

Chapter 18.810
STREET AND UTILITY IMPROVEMENT STANDARDS

Sections:

18.810.010	Purpose
18.810.020	General Provisions
18.810.030	Streets
18.810.040	Blocks
18.810.050	Easements
18.810.060	Lots
18.810.070	Sidewalks
18.810.080	Public Use Areas
18.810.090	Sanitary Sewers
18.810.100	Storm Drainage
18.810.110	Bikeways and Pedestrian Pathways
18.810.120	Utilities
18.810.130	Cash or Bond Required
18.810.140	Monuments—Replacement Required
18.810.150	Installation Prerequisite
18.810.160	Installation Conformation
18.810.170	Plan Check
18.810.180	Notice to City
18.810.190	City Inspection of Improvements
18.810.200	Engineer’s Written Certification Required
18.810.210	Completion Requirements

18.810.010 Purpose

The purpose of this chapter is to provide construction standards for the implementation of public and private facilities and utilities such as streets, sewers, and drainage.

18.810.020 General Provisions

- A. When standards apply. Unless otherwise provided, construction, reconstruction or repair of streets, sidewalks, curbs and other public improvements shall occur in accordance with the standards of this title. No development may occur and no land use application may be approved unless the public facilities related to development comply with the public facility requirements established in this section and adequate public facilities are available. Applicants may be required to dedicate land and build required public improvements only when the required exaction is directly related to and roughly proportional to the impact of the development.
- B. Standard specifications. The city engineer shall establish standard specifications consistent with the application of engineering principles.
- C. Chapter 7.40 applies. The provision of Chapter 7.40 of the Tigard Municipal Code shall apply to this chapter.
- D. Adjustments. Adjustments to the provisions in this chapter related to street improvements may be granted by means of a Type II procedure, as governed by Section 18.390.040, using approval criteria in 18.370.020.C.11.

- E. Except as provided in 18.810.030.S, as used in this chapter, the term “streets” shall mean “public streets” unless an adjustment under subsection D of this section is allowed. (Ord. 12-13 §1; Ord. 99-22)

18.810.030 Streets

A. Improvements.

1. No development shall occur unless the development has frontage or approved access to a public street.
2. No development shall occur unless streets within the development meet the standards of this chapter.
3. No development shall occur unless the streets adjacent to the development meet the standards of this chapter, provided, however, that a development may be approved if the adjacent street does not meet the standards but half-street improvements meeting the standards of this title are constructed adjacent to the development.
4. Any new street or additional street width planned as a portion of an existing street shall meet the standards of this chapter.
5. If the city could and would otherwise require the applicant to provide street improvements, the city engineer may accept a future improvements guarantee in lieu of street improvements if one or more of the following conditions exist:
 - a. A partial improvement is not feasible due to the inability to achieve proper design standards;
 - b. A partial improvement may create a potential safety hazard to motorists or pedestrians;
 - c. Due to the nature of existing development on adjacent properties it is unlikely that street improvements would be extended in the foreseeable future and the improvement associated with the project under review does not, by itself, provide a significant improvement to street safety or capacity;
 - d. The improvement would be in conflict with an adopted capital improvement plan;
 - e. The improvement is associated with an approved land partition on property zoned residential and the proposed land partition does not create any new streets; or
 - f. Additional planning work is required to define the appropriate design standards for the street and the application is for a project which would contribute only a minor portion of the anticipated future traffic on the street.
6. The standards of this chapter include the standard specifications adopted by the city engineer pursuant to 18.810.020.B.
7. The approval authority may approve adjustments to the standards of this chapter if compliance with the standards would result in an adverse impact on natural features such as wetlands, bodies of water, significant habitat areas, steep slopes, or existing mature trees. The approval

authority may also approve adjustments to the standards of this chapter if compliance with the standards would have a substantial adverse impact on existing development or would preclude development on the property where the development is proposed. In approving an adjustment to the standards, the approval authority shall balance the benefit of the adjustment with the impact on the public interest represented by the standards. In evaluating the impact on the public interest, the approval authority shall consider the criteria listed in paragraph E.1 of this section. An adjustment to the standards may not be granted if the adjustment would risk public safety.

B. Creation of rights-of-way for streets and related purposes. Rights-of-way shall be created through the approval of a final subdivision plat or major partition; however, the council may approve the creation of a street by acceptance of a deed, provided that such street is deemed essential by the council for the purpose of general traffic circulation.

