed over subgrade soil, according to the method as specified in the CALTRANS Standard Specifications. In no case shall

the thickness of aggregate base be less than six (6) inches nor shall the thickness of asphalt concrete surfacing be less than two (2) inches.

The street structural section shall be designed for a 20 year design life and to restrain the expansive pressures of native soils. The street structural section shall be designed according to the following requirements:

Estimation Of Traffic Index (T.I.)

Figure 10 shall be used for in estimating the anticipated traffic index.

For residential streets, percentage of trucks is estimated to be three percent (3%). A higher percentage of trucks shall be estimated for nonresidential streets as determined by the Transportation Administrator.

Buses, 2-axle vehicles with dual rear tires and larger trucks are counted as trucks. Pickups, panel trucks and cars with trailers are not classed as trucks.

The ADT and percentage of trucks shall next be modified to represent the average condition for the design period. If the starting ADT is 1,000 and the anticipated ADT at the end of the design period is 1,400, the chart should be entered with an ADT of 1,200. The same averaging technique shall be used for truck percentage.

For new subdivision streets the estimated ADT is based upon each residence generating an average of ten (10) trips per day. Truck traffic is assumed to be three percent (3%) of the subdivision traffic.

For special developments where the anticipated traffic generation is anticipated to be greater or less than ten (10) trips per day per unit, the traffic index shall be increased or decreased proportionately.

Determination Of "R" Value

The resistance value ("R") of native soils shall be determined at the completion of rough grading of the subgrade at locations approved by the City Engineer. The City Engineer may approve the use of an "R" value developed on adjacent properties or subdivisions. The "R" value shall be used to design the final structural section. If "R" value data is not available, an "R" value of 5 will be used for design.

Subgrade Compaction

The six inches of subgrade below the subbase material shall be compacted to not less than ninety-five percent (95%) relative compaction. In areas of highly expansive native soils, the

subgrade compaction shall be as recommended by the soils engineer, and/or six inches (6") of subgrade material shall be replaced by aggregate subbase or approved non-expansive material which will be compacted to ninety-five percent (95%) relative compaction.

Private Streets

The design of private streets shall conform to the same structural section as required for public streets.

Driveways

The portion of driveways constructed in the sidewalk area of public right-of-way shall be according to the City Standard Plans. In hillside and rural areas with no sidewalk, driveways shall be two (2) inches of asphalt concrete over six (6) inches of Class 1 aggregate base compacted to ninety percent (90%) relative compaction.

Access for vehicles shall be improved with a surface material approved by the City Engineer from a public street to a parking lot, parking area, garage or carport. An all weather driving surface shall be provided for emergency vehicles to within 150 feet of the most remote wall of a residential dwelling or commercial building.

SIGHT DISTANCE

Sight distance at intersections and on horizontal and vertical curves shall provide for minimum stopping sight distance in consideration of adverse weather conditions, limited nighttime visibility and topographic obstructions. The minimum design sight distances shall be in accordance with the CALTRANS Highway Design Manual and Title 3, Chapter 5, Article 17 of the Walnut Creek Municipal Code.

BIKEWAYS

Bikeways shall be designed in accordance with the CALTRANS Highway Design Manual.

SIGNALIZATION, SIGNING AND STRIPING

Where traffic control is warranted, as determined by the Transportation Administrator, all improvements shall conform to CALTRANS Traffic Manual and the Walnut Creek Standard Specifications and Standard Plans.

STREET LIGHTING

Street lighting shall be required according to the City Street Light policy and the Standard Plans. Street light type and location shall be determined by the City Engineer.

Generally, lighting shall comply with the recommendations of the Illuminating Engineering Society. A higher lighting level may be required for streets with high vehicle and pedestrian use. A lower lighting level may be required on local residential streets.

SIDEWALKS

Where possible, in new residential developments, a five (5) foot wide sidewalk shall be constructed behind the driveway approach.

Refer to the City Standard Plans for the typical sidewalk cross section.

