

Minimum Design Standards
for
Urban and Rural Street Construction
in
NEW ZEALAND



Churston County Department of Public Works

September, 1985

MINIMUM DEVELOPMENT DESIGN STANDARDS

FOR

URBAN AND RURAL

STREET CONSTRUCTION

IN

NEW DEVELOPMENT

THURSTON COUNTY

PUBLIC WORKS DEPARTMENT

BOARD OF COUNTY COMMISSIONERS

APPROVED

Les Eldridge
Chairman

Karen Fraser
Commissioner

George L. Banner Jr.
Commissioner

Alfred [Signature] P.E.
Director of Public Works

Sept. 9, 1985
Date

SYNOPSIS OF 1984 REVISIONS TO "MINIMUM DEVELOPMENT
DESIGN STANDARDS FOR URBAN AND RURAL STREET
CONSTRUCTION IN NEW DEVELOPMENT"

<u>Item</u>	<u>Page</u>	<u>Paragraph</u>	<u>Description</u>
1	1-1		Included Institute of Transportation Engineers definition of "trip."
2	2-1		Changed general numbering system.
3	2-1		Added reference to Title 20, "Thurston County Zoning Ordinance."
4	2-1	IB	Added reference to Urban Boundary Map included after page 5-5.
5	2-1	ID	Clarified basis for determining vehicle trips and added vehicle trip table.
6	2-2	ID	Added requirements for road construction within unopened County rights-of-way.
7	2-2	ID	Added clarification of intended requirements for 12-foot wide paved road standards.
8	2-2	ID	Added administrative variance for 12-foot wide road standards.
9	2-2	II	Relocated statement regarding use of native materials. Also, reference 1984 edition of State/APWA Joint Specifications.
10	2-3	IIIA	Added clarification of requirements for roadways constructed within flood hazard areas.
11	2-2	IIIA	Clarified requirement of submitting revisions to County Engineer for review and approval.
12	2-3 2-4	IIIA2a & IIIA2d	Added reference to minimum centerline radius. Added cul-de-sac paved radius requirements, and minimum lane width where landscaped islands are constructed.
13	2-6	IIIE2	Added reference to "The Thurston County Comprehensive Bike Plan."
14	2-7	IIIG	Added reference to maintenance agreements.
15	3-1		Added projected traffic volumes and design speed; revised right-of-way and paving widths, deleted rolled edge alternate for Arterial Standards; and added sidewalk details.
16	3-2		Added projected volumes and design speed; increased right-of-way and paving width for Section "C" and decreased right-of-way and paving width for Section "D"; decreased paved width where parking permitted; and added sidewalk details.

<u>Item</u>	<u>Page</u>	<u>Paragraph</u>	<u>Description</u>
17	3-3		Added projected traffic volumes and design speed; deleted ditch requirement on urban private roads by adding rolled edge (this will also decrease the private easement width); and added reference to structural section requirements on 12-foot wide sections.
18	3-4		Urban road requirement matrix with addition of right-of-way and sidewalks.
19	4-1 - 4-2		Deleted "compacted native material" in shoulder area between structural sections and road ditch.
20	4-3		Deleted "compact native material" between structural section and road, added reference to the structural section requirements on 12-foot wide sections.
21	4-4		Rural road requirement matrix with addition of right-of-way.
22	5-1 - 5-2		Added bike lane and design sections.

I N D E X

<u>SECTION</u>	<u>SUBJECT</u>
One	Definitions
Two	General Requirements
Three	Urban Standards
Four	Rural Standards
Five	Bikeway Standards

SECTION ONE

DEFINITIONS

Section One

DEFINITIONS

ARTERIAL STREET	A street which is used primarily for through traffic or will be used by through traffic in the normal growth of the community it will serve and be designated as such on the officially adopted arterial map on file in the Public Works Department.
BOARD	The Thurston County Board of Commissioners.
COLLECTOR STREET	A street other than an arterial which is used primarily for carrying traffic to one or more arterials.
ENGINEER	The Thurston County Public Works Director (County Engineer) or his duly authorized representative.
LOCAL STREETS	A street used primarily for access to abutting property.
PRIVATE ROADWAY	A road constructed under these standards which stays under control of property owners for maintenance and use as they so choose.
RURAL	That land area outside the boundaries of the adopted or amended urban boundary as shown on map on file in the office of the Thurston County Engineer.
URBAN	That land area within the boundaries of the adopted or amended Urban Growth Management Boundary as shown on map on file in the office of the Thurston County Engineer.
TRIP	A single or one-direction vehicle movement with either the origin or destination (exiting or entering) inside the study site.

SECTION TWO

GENERAL REQUIREMENTS

Section Two

GENERAL REQUIREMENTS

I. Applicability

These standards apply to the construction of streets established pursuant to Thurston County Code Title 18, "Platting and Subdivision" and Title 20, "Thurston County Zoning Ordinance." Where these standards may be inconsistent with the provisions of Title 18 and Title 20, these standards shall control.

These standards consist of two parts. The first part consists of general requirements. The second part consists of cross-section drawings and the requirements contained thereon. Some streets only have to meet the requirements of the cross-section drawings alone whereas other streets must meet the requirements of the cross-section drawings as well as the general requirements.

In order to determine which requirements apply, it is first necessary to identify the applicable cross-section for the proposed road. If the land is being divided for residential use, the charts on pages 3-4 and 4-4 will indicate which cross-section drawing applies to the proposed use. If the land is being divided for a nonresidential use, the Public Works Director shall determine to what standard and upon what information the road shall be built, based on the nature of the proposed use.

For residential uses, the applicable cross-section is identified on the charts on page 3-4 and 4-4 on the basis of the following four criteria:

- A. Whether the road will be a public road or privately owned and maintained.
- B. Whether the division is located within the "Urban" or "Rural" designations of the currently adopted Urban Growth Management Boundary Map.
- C. The size of the parcels being served, being expressed as whether the division is that of a subdivision or short subdivision, as opposed to a large lot subdivision.
- D. The number of vehicle trips per day, being expressed as a function of the total of (1) the number of dwelling units which would be permitted under 18.40.010(2), lying outside the division which may be served by the road, if any; and (2) the number of dwelling units served within the subdivision, which is based on the density as determined by 18.40.010(2). The relationship between number of dwelling units and daily vehicle trips used herein is as follows:

<u>Classification</u>	<u>Rural</u>	<u>Urban</u>
Single-family and Duplex	6 trips per day	8 trips per day
Multifamily	5 trips per day	6 trips per day

Road standard requirements for unopened County rights-of-way are based upon the number of dwelling units accessing the right-of-way.

There may be up to four access permits issued for an unopened County right-of-way without road improvements. Above four users requires construction of a Public Section "D" Urban or Rural 20-foot paved road with 2-foot shoulders. An alternative to constructing a public roadway is vacating the unopened County right-of-way.

Any development accessing unopened County rights-of-way must construct the Public Section or petition for vacation of the right-of-way.

Private roads of 12-foot width must comply with the applicable cross-section drawing (Section E, Rural or Urban) and the requirements contained thereon, with the exception that the structural section thickness may be at the developer's option and must be in compliance with the materials specifications, workmanship and construction survey control requirements of paragraphs II, IIIB, IIID and IIIF. It is intended that developers of 12-foot wide roads have flexibility in determining the proper thickness of each layer of the road structural section. It is not intended that the quality of materials or workmanship be reduced or that layers of the various materials be substantially reduced or eliminated so as to make maintenance prohibitively expensive. In such case where the developer proposes or constructs such a structural section, the Engineer shall reject the proposal as not being in compliance with the intent of these standards. Developers of 12-foot wide roads are urged to consider the ease of maintenance and future road upgrading to road section "D" when selecting section "E" structural sections.