1. The council may approve the creation of a street by deed of dedication without full compliance with the regulations applicable to subdivisions or major partitions if any one or more of the following conditions are found by the council to be present:

a. Establishment of a street is initiated by the council and is found to be essential for the purpose of general traffic circulation, and partitioning or subdivision of land has an incidental effect rather than being the primary objective in establishing the road or street for public use; or

b. The tract in which the road or street is to be dedicated is an isolated ownership of one acre or less and such dedication is recommended by the commission to the council based on a finding that the proposal is not an attempt to evade the provisions of this title governing the control of subdivisions or major partitions.

c. The street is located within the downtown mixed use central business district and has been identified on Figures 5-14A through 5-14I of the City of Tigard 2035 Transportation System Plan as a required connectivity improvement.

2. With each application for approval of a road or street right-of-way not in full compliance with the regulations applicable to the standards, the proposed dedication shall be made a condition of subdivision and major partition approval.

a. The applicant shall submit such additional information and justification as may be necessary to enable the commission in its review to determine whether or not a recommendation for approval by the council shall be made.

b. The recommendation, if any, shall be based upon a finding that the proposal is not in conflict with the purpose of this title.

c. The commission in submitting the proposal with a recommendation to the council may attach conditions which are necessary to preserve the standards of this title.

3. All deeds of dedication shall be in a form prescribed by the city and shall name “the public” as grantee.

C. Creation of access easements. The approval authority may approve an access easement established by deed without full compliance with this title provided such an easement is the only reasonable method by which a lot large enough to develop can be created.

1. Access easements shall be provided and maintained in accordance with the Uniform Fire Code, Section 10.207.
 2. Access shall be in accordance with 18.705.030.H and I.
- D. Street location, width and grade. Except as noted below, the location, width and grade of all streets shall conform to an approved street plan and shall be considered in their relation to existing and planned streets, to topographic conditions, to public convenience and safety, and in their appropriate relation to the proposed use of the land to be served by such streets:
1. Street grades shall be approved by the city engineer in accordance with subsection N of this section; and
 2. Where the location of a street is not shown in an approved street plan, the arrangement of streets in a development shall either:
 - a. Provide for the continuation or appropriate projection of existing streets in the surrounding areas, or
 - b. Conform to a plan adopted by the commission, if it is impractical to conform to existing street patterns because of particular topographical or other existing conditions of the land. Such a plan shall be based on the type of land use to be served, the volume of traffic, the capacity of adjoining streets and the need for public convenience and safety.
- E. Minimum rights-of-way and street widths. Unless otherwise indicated on an approved street plan, or as needed to continue an existing improved street or within the downtown district, street right-of-way and roadway widths shall not be less than the minimum width described below. Where a range is indicated, the width shall be determined by the decision-making authority based upon anticipated average daily traffic (ADT) on the new street segment. (The city council may adopt by resolution, design standards for street construction and other public improvements. The design standards will provide guidance for determining improvement requirements within the specified ranges.) These are presented in Table 18.810.1.
1. The decision-making body shall make its decision about desired right-of-way width and pavement width of the various street types within the subdivision or development after consideration of the following:
 - a. The type of road as set forth in the comprehensive plan transportation chapter - functional street classification.
 - b. Anticipated traffic generation.
 - c. On-street parking needs.
 - d. Sidewalk and bikeway requirements.
 - e. Requirements for placement of utilities.
 - f. Street lighting.
 - g. Drainage and slope impacts.