Table 1

City of Walnut Creek

STREET STANDARDS

Except Rural/Hillside Areas

Street Type	Development Conditions			Street Requirements						
	AVERAGE LOT FRONTAGE	NO. OF DWELLING UNITS	MAXIMUM LENGTH	MINIMUM R/W WIDTH	MINIMUM STREET WIDTH	TRAVEL LANES	PARKING	DETAILS	MAXIMUM GRADE	TURN AROUND
Major Arterial	N/A	N/A	N/A	84	64 72 with bike lanes	4-6 lanes	None	14' center median Bike lanes on designated routes. 10' sidewalk both sides, curb & gutter	10%	Through Street Only
Arterial	N/A	N/A	N/A	84	64 72 with bike lanes	4 lanes	Both sides	Bike lanes on designated routes. 10' sidewalk both sides, curb & gutter	10%	Through Street Only
Collector Non-Res	N/A	N/A	N/A	60	40 48 with bike lanes	2 lanes	Both sides	Bike lanes on designated routes. 5-10' sidewalk both sides, curb & gutter	12%	Through Street Only
Residential Collector	N/A	N/A	N/A	60	40 48 with bike lanes	2 lanes	Both sides	Bike lanes on designated routes. 5' sidewalk both sides, curb & gutter	15% with transition	Through Street Only
Residential Feeder	N/A	41 or more	2000'	50	36	2 lanes	Both sides	5' sidewalk both sides, curb & gutter	15% with transition	Through Street Only
Resdiential Drive	N/A	21-40	1200' except Cul-de-sac 900'	46	36	2 lanes	Both sides	5' sidewalk both sides, curb & gutter	15% with transition	35' radius Cul-de-sac
Residential Local	N/A	11-20	800'	42	32	2 lanes	Both sides	5' sidewalk one side, curb & gutter	15% with transition	35' radius or Hammerhead
Residential Lane	70' Min.	5-10	750'	38	28	2 lanes	One side	5' sidewalk one side, curb & gutter	20% with transition	28' radius or Hammerhead
Private Shared Driveway	N/A	2-4	200'	25	20	2 lanes	No Parking		20% with transition	25' radius or Hammerhead
Private Driveway	N/A	1	N/A	15	12	1 lane	No Parking		20% with transition	Hammerhead if over 150'

Adopted February 4, 1992

Tab 2

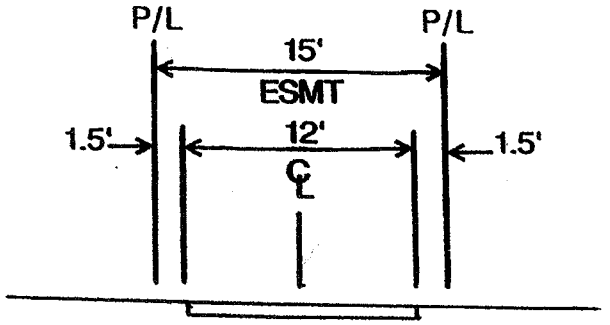
City of Walnut Creek

STREET STANDARDS

Rural/Hillside Areas

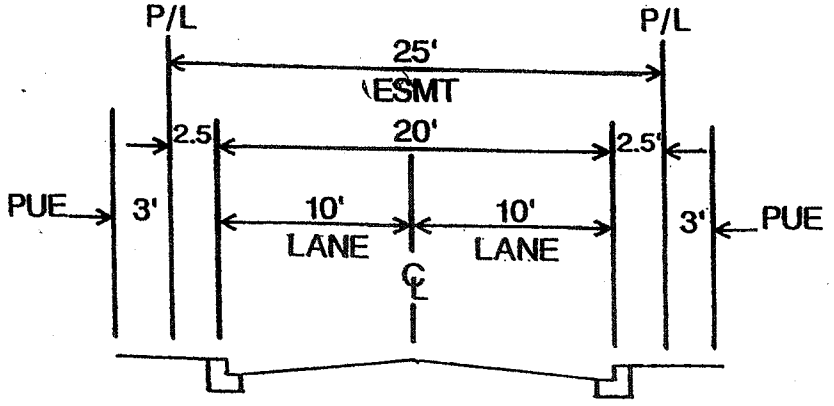
Street Type	Development Conditions			Street Requirements						
	AVERAGE LOT FRONTAGE	NO. OF DWELLING UNITS	MAXIMUM LENGTH	MINIMUM R/W WIDTH	MINIMUM STREET WIDTH	TRAVEL LANES	PARKING	DETAILS	MAXIMUM GRADE	TURN AROUND
Residential Feeder	N/A	41 or more	2000'	44	34	2 lanes	Both sides	5' AC path both sides, curb & gutter, concrete headers	20%* with transition	Through Street Only
Resdiential Drive	N/A	21-40	1200' except Cul-de-sac 900'	42	32	2 lanes	Both sides	5' AC path both sides, valley gutter, concrete headers	20%* with transition	28' radius Cul-de-sac
Residential Local	N/A	11-20	800'	35	25	2 lanes	One side	5' AC path both sides, valley gutter, concrete headers	20%* with transition	28' radius or Hammerhead
Residential Lane	70' Min.	5-10	750'	35	25	2 lanes	One side	5' AC path both sides, valley gutter, concrete headers	20% with transition	28' radius or Hammerhead
Private Shared Driveway	N/A	2-4	~200'	20	16	1 lane	No Parking		20% with transition	25' radius or Hammerhead
Private Driveway	N/A	1	120'	12	10	1 lane	No Parking		20% with transition	Hammerhead if over 150'