An administrative variance from the right-of-way or ditch width requirements on 12-foot roads may be granted by the Director of Public Works where it appears there exist extraordinary conditions such as topography, access, location, easement restrictions, drainage or other physical features of the site or adjacent development.

All other roads must comply with the applicable cross-section drawing and the requirements contained thereon, and paragraphs II and III.

II. Workmanship and Materials

Workmanship and materials shall be in accordance with "1984 Standard Specifications for Road, Bridge and Municipal Construction," published jointly by Washington State Department of Transportation and Washington State Chapter,

American Public Works Association, and Thurston County Public Works Standards. Native materials meeting the specifications in all respects, including sand equivalent, will be approved for construction use by the Engineer.

III. General Requirements

A. Prior to construction, the following data (as a minimum) shall be prepared and signed by a licensed civil engineer and submitted to the County Engineer for review and approval. Administrative approval shall be obtained from the Building Official before construction of a private roadway in a flood hazard area. This review and approval shall be pursuant to Chapter 14.38, Thurston County Code. When revisions to alignment, structural sections and other constructed facilities are made, such revisions shall be submitted to the County Engineer for review and approval, pursuant to 18.12.160.

1. Cover Sheet

- a. Location map.
- b. Key map indicating development layout at a minimum scale of 1" = 200' and showing street name and traffic control signs. A 1" = 100' scale layout shall also be provided.
- c. Index to drawings.
- d. Appropriate title block.
- e. Legend, if applicable.
- f. Typical cross-sections. Cut slopes shall be a maximum of 1:1 and fills a maximum of 1½:1. Tops of all cut slopes steeper than 1½:1 and over 5 feet high shall have 2-foot slope rounding.
- g. Table giving "R" values or California Bearing Ratio (CBR) values and Traffic Index (T.I.) for each designated cross-section if it is determined that special or unusual sub-base conditions exist.

2. Plan

- a. Road alignment in minimum of 100-foot intervals, beginning and ending of curves and with all major features and points of control properly stationed. Minimum centerline radii shall be determined by the design speed as shown on the typical roadway sections in Sections 3 and 4.
- b. Bearings on road centerlines.
- c. Water, sewer and drainage facilities where appropriate.

- d. Right-of-way, easement lines, edge of pavement and paving widths for streets. Cul-de-sacs shall be paved with a minimum radius of 38 feet or, where a landscaped island is constructed in the center, the minimum outside radius shall be 45 feet, with a minimum lane width of 16 feet.
- e. Label all streets and adjoining ownership.
- f. Drawing size 24" x 36". Use Plate 1 Plan-Profile on Mylar.
- g. Scale 1" = 50'.

3. Profile

- a. Original ground line on centerline and property lines (3 locations).
 - b. Stationing in intervals of 100 feet and at all points of vertical control or grade changes.
 - c. Control elevations on borders of sheet.
 - d. Proposed grade line showing grade percents, grade breaks, and vertical curves on centerline and top of curbs or raised edge flowline (3 locations) including full circumference on cul-de-sac.
 - e. Datum used and bench mark locations.
 - f. Minimum scale 1" = 5' vertical and 1" = 50' horizontal.
4. Grades shall be a maximum of 15 percent for locals, 12 percent collectors and 8 percent arterial. Minimum grades shall be 0.50 percent.

B. Surfacing

- 1. Source and type of surfacing materials must be approved by the Engineer before construction begins.
- 2. The pavement sections shown in the standard drawings are minimums and acceptable only where subgrade soils have a minimum R-Value of 35, and no heavy trucks are expected. Pavements for arterial roads and all road classes where subgrade soils have R-Values less than 35 or where heavy traffic is expected shall be designed by a licensed civil engineer using accepted engineering practices. Those areas requiring testing and special structural section design will be determined on a case-by-case basis by the Engineer. The Engineer may receive for review, and possible approval, alternate proposals for pavement sections different than those prescribed provided they are submitted by a licensed civil engineer and prevailing design procedures are used in arriving at the proposed engineered design and the proposed sections are equivalent to the minimum sections shown.

3. Light bituminous surfacing will not be permitted within the urban area.
4. In the rural area, light bituminous surfacing will not be permitted in developments with a density greater than one (1) dwelling unit per acre.
5. In all other cases in the rural area, light bituminous surfacing will be permitted but Class "B" asphaltic concrete is still desirable. The minimum structural section for light bituminous surface shall be as follows:
 - a. Arterial - Two lifts of LBS over 0.17' crushed and 1.00' gravel base.
 - b. Collector - Two lifts of LBS over 0.17' crushed and 0.85' gravel base.
 - c. Local (100-400) - Two lifts of LBS over 0.17' crushed and 0.85' gravel base.
 - d. Local (less than 100) - Two lifts of LBS over 0.17' crushed and 0.85' gravel base.
6. Where an urban standard is used in a rural area, no light bituminous surfacing will be permitted.

C. Utilities

1. Utilities shall generally be located in accordance with the Thurston County Utility Coordinating Council Location Standard. Location of new utilities in existing right-of-way shall be subject to approval of the Engineer and shall be compatible with minimum disruption of existing road and utility improvements.
2. Rigid structures, such as but not limited to, manhole and catch basin castings in paved areas shall be set $\frac{1}{4}$ " below finished asphalt surface.

D. Construction Inspection

1. Prior to any construction the developer and all contractors on the project shall set up a pre-construction conference with the Engineer.
2. All underground systems (water, sewer and drainage) shall be inspected prior to cover.
3. The next inspection shall be required after installation of underground utilities, drainage and completion of roadway grading to a suitable subgrade including gravel ballast.
4. The next inspection shall follow the crushed gravel surfacing and curbing placement.

5. The final inspection will follow paving, cleaning of drainage system, shoulder work and all necessary cleanup.
6. The Engineer shall be notified twenty-four (24) hours in advance of any required inspection. Failure to properly notify the Engineer in advance of required inspections may require appropriate tests to be conducted at developer's expense. If this becomes necessary, no further work will be permitted until all tests have been completed and any necessary corrections are made to the satisfaction of the Engineer.
7. An alternate inspection schedule may be necessary in some cases. Advance notice must be given the Engineer in such cases.
8. Prior to acceptance of the road system by Thurston County, certified as-constructed Mylar tracings shall be furnished to the Engineer by the licensed civil engineer responsible for the project. The tracings shall correctly reflect final alignment, structural sections and other facilities constructed as personally inspected by the design engineer or his staff.

E. Street Alignments

1. Adoption of roadway sections in this document as they pertain to paving widths and right-of-way does not preclude the use of innovative design such as one-way loops, separated roadway levels and special entrance treatments. Each design proposal which has a roadway section different than the standard will be considered by the Engineer but deviations must be justified on the basis of topographic or other special problems inherent in the sites under development. Any requested deviations shall be made at the time the proposal is filed with the Engineer.
2. The "Thurston County Comprehensive Bike Plan" specifies in its goals and policies that all public construction projects shall be reviewed for bicycle usage, and designated bikeway routes shall be considered in large subdivisions (the division of a single parcel of land into more than four individual lots), and multi-family developments.

In accordance with these policies, public construction projects, subdivisions and multifamily developments will be required to dedicate additional right-of-way (if required) and construct or bond for construction of bikeways when abutting bike routes as designated in the County's current bike plan.

F. Survey Monumentation

1. Required survey control and lot corner monumentation shall be installed in accordance with the monumentation shown on the plat as proposed by the professional land surveyor for the project and approved by the Engineer.

Survey control monumentation shall be in accordance with the latest adopted plans of the Public Works Department and shall be sufficient to establish all street centerlines, intersections, angle points, curves, subdivision boundaries and other points of control.

G. Maintenance Agreements

The developer shall execute an agreement to assure successful operation of drainage improvements. As security for the successful operation of said improvements, the developer shall post a bond to be effective for a two-year period guaranteeing full performance of the developer's maintenance obligation.