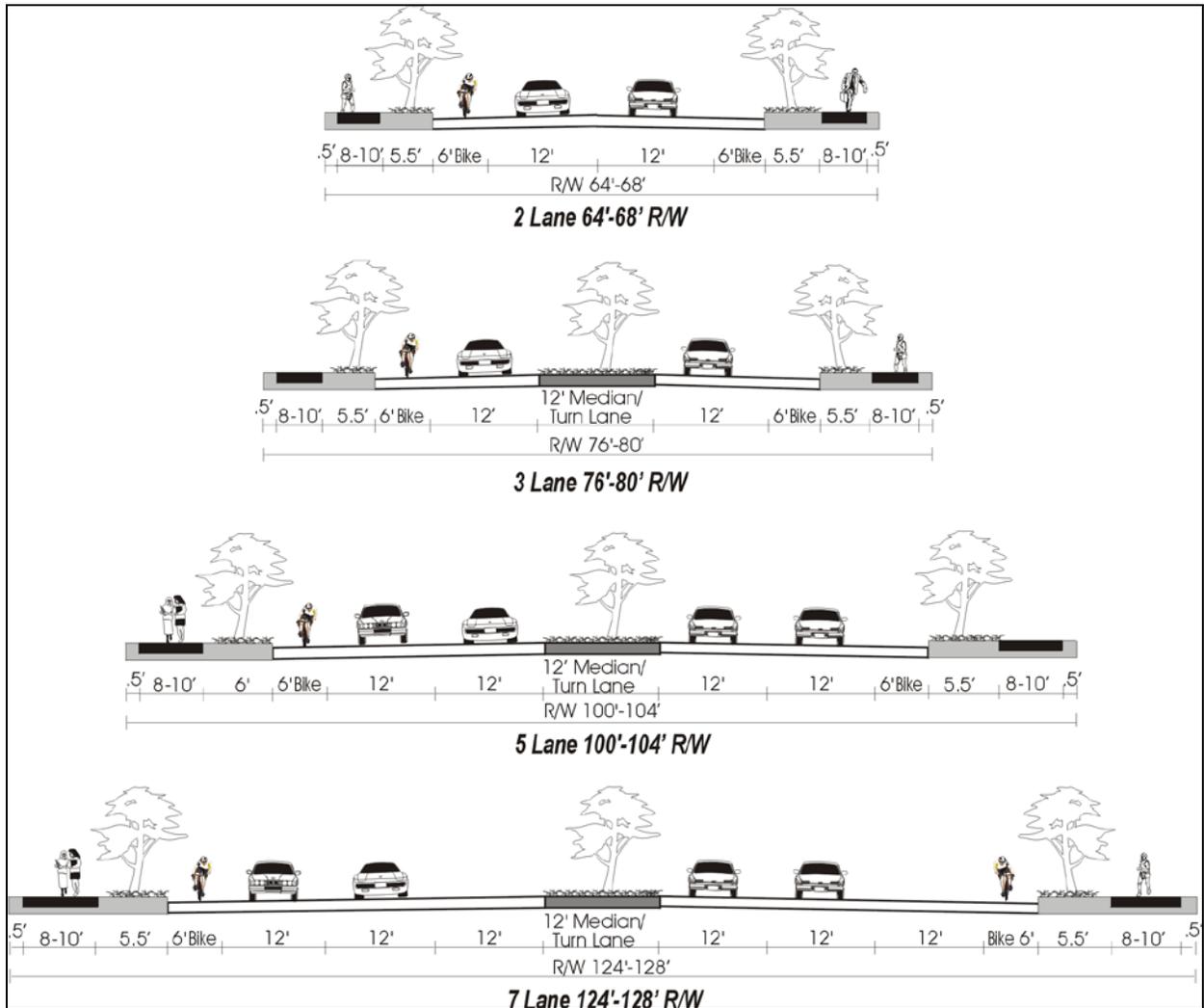
- h. Street tree location.
- i. Planting and landscape areas.
- j. Safety and comfort for motorists, bicyclists, and pedestrians.
- k. Access needs for emergency vehicles.

Table 18.810.1
Minimum Widths for Street Characteristics and Downtown Street Character Types