* Fifteen percent (15%) maximum grade in rural non-hillside areas.



PRIVATE DRIVEWAY

UNITS SERVED: 1



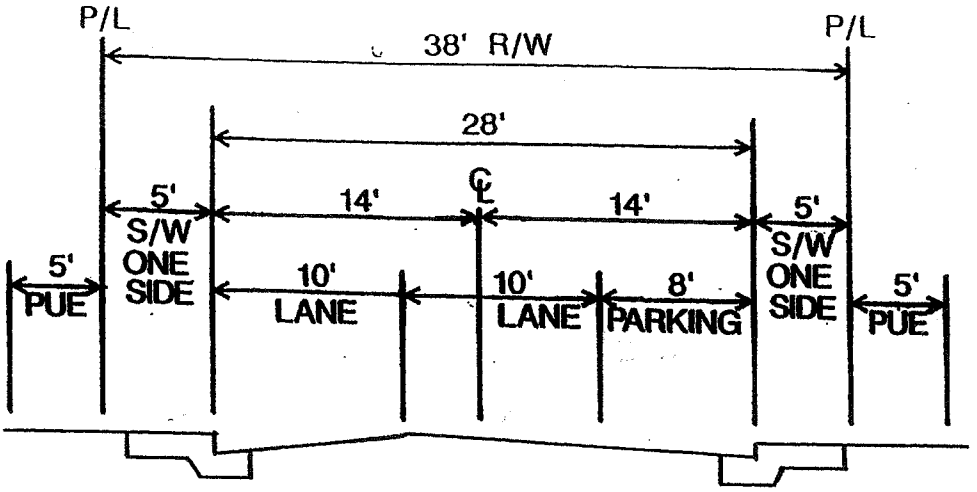
PRIVATE SHARED DRIVEWAY

UNITS SERVED: 2 - 4

Walnut
City of Creek

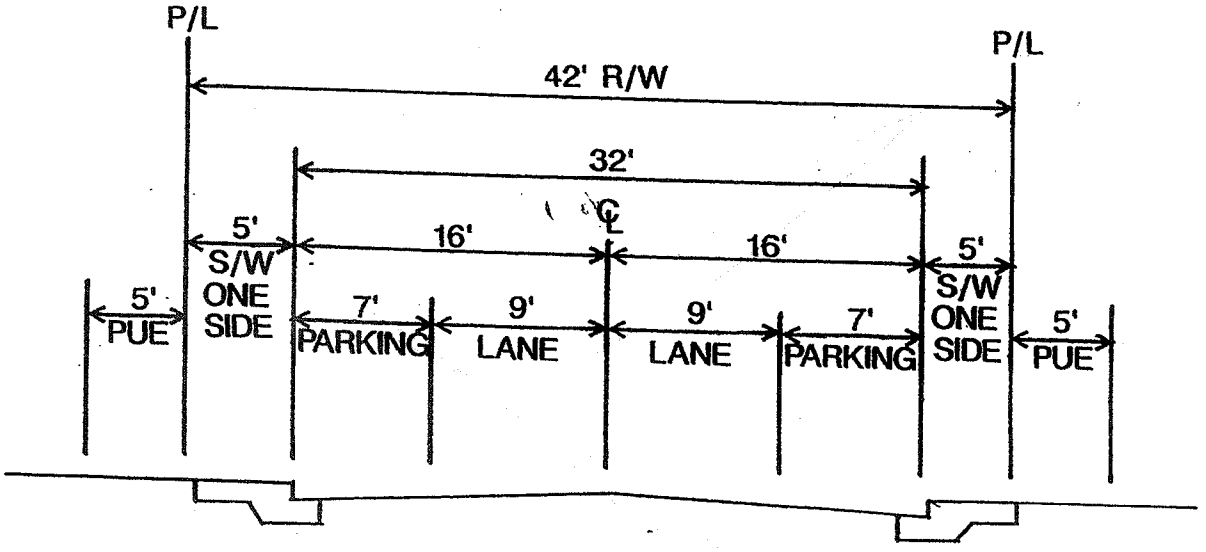
FIGURE 1

MINIMUM STREET WIDTH