Where landscaped islands are constructed in cul-de-sacs, it should be clearly stated on the plat map that the maintenance of said islands shall be the responsibility of the adjacent property owners.

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ORDINANCE NO. 10253

AN ORDINANCE relating to frontage improvements on County roads, and amending Section 15.04.080, Thurston County Code.

WHEREAS, the Board of County Commissioners of Thurston County finds that it is necessary to amend Section 15.04.080, Thurston County Code as it relates to the deferral of frontage improvements to address the growth occurring within Thurston County;

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF THURSTON COUNTY as follows:

Section 15.04.080, Thurston County Code, is hereby amended to read as follows:

15.04.080 Public and Private Road Standards. There is hereby adopted by reference "Minimum Development Design Standards for Urban and Rural Street Construction in New Development -- September, 1985, as amended June, 1988, Thurston County Public Works Department."

There is added to "Minimum Design Standards for Urban and Rural Street Construction in New Development" a new section to read as follows:

H. Deferral of Frontage Improvements.

1. Applicability. This section applies to roads and streets within the long term urban growth boundary of Thurston County when application is made for short subdivisions and large lot subdivisions as defined in Thurston County Code Sections 18.08.280 and 18.08.183 as it now exists or is hereafter amended for single family residences and to special use permits under Title 20.54 as it now reads or is hereafter amended so long as only existing single family residences and accessory buildings are utilized.

2. Definition. Frontage improvements include sidewalks, curbs, gutters, pavement widening, bicycle paths and drainage facilities.

3. Procedure. A request for deferral of frontage improvements for a short plat, large lot subdivision, or a special use permit must be submitted to the public works department and granted prior to final subdivision approval or issuance of special use permit. The public works director or designee may defer installation of frontage improvements to a later date in circumstances wherein it may be inappropriate to require installation at the time of subdivision or development.

4. Criteria for deferral. The director of public works or designee may defer any or all required

frontage improvements provided one or more of the following criteria are met.

a. The design grade and alignment of the abutting street cannot be determined at the time of construction of the development.

b. The installation of frontage improvements required for the development would create or intensify a hazard to public safety.

c. The installation of required frontage improvements would be inconsistent with the county's long range street, storm drainage or utility system comprehensive plans.

d. The installation of frontage improvements required for the development could be more safely, efficiently and effectively implemented if done concurrently with the installation of improvements required for other developments along the same street frontage.

e. The scope of the development being authorized by the permit does not constitute a significant change in the existing demands of the use of property upon the county's transportation and utility transmission systems.

5. Security for deferral. Any deferred frontage improvement shall be secured for installation at a later date by an agreement and covenant between the county and the property owner whereby the property owner agrees to two methods of installation of the deferred frontage improvements. This agreement and covenant shall be executed before final subdivision approval or issuance of special use permit. The director of public works or designee shall select which method to enforce against the property owner at the time when the deferred frontage improvements are required to be installed. The two methods the property owner shall agree to are:

a. Commitment to participate in an improvement district. The property owner shall execute and record an agreement and covenant running with the land that ensures the participation of the subject property owner(s) in any local improvement district, road improvement district, transportation benefit district or other similar type of district formed for the construction of such frontage improvements. Said document shall be in a form acceptable to the county prosecuting attorney and shall be effective for a period of thirty years from the date of recording. This document shall bind the owner and its assignees, heirs, transferees, donees, and/or successors in interest. However, if a road improvement district is formed, the commitment to participate will be valid for only ten years from the date of recording of said document.

b. Agreement to participate in improvement project. The property owner shall execute and record an agreement and covenant running with the land that ensures the participation of the subject property owner(s) in an improvement project not supported by an improvement district

which encompasses the said deferred frontage improvements by paying their share thereof. Such share shall be equal to the county's costs for installing the deferred frontage improvements. A contract shall be developed at the time the improvement project is developed outlining the level of participation by the subject property owner(s) in said project and the manner in which payment is to be made; provided that the financial responsibility of the subject property owner(s) shall not exceed the cost for said deferred frontage improvements at the time of the improvement project. Such an agreement and covenant shall bind the owner and its assignees, heirs, transferees, donees, and/or successors in interest. The agreement and covenant document shall be effective for a period of thirty years from the date of recording.

ADOPTED: February 16, 1953

ATTEST:

Bonita J. Bowman
Clerk of the Board

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

Alfano Chynoweth
Chairman

APPROVED AS TO FORM:

PATRICK D. SUTHERLAND
PROSECUTING ATTORNEY

Richard A. Nichols
Commissioner

By: Catherine B. Galvin
Catherine B. Galvin
Deputy Prosecuting Attorney

Judith E. Nelson
Commissioner

C O D I F Y

(WORK\ORD\FRONTAGE.FIN)(110)

SECTION THREE
URBAN STANDARDS

URBAN

Arterial Standards

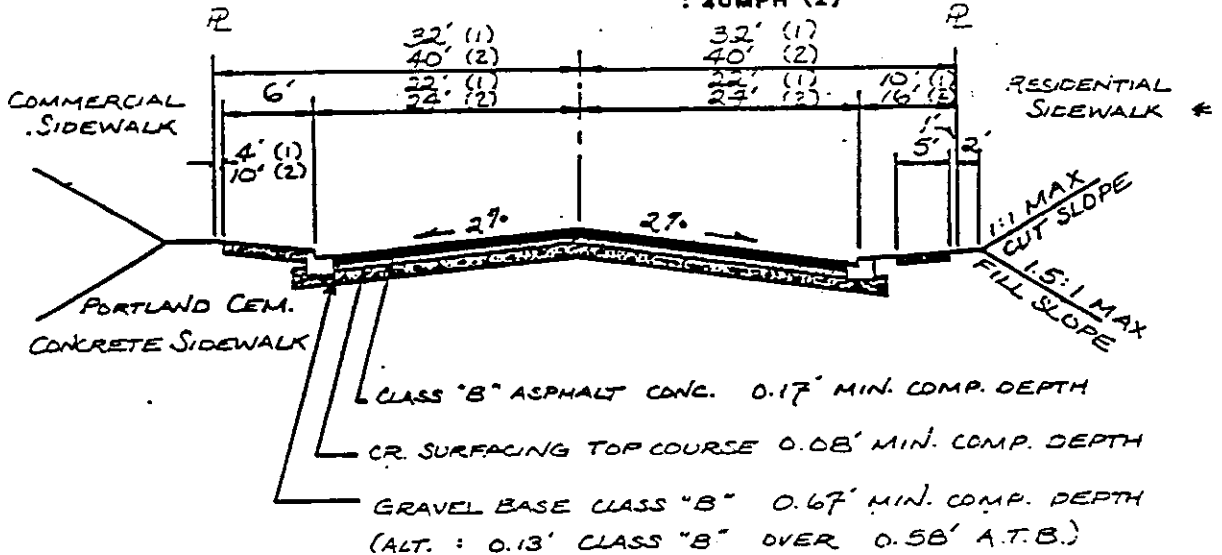
Projected 20 Year Traffic Volume: 6,000 - 20,000 Vehicles/Day (1)

: 15,000 - 40,000 Vehicles/Day (2)

ROADWAY SECTION A

minimum design speed : 35MPH (1)

: 40MPH (2)