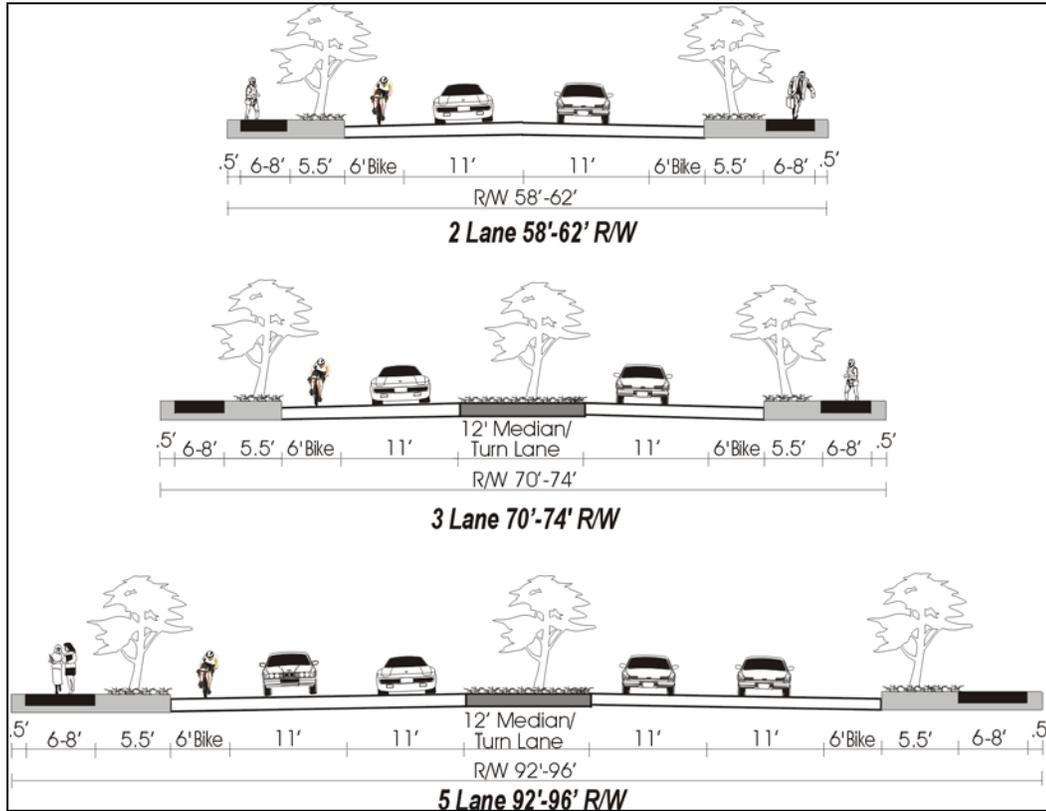
Type of Street	Right-of-Way Width	Paved Width	Number of Lanes	Min. Lane Width	On-Street Parking Width	Bike Lane Width	Sidewalk Width	Landscape Strip Width (exclusive of curb)	Median Width
Arterial	64'—128'	Varies	2—7 (Refer to TSP)	12'	N/A	6' (New Streets) 5'—6' (Existing Streets)	8' (Res. & Ind. Zones) 10' (Comm. Zones)	5'	12' ⁽¹⁾
Collector	58'—96'	Varies	2—5 (Refer to TSP)	11'	8' ⁽⁴⁾	6' (New Streets) ⁽⁵⁾ 5'—6' (Existing Streets) ⁽⁵⁾	6' (Res. & Ind. Zones) 8' (Comm. Zones)	5'	12' ⁽¹⁾
Neighborhood Route	50'—58'	28'—36'	2	10'	8'	5'—6'	5'—6' ⁽²⁾	5'	N/A
Local: Industrial/Commercial	50'	36'	2			N/A	5'—6' ⁽²⁾	5'	N/A
Local: Residential • Under 1500 ADT • Under 500 ADT • Under 200 ADT	54'/50' ⁽³⁾ 50'/46' ⁽³⁾ 46'/42' ⁽³⁾	32'/28' ⁽³⁾ 28'/24' ⁽³⁾ 24'/20' ⁽³⁾	2 2 2		8' (both sides) 8' (one side) (No Parking)	N/A N/A N/A	5'—6' ⁽²⁾	5'	N/A
Cul-De-Sac Bulbs in Industrial and Commercial Zones	50' radius	42' radius	N/A	N/A		N/A			N/A
Cul-De-Sac Bulbs in Residential Zones	47' radius	40' radius	N/A	N/A		N/A		N/A	N/A
Upper Hall Boulevard ⁽⁶⁾	94'	64'	3	11'	8'	6'	10.5'	4'	14'
Main Street Green Street	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾	TBD ⁽⁷⁾
Downtown Mixed Use 1 – Downtown Collector	66'-70'	46'	2	10'	8'	5'	6-8'	4'	N/A
Downtown Mixed Use 2 – Downtown Neighborhood	58'-62'	38'	2	11'	8'	N/A	6-8'	4'	N/A
Downtown Mixed Use 3 – Upper Burnham	62'-74'	38'	2	11'	8'	N/A	6-8'	5.5-9.5'	N/A
Downtown Mixed Use 4 – Lower Burnham	68'-72'	48'	2	10'	8'	N/A	6-8'	4'	12'
Downtown – Urban Residential	52'-56'	32'	1	18'	7'	N/A	6-8'	4'	N/A
Alley: Residential	16'	16'			N/A	N/A	N/A	N/A	N/A
Alley: Business	20'	20'			N/A	N/A	N/A	N/A	N/A