RESIDENTIAL LANE

UNITS: 5 - 10



RESIDENTIAL LOCAL

UNITS: 11 - 20

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FIGURE 2

MINIMUM STREET WIDTH

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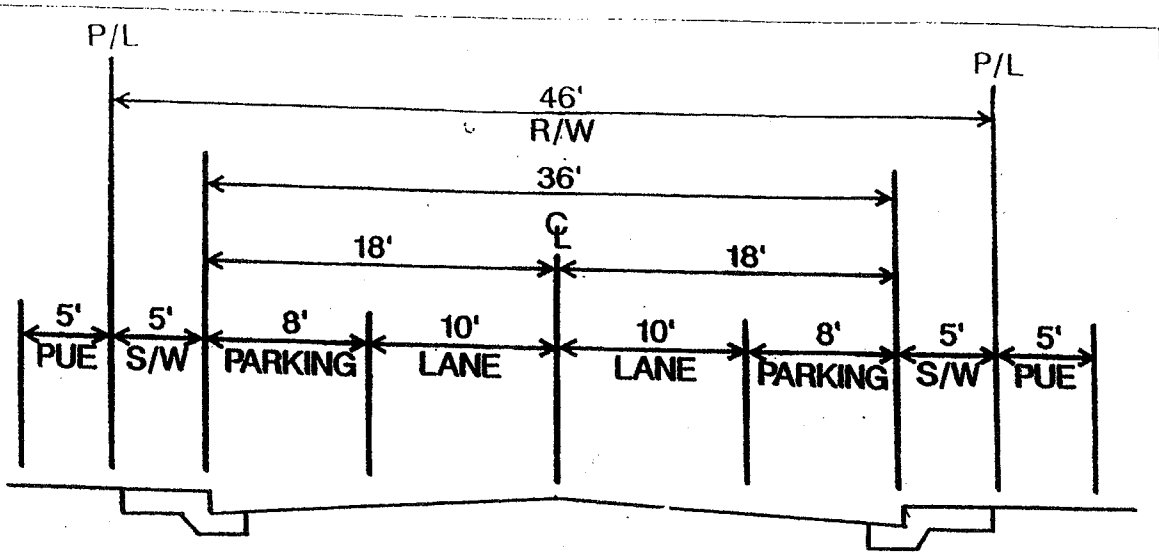
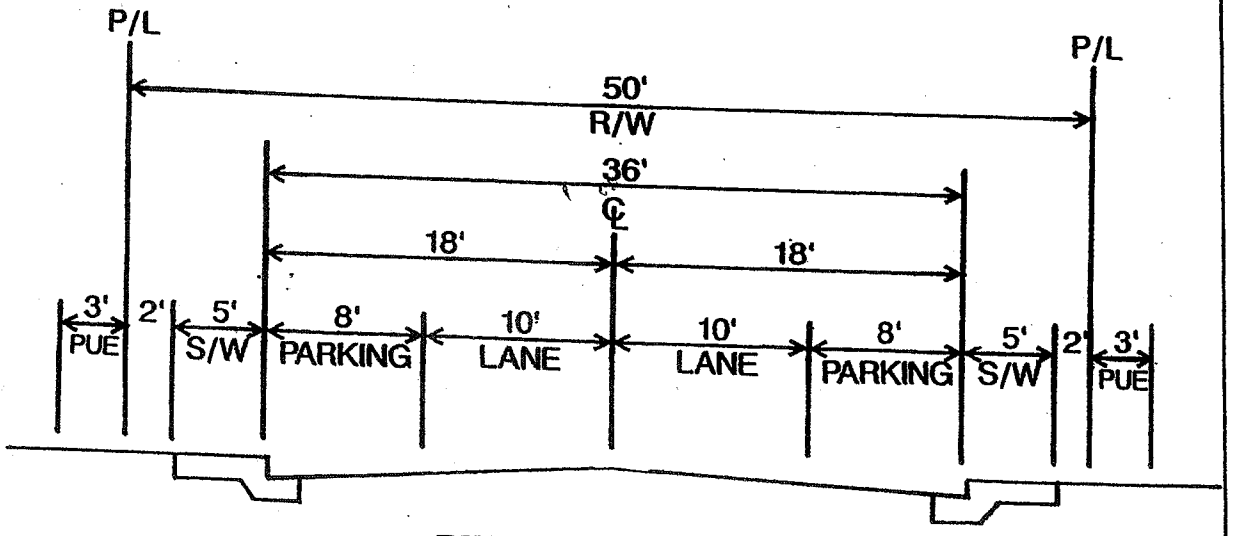