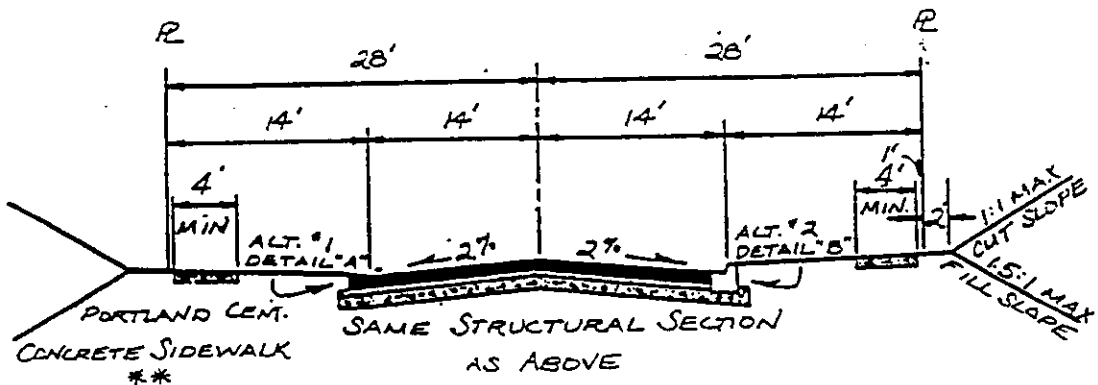
NO PARKING PERMITTED

Neighborhood Collector

Projected 20 Year Traffic Volume 500 - 7,000 Vehicles/Day

ROADWAY SECTION B

minimum design speed - 30MPH



IF PARKING IS PERMITTED, MIN. PAVING IS INCREASED FROM 28' TO 36'

NOTES

CLEARING, GRADING & GRUBBING TO EDGE OF R.O.W.

* SIDEWALK ALT. : SEE DETAIL "D", PAGE 3-5

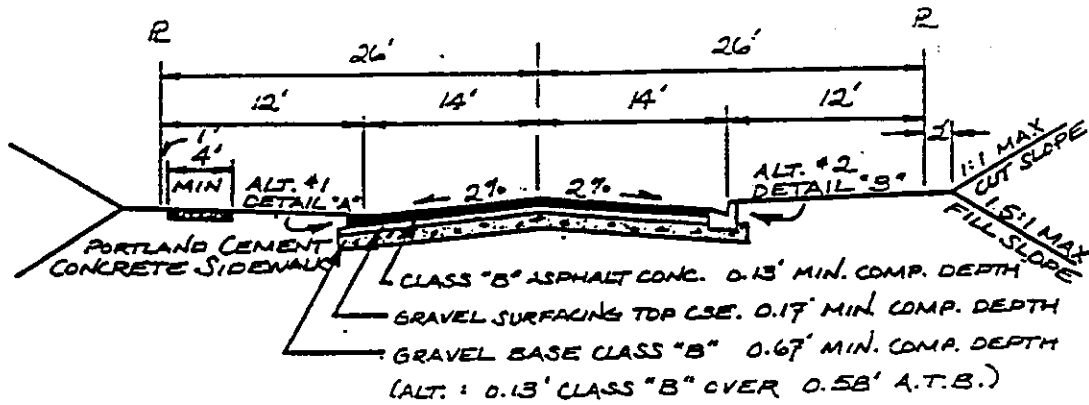
** SIDEWALK ALT. : SEE DETAIL "C", PAGE 3-5

URBAN Local

Projected 20 Year Traffic Volume 100 - 500 Vehicles/Day

ROADWAY SECTION C

minimum design speed - 25MPH



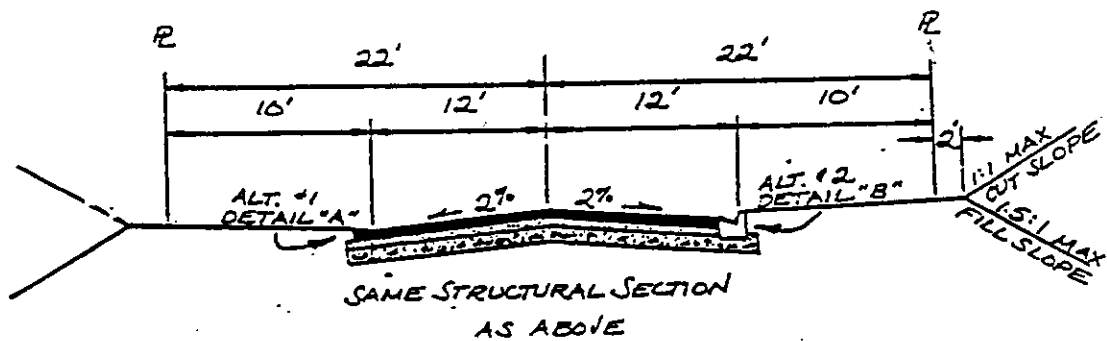
IF PARKING IS PERMITTED, MIN. LANE WIDTH = 16'

Local

Projected 20 Year Traffic Volume Less Than 100 Vehicles/Day

ROADWAY SECTION D

minimum design speed - 25MPH



NOTES

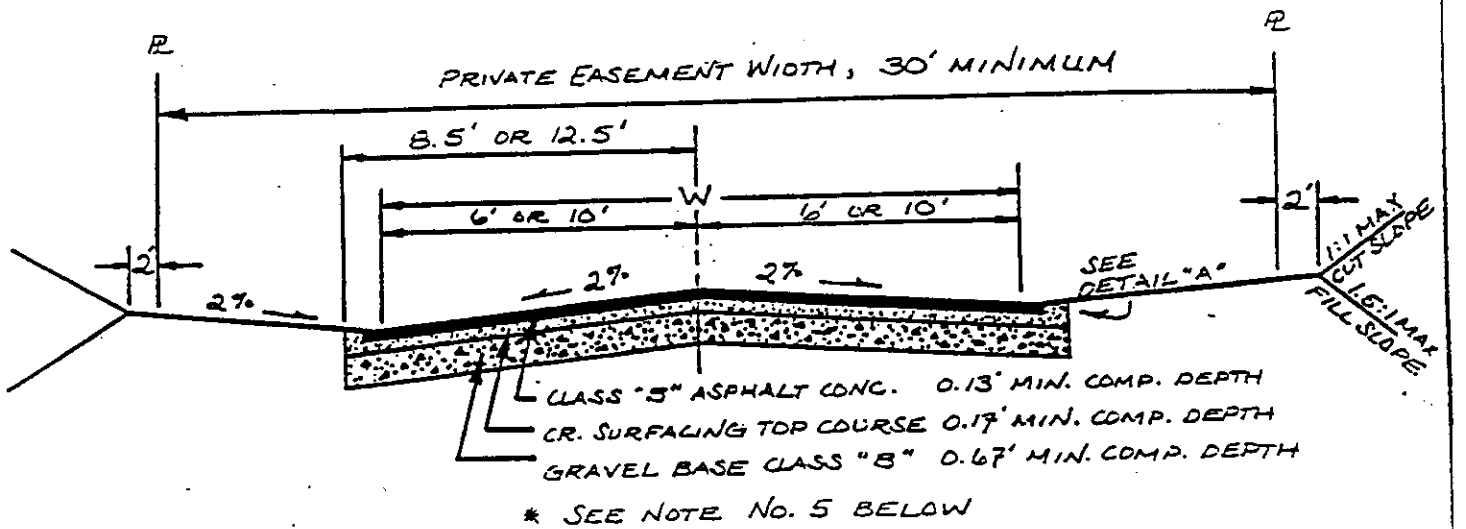
CLEARING, GRUBBING & GRADING TO EDGE OF R.O.W.