- ¹ Medians required for five- and seven-lane roadways. They are optional for three-lane roadways.
- ² Sidewalk widths for these streets shall be five feet with landscape strip; six feet if against curb (if permitted in accordance with 18.810.070.C).
- ³ “Skinny street” roadway widths are permitted where cross section and review criteria are met. Refer to corresponding cross sections (Figures 18.810.3, 18.810.4 and 18.810.5) for details and conditions.
- ⁴ Parking is allowed on collectors within the downtown urban renewal district.
- ⁵ Bicycle lane requirements on collectors within the downtown urban renewal district shall be determined by the city engineer.
- ⁶ SW Hall Boulevard is currently an ODOT facility. The 2035 Tigard Transportation System Plan recommends that a corridor plan be completed for the SW Hall Boulevard Corridor. The street character standards for Upper Hall Boulevard shall not be considered final until the corridor plan is complete.
- ⁷ Main Street Green Street standards are currently being developed through a separate process.

Figure 18.810.1
Arterials Sample Cross Sections



**Figure 18.810.2
Collector Sample Cross Sections ¹**



¹ Parking is allowed on collectors within the downtown urban renewal district. Bike lane requirements on these same collectors shall be determined by the city engineer.

Figure 18.810.3
Neighborhood Routes Sample Cross Sections