RESIDENTIAL DRIVE

UNITS SERVED: 21 - 40



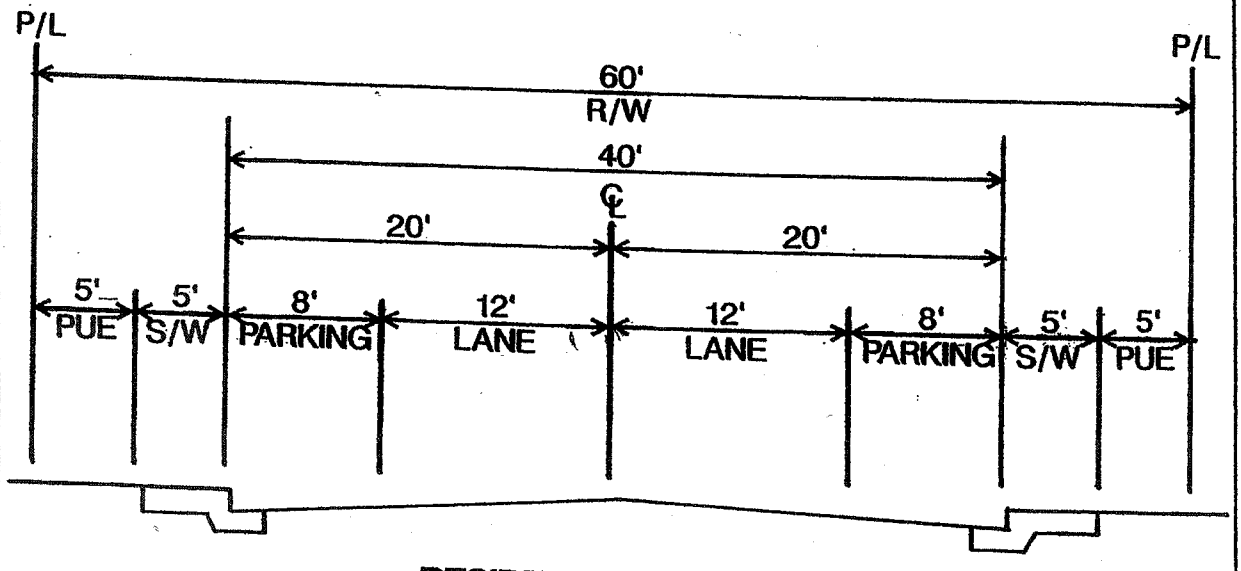
RESIDENTIAL FEEDER

UNITS SERVED: 41 OR MORE

Walnut City Of Creek

FIGURE 3

MINIMUM STREET WIDTH



RESIDENTIAL COLLECTOR

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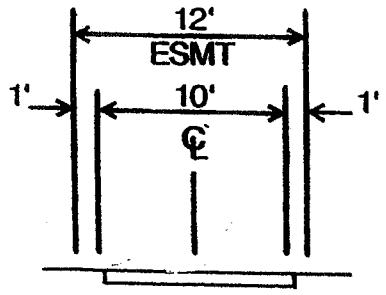
city of creek