* SIDEWALK ALT. : SEE DETAIL "C", PAGE 3-5

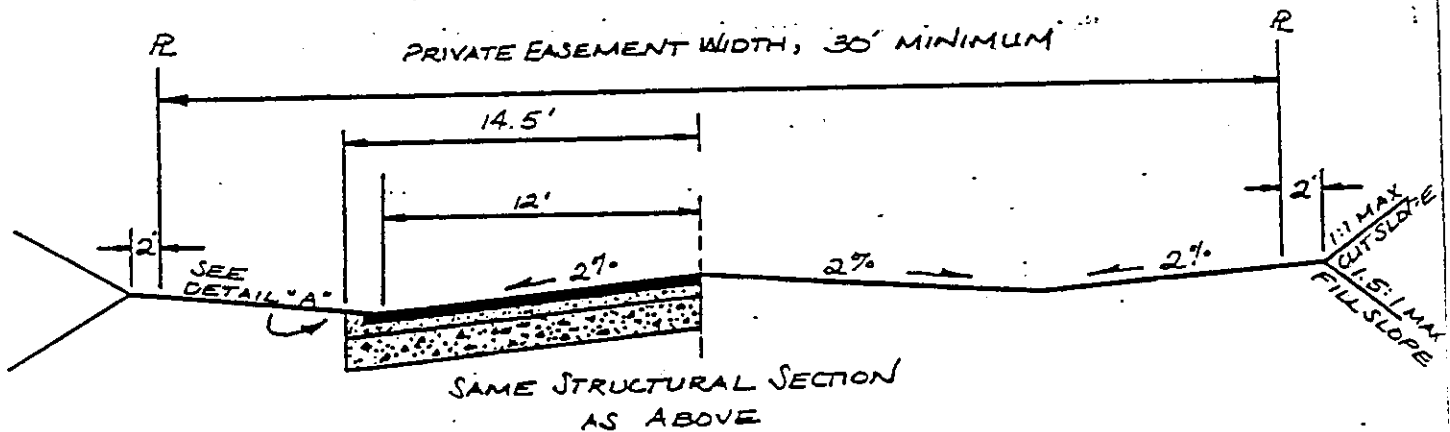
URBAN

Private Roadway Section E

design speed - 20MPH



ALTERNATE 12' SECTION



NOTES

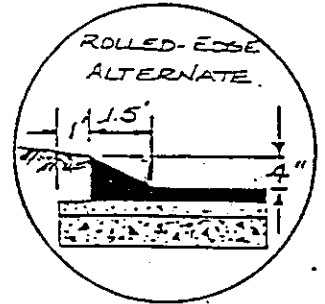
1. RIGHT-OF-WAY: AS REQUIRED TO CONSTRUCT & MAINTAIN ROADWAY FACILITY, PLUS PROVISIONS FOR ANY UTILITIES (UNLESS UTILITIES PROVIDED FOR BY SEPARATE EASEMENT OUTSIDE ROADWAY EASEMENT) TO SERVE MAXIMUM DENSITY PERMITTED BY ZONING OR COMPREHENSIVE PLAN : 30' Minimum.
2. CLEARING, GRADING & GRUBBING: ONLY TO EXTENT NECESSARY FOR CONSTRUCTION AND PROPER SIGHT DISTANCE.
3. CROSS SLOPE: MAY BE SLOPED AT 2% TO ONE SIDE WHERE 12' WIDE ROADWAY IS PERMITTED. SEE ALTERNATE 12' SECTION SHOWN ABOVE.
4. WHEN W=12', PROVIDE VEHICLE PASSING TURNOUTS AT 200' INTERVALS.
5. DEVELOPERS MAY PROPOSE ALTERNATE STRUCTURAL SECTIONS WHERE 12' WIDE ROADS ARE CONSTRUCTED, IN ACCORDANCE WITH SPECIFIED MATERIAL QUALITY AND WORKMANSHIP. SEE PAGE 2-2, PARAGRAPH 4.

CHART OF URBAN REQUIREMENTS

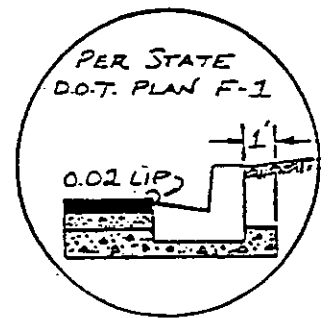
	PRIVATE			Req. R.O.W.	Sidewalks	
	PUBLIC	Single Family & Duplex Except in Large Lot	Multifamily Any Division			Single Family and Duplex in Large Lot
Urban Section "E" 12' Paved		2-4 Dwelling Units		2-8 Dwelling Units	30'	
Urban Section "E" 20' Paved		5-8 Dwelling Units	1-8 Dwelling Units	9-16 Dwelling Units	30'	
Urban Section "D" (Local) 24'	1-12 Single Family & Duplex	9-12 Dwelling Units	9-16 Dwelling Units		44'	Optional
Urban Section "C" (Local) 28'	13-63 Single Family & Duplex 17-83 Multifamily	13-63 Dwelling Units	17-83 Dwelling Units	17-63 Dwelling Units	52'	1 Side 4' Residential or Alternate
Urban Section "B" (Collector) 28'	Above 63 Single Family & Duplex Above 84 Multi-family	Above 63 Dwelling Units	Above 83 Dwelling Units	Above 63 Dwelling Units	56'	2 Sides 4' Residential or Alternate
Urban Section "A" (Arterial) 44'					64'	2 Sides 6' Commercial 4' Residential
Urban Section "A" (Arterial) 48'					80'	2 Sides 6' Commercial 5' Residential

NOTE: Standards for divisions containing more than 63 Single Family & Duplex, or 83 Multifamily shall be determined by the Public Works Director based on the nature of the proposed use.

"A"

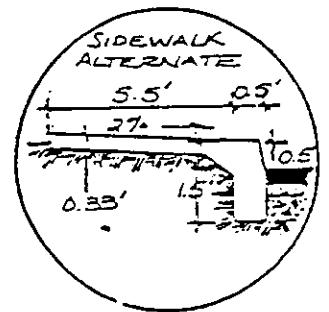


"B"

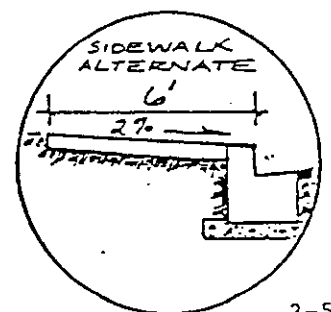


SIDEWALK DETAILS

"C"



"D"