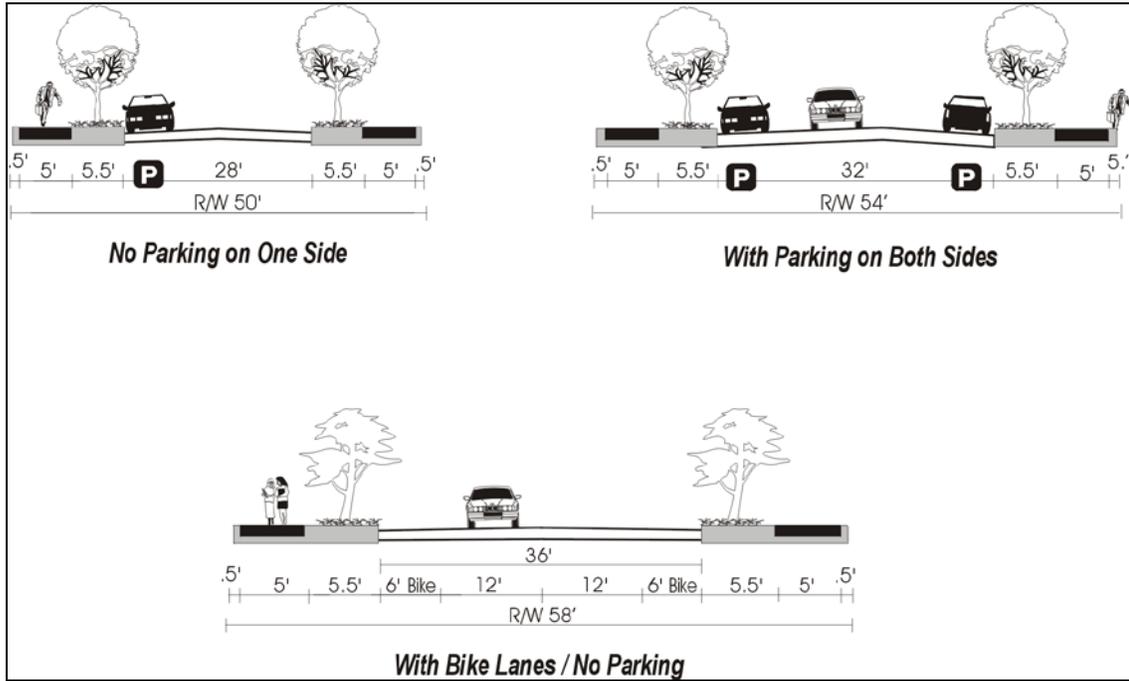


Figure 18.810.4
Local Residential Streets - <1,500 vpd

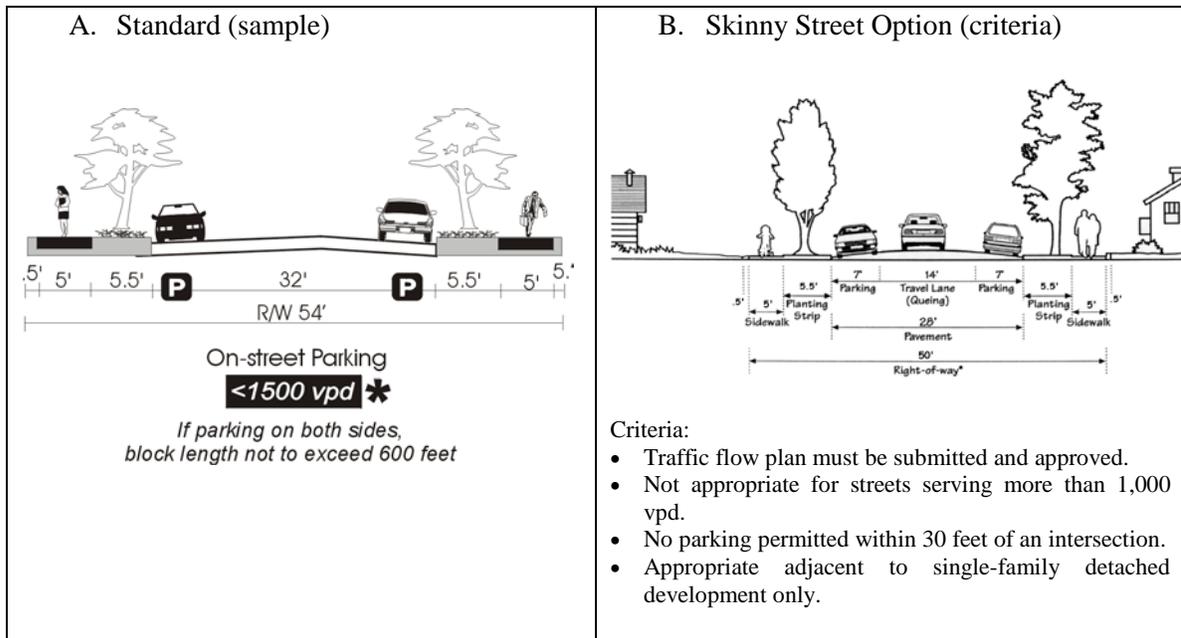


Figure 18.810.5
Local Residential Streets < 500 vpd

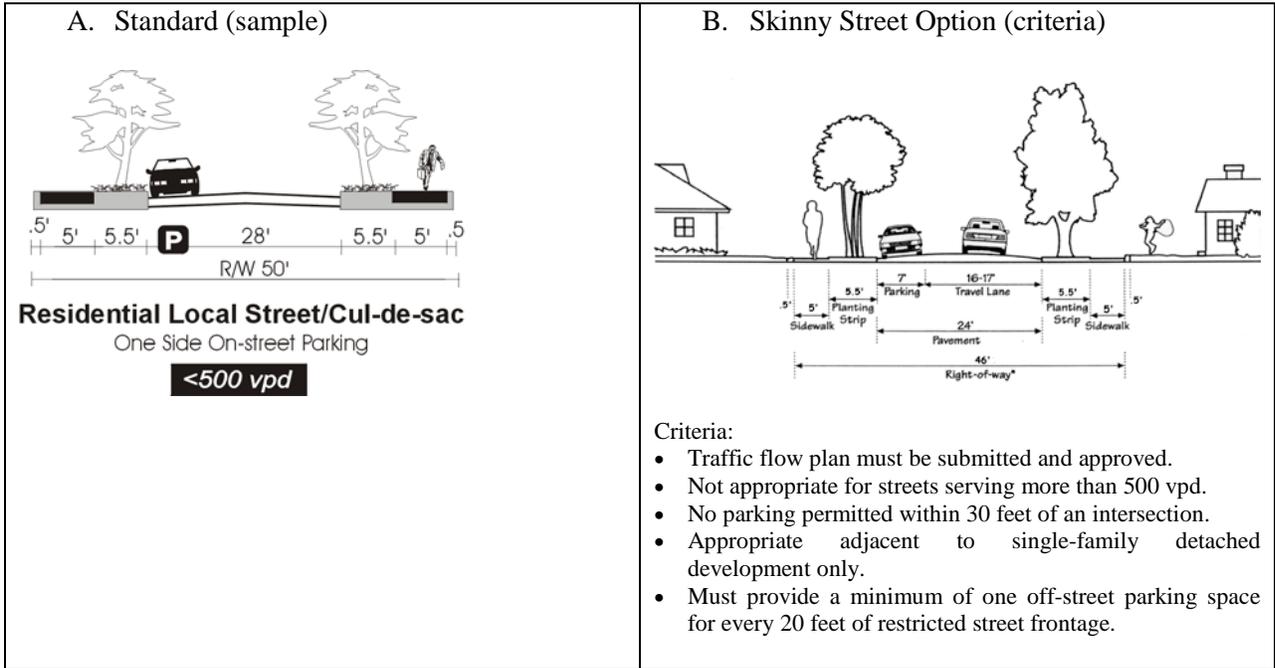
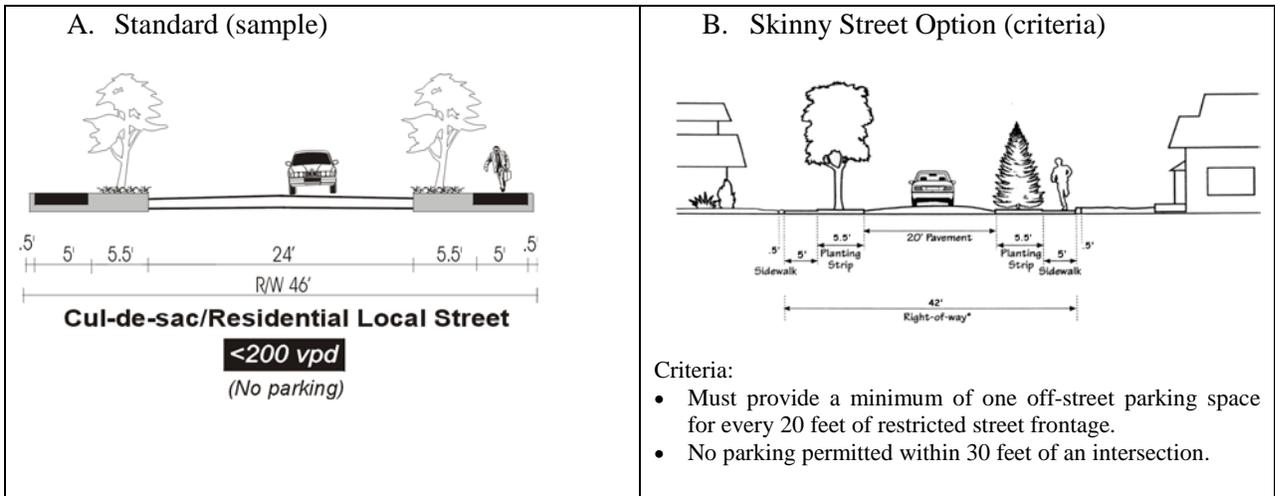
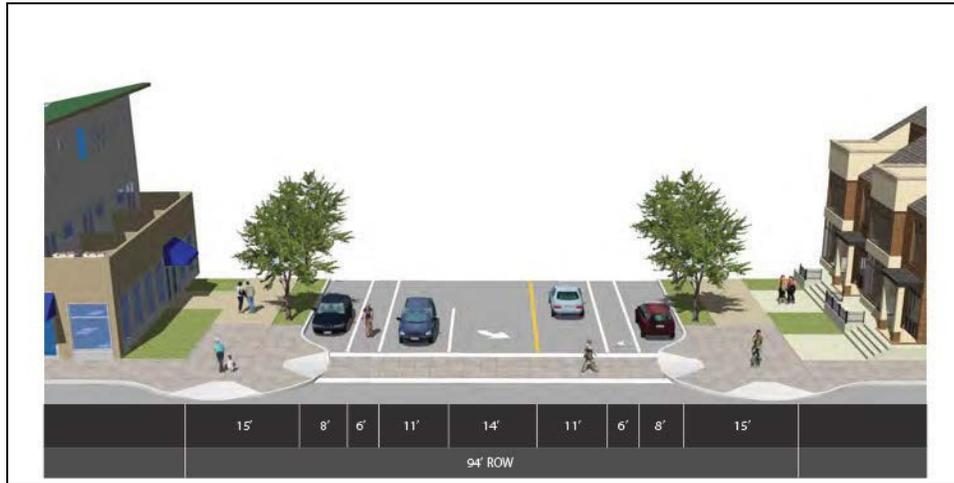


Figure 18.810.6
Local Residential Street < 200 vpd



**Figure 18.810.7
Upper Hall Boulevard**



Note: SW Hall Boulevard is currently an ODOT facility. The 2035 Tigard Transportation System Plan recommends that a corridor plan be completed for the SW Hall Boulevard Corridor. The street character standards for Upper Hall Boulevard shall not be considered final until the corridor plan is complete.