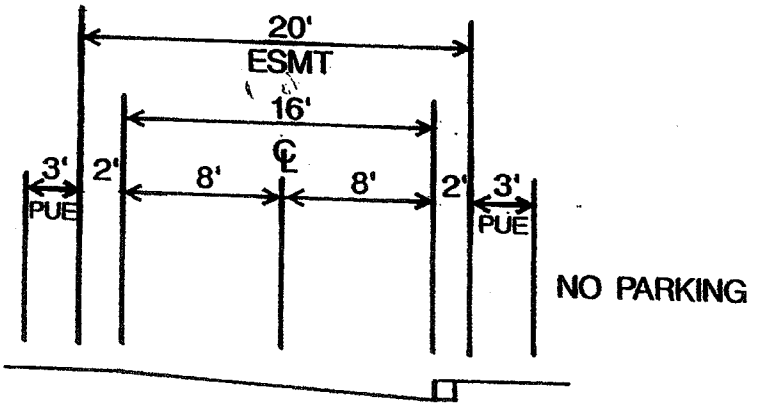
FIGURE 4

MINIMUM STREET WIDTH



PRIVATE DRIVEWAY

UNITS SERVED: 1



PRIVATE SHARED DRIVEWAY

UNITS SERVED: 2 - 4

Walnut City of Creek

FIGURE 5

MINIMUM STREET WIDTH

RURAL/HILLSIDE

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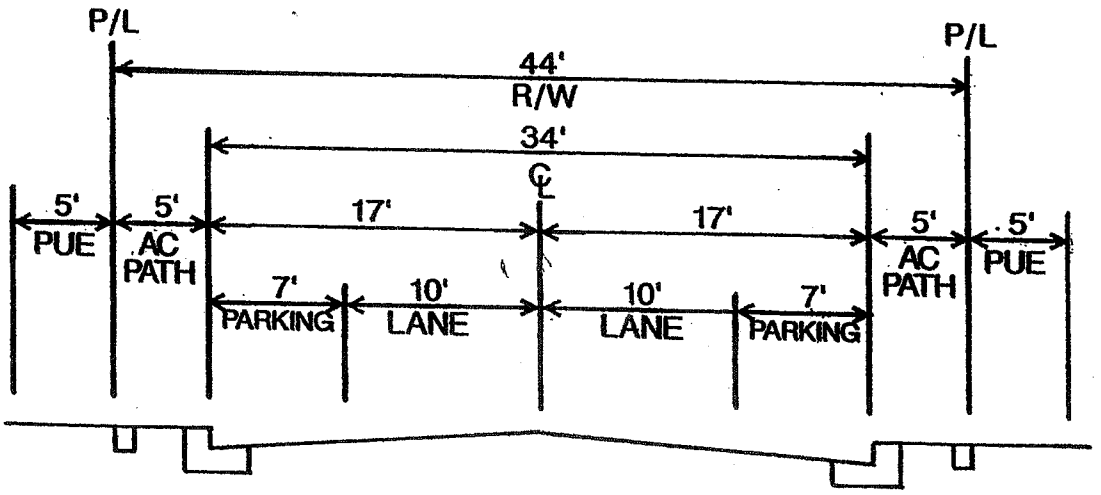