SECTION FOUR
RURAL STANDARDS

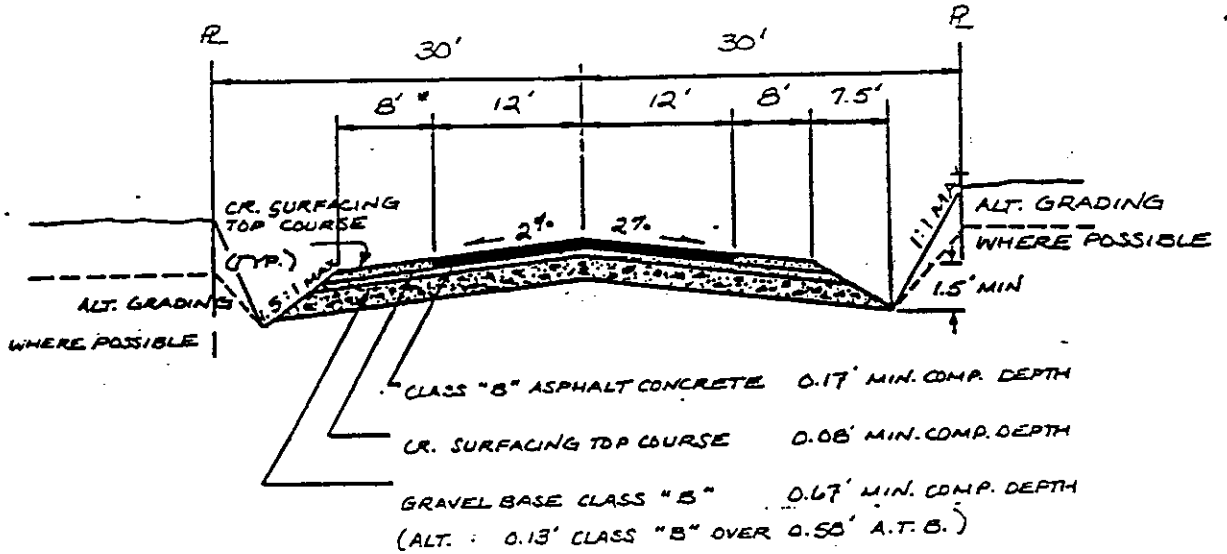
RURAL

Arterial Standard

Projected 20 Year Traffic Volume Over 2000 Vehicles/Day

ROADWAY SECTION A

minimum design speed - 50MPH

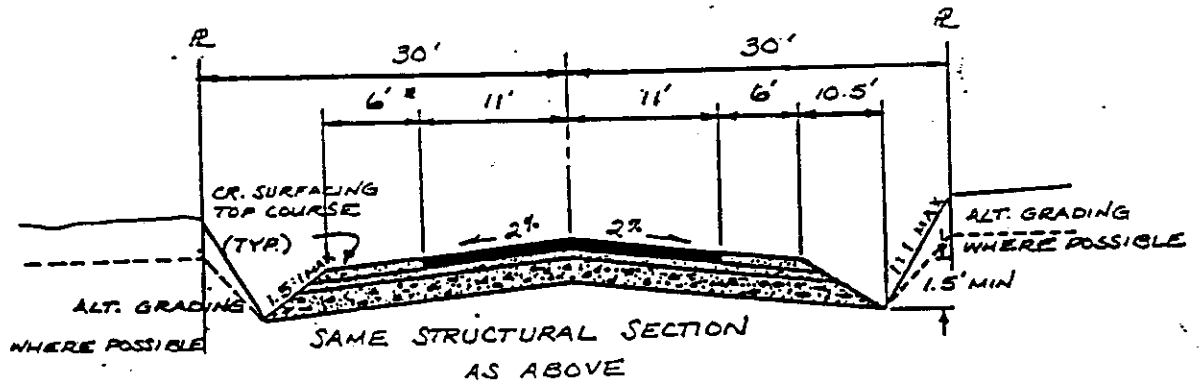


Collector Standard

Projected 20 Year Traffic Volume 400 - 2000

ROADWAY SECTION B

minimum design speed - 50MPH



NOTES

CLEARING, GRADING & GRUBBING TO EDGE OF R.O.W.

* WHERE FILL SECTIONS REQUIRE GUARDRAIL,
 ADD 2' TO SHOULDER WIDTH.

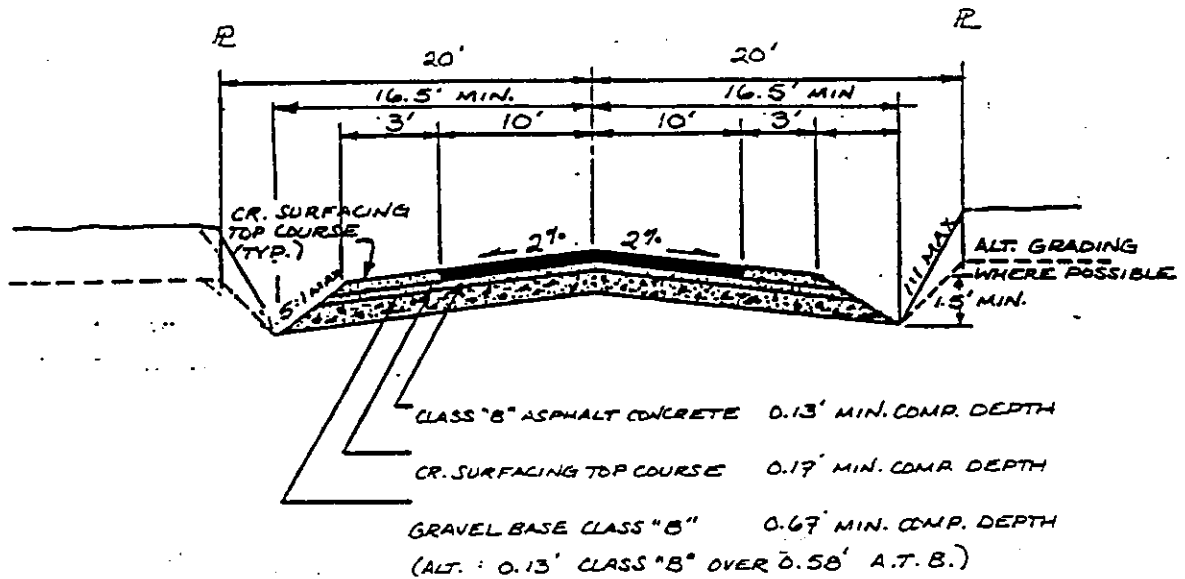
RURAL

Local

Projected 20 Year Traffic Volume 100 - 400 Vehicles/Day

ROADWAY SECTION C

minimum design speed - 30MPH

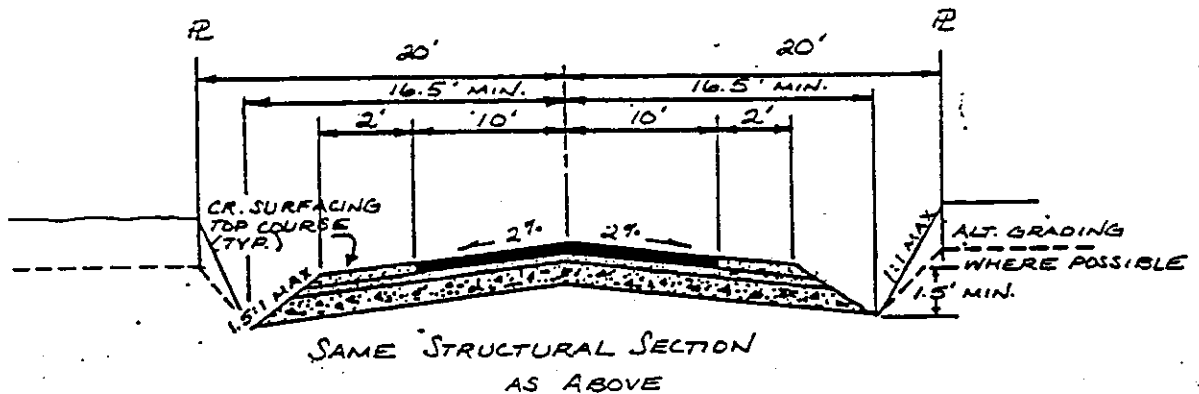


Local

Projected 20 Year Traffic Volume Less Than 100 Vehicles/Day

ROADWAY SECTION D

minimum design speed - 25MPH



NOTES

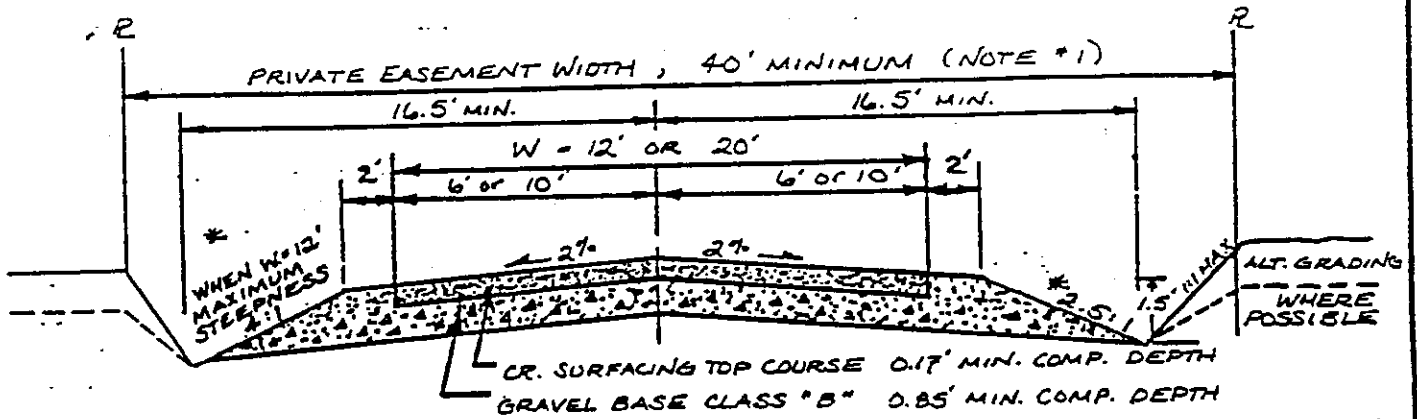
CLEARING, GRADING & GRUBBING : TO EDGE OF ROW

* WHERE FILL SECTIONS REQUIRE GUARDRAIL,
ADD 2' TO SHOULDER WIDTH.

RURAL

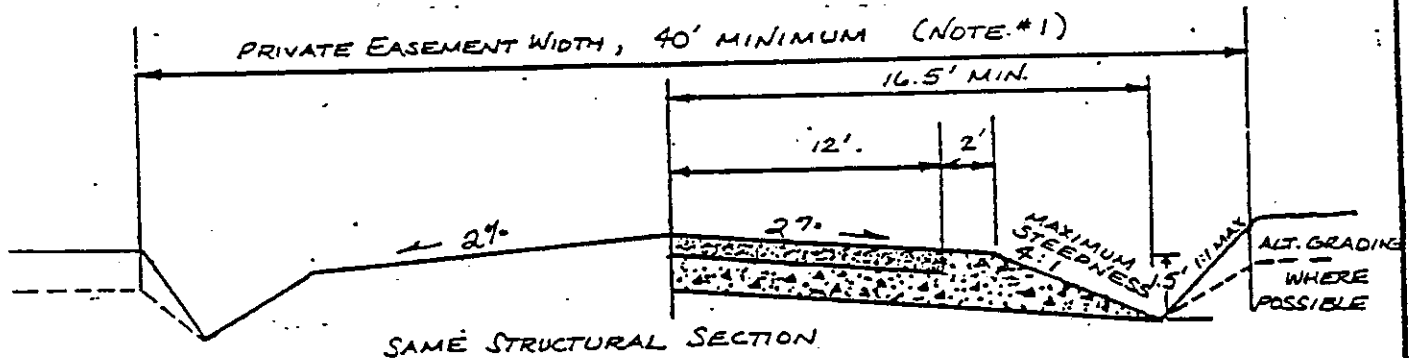
Private Roadway Section E

minimum design speed - 25MPH



* SEE NOTE NO. 6 BELOW

ALTERNATE 12' SECTION



SAME STRUCTURAL SECTION
AS ABOVE

NOTES

1. RIGHT-OF-WAY: AS REQUIRED TO CONSTRUCT & MAINTAIN ROADWAY FACILITY, PLUS PROVISIONS FOR ANY UTILITIES (UNLESS UTILITIES PROVIDED FOR BY SEPARATE EASEMENT OUTSIDE ROADWAY EASEMENT) TO SERVE MAXIMUM DENSITY PERMITTED BY ZONING OR COMPREHENSIVE PLAN. (40' MINIMUM)
2. CLEARING, GRADING & GRUBBING: ONLY TO EXTENT NECESSARY FOR CONSTRUCTION AND PROPER SIGHT DISTANCE.
3. CROSS SLOPE: MAY BE SLOPED AT 2% TO CUT DITCH WHERE 12' WIDE ROADWAY IS PERMITTED. SEE ALTERNATE 12' SECTION SHOWN ABOVE
4. WHEN W=12', PROVIDE VEHICLE PASSING TURNOUTS AT 200' INTERVALS.
5. DITCHING: AS REQUIRED TO PROVIDE PROPER DRAINAGE.
6. DEVELOPERS MAY PROPOSE ALTERNATE STRUCTURAL SECTIONS WHERE 12' WIDE ROADS ARE CONSTRUCTED, IN ACCORDANCE WITH SPECIFIED MATERIAL QUALITY AND WORKMANSHIP. SEE PAGE 2-2, PARAGRAPH 4.