RESIDENTIAL FEEDER

UNITS SERVED: 41 OR MORE

Walnut
city of Creek

FIGURE 7

MINIMUM STREET WIDTH
RURAL/HILLSIDE

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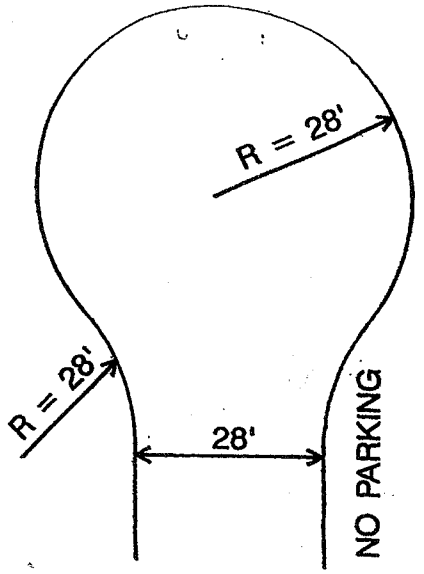
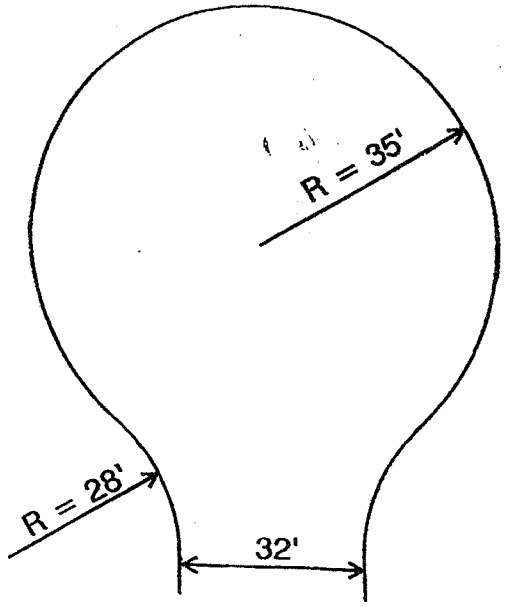


FACE OF CURB RADIUS 28'

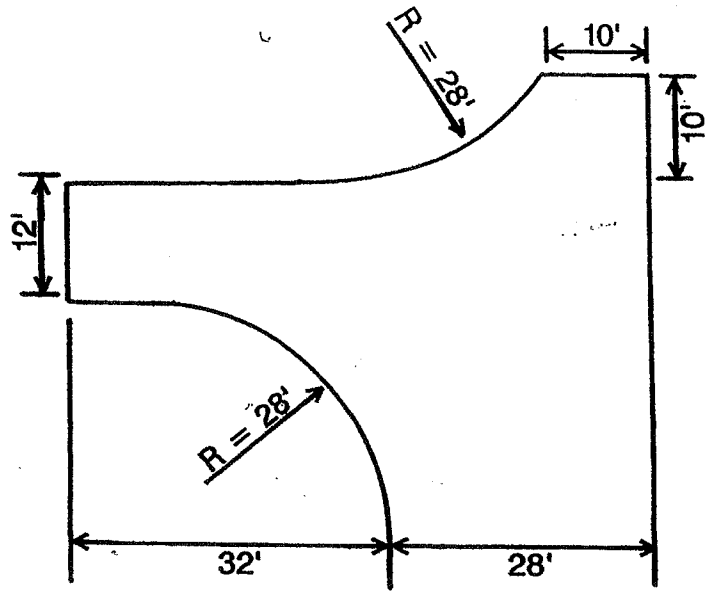


FACE OF CURB RADIUS 35'

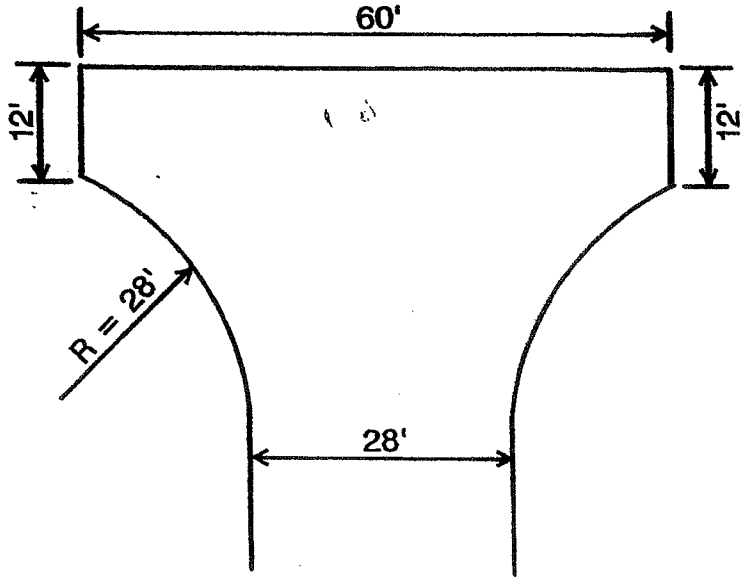
Walnut City of Creek

FIGURE 8

CIRCULAR TURNAROUND



SINGLE



DOUBLE

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FIGURE 9
HAMMERHEAD TURNAROUND