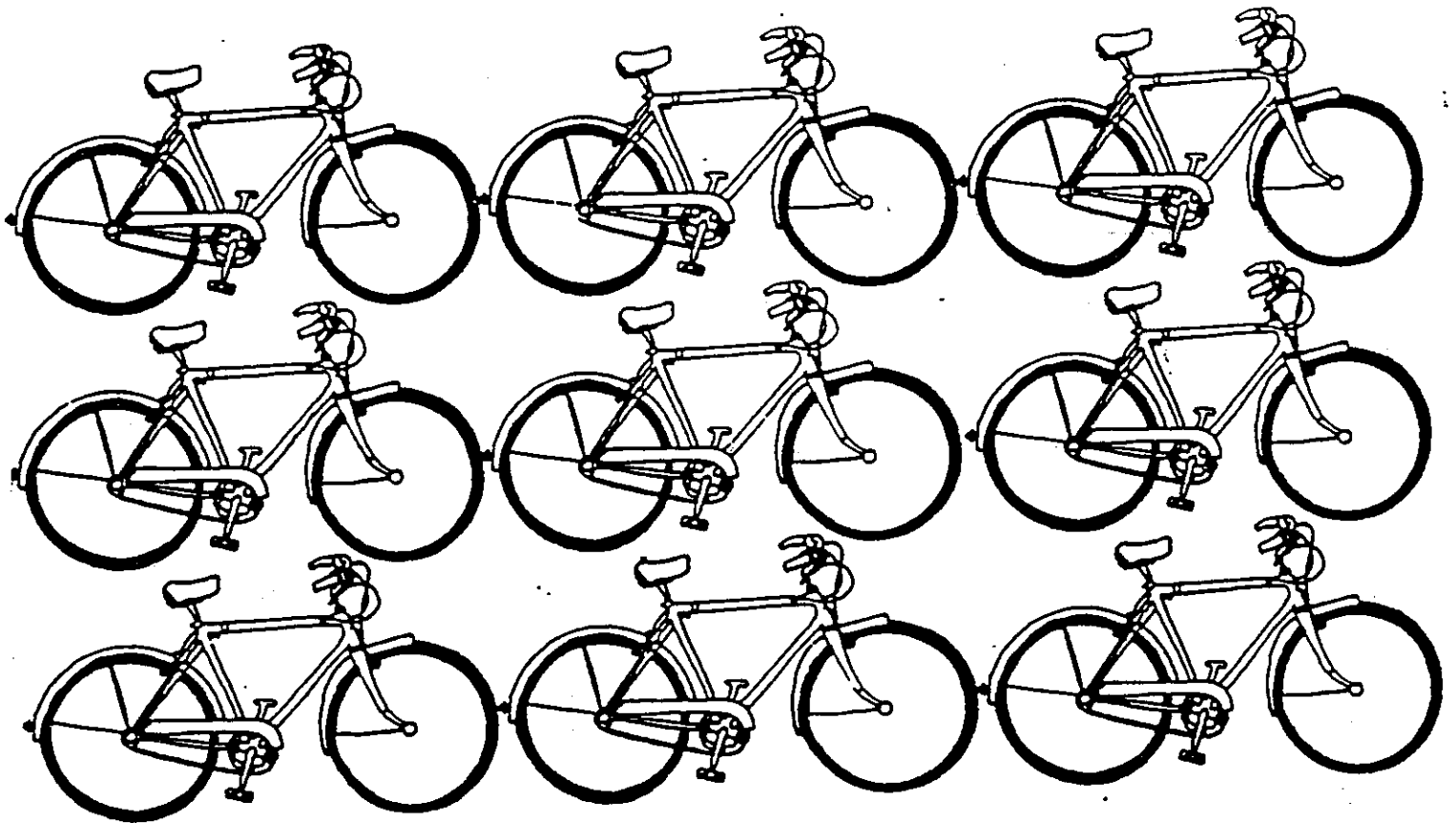
CHART OF RURAL, RECREATION, AND UTILITIES ZONING REGULATIONS

	PUBLIC			PRIVATE		Req. R.O.W.
	Single Family & Duplex Except in Large Lot	Single Family & Duplex in Large Lot	Multifamily Any Division	Single Family and Duplex in Large Lot		
Rural Section "E" 12' Gravel	2-4 Dwelling Units	2-4 Dwelling Units		2-8 Dwelling Units		40'
Rural Section "E" 20' Gravel	5-8 Dwelling Units	5-8 Dwelling Units	1-8 Dwelling Units	9-16 Dwelling Units		40'
Rural Section "D" 20' Paved (Local)		9-16 Dwelling Units	9-20 Dwelling Units			40'
Rural Section "C" 20' Paved (Local)		17-66 Dwelling Units	21-80 Dwelling Units	17-66 Dwelling Units		40'
Rural Section "B" 22' Paved (Collector)	67-333 Single Family & Duplex 81-400 Multifamily	67-333 Dwelling Units	81-400 Dwelling Units	67-333 Dwelling Units		60'
Rural Section "A" 24' Paved (Arterial)		Above 333 Dwelling Units	Above 400 Dwelling Units	Above 333 Dwelling Units		60'

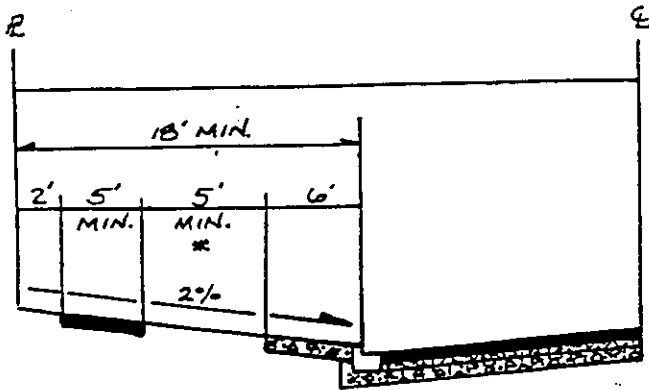
NOTE: Standards for divisions containing more than 333 Single Family & Duplex, or 400 Multifamily, shall be determined by the Public Works Director based on the nature of the proposed use.

SECTION FIVE

BIKEWAY STANDARDS

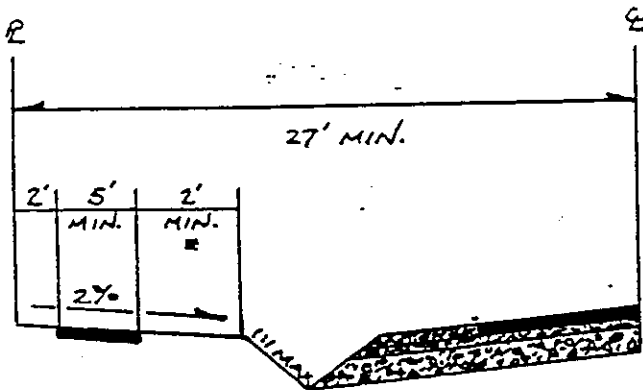


URBAN BIKEWAY - SEPARATED



* GRADED OR NATURAL GROUND COVER,
LOW GROWTH

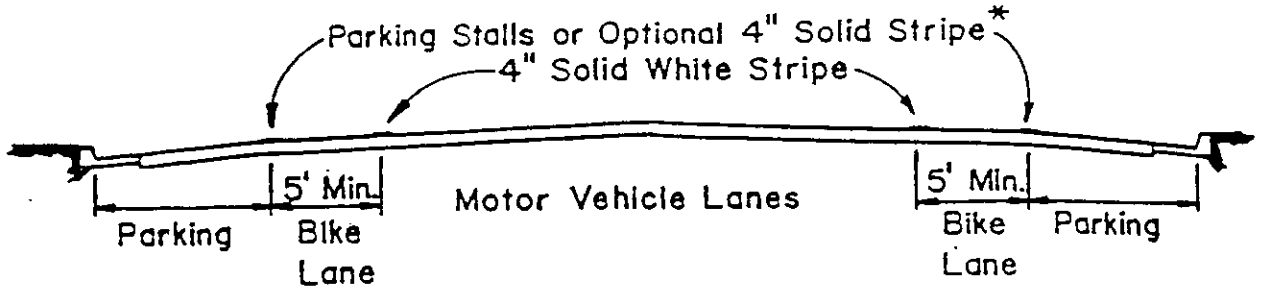
RURAL BIKEWAY - SEPARATED



* GRADED OR NATURAL GROUND COVER,
LOW GROWTH

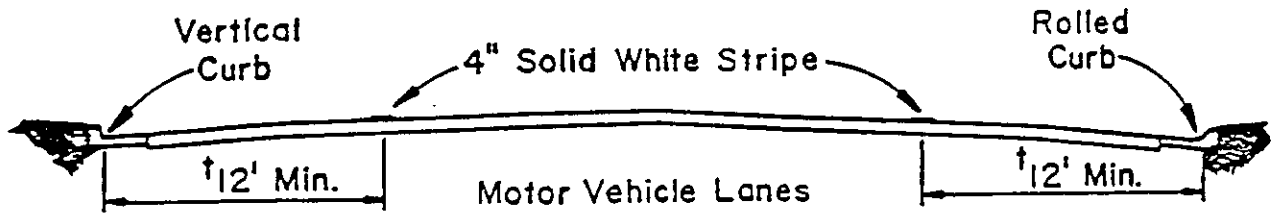
NOTE: Please refer to the Washington State Department of Transportation Design Manual, Section 337, for design guidelines.

TYPICAL BIKE LANE CROSS SECTIONS



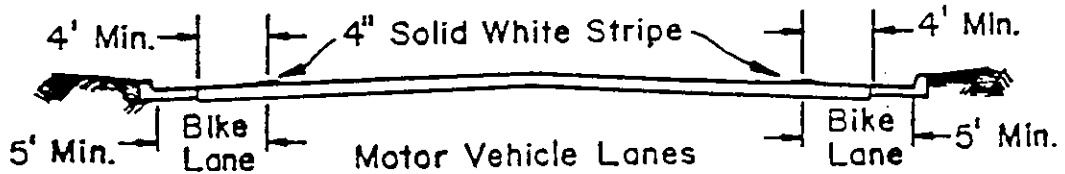
* The optional solid white stripe may be advisable where stalls are unnecessary (because parking is dimly lit) but there is concern that motorists may misconstrue the bike lane to be a traffic lane.

(A) STRIPED PARKING

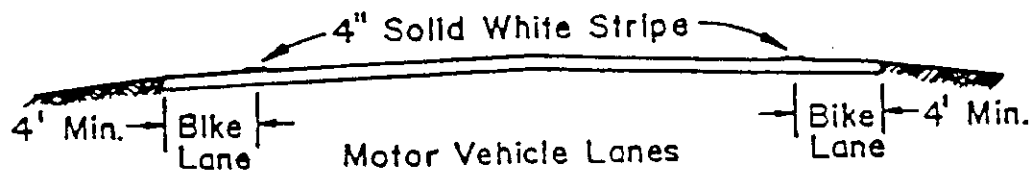


† 13' - 14' is recommended where there is substantial parking or turnover of parked cars is high (e.g., commercial areas).

(B) PARKING PERMITTED WITHOUT PARKING STRIPE OR STALL



(C) PARKING PROHIBITED



(D) TYPICAL ROADWAY IN RURAL AREAS

Figure 337-10