**Figure 18.810.8
Downtown Mixed Use 1 - Downtown Collector**



Figure 18.810.9
Downtown Mixed Use 2 - Downtown Neighborhood



Figure 18.810.10
Downtown Mixed Use 3 - Upper Burnham



Figure 18.810.11
Downtown Mixed Use 4 - Lower Burnham

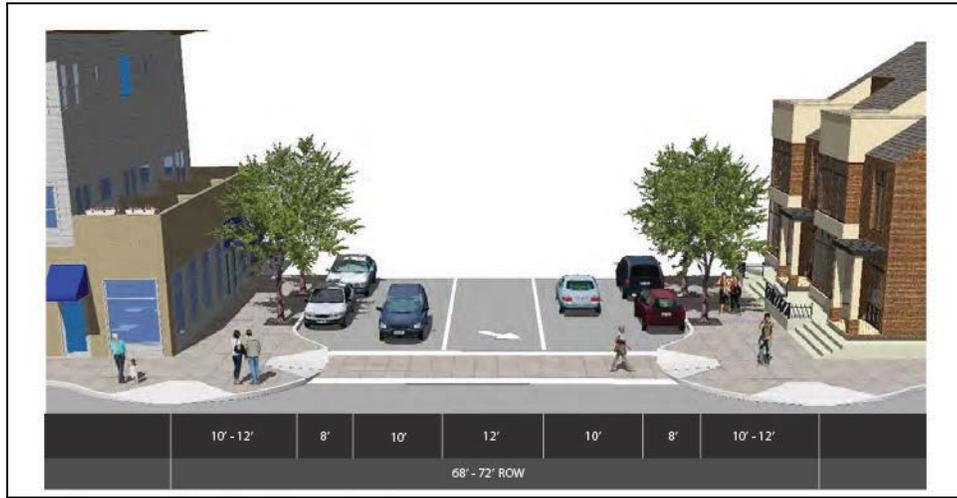


Figure 18.810.12
Downtown - Urban Residential



Figure 18.810.13
Alley: Business



Note: Permeable pavers are optional.

F. Future street plan and extension of streets.

1. A future street plan shall:
 - a. Be filed by the applicant in conjunction with an application for a subdivision or partition. The plan shall show the pattern of existing and proposed future streets from the boundaries of the proposed land division and shall include other parcels within 530 feet surrounding and adjacent to the proposed land division. At the applicant's request, the city may prepare a future streets proposal. Costs of the city preparing a future streets proposal shall be reimbursed for the time involved. A street proposal may be modified when subsequent subdivision proposals are submitted.
 - b. Identify existing or proposed bus routes, pullouts or other transit facilities, bicycle routes and pedestrian facilities on or within 530 feet of the site.
2. Where necessary to give access or permit a satisfactory future division of adjoining land, streets shall be extended to the boundary lines of the tract to be developed, and
 - a. These extended streets or street stubs to adjoining properties are not considered to be culs-de-sac since they are intended to continue as through streets at such time as the adjoining property is developed.
 - b. A barricade shall be constructed at the end of the street by the property owners which shall not be removed until authorized by the city engineer, the cost of which shall be included in the street construction cost.
 - c. Temporary hammerhead turnouts or temporary cul-de-sac bulbs shall be constructed for stub street in excess of 150 feet in length.

G. Street spacing and access management. Refer to 18.705.030.H.

H. Street alignment and connections.

1. Full street connections with spacing of no more than 530 feet between connections is required except where prevented by barriers such as topography, railroads, freeways, pre-existing developments, lease provisions, easements, covenants or other restrictions existing prior to May 1, 1995 which preclude street connections. A full street connection may also be exempted due to a regulated water feature if regulations would not permit construction.
2. All local, neighborhood routes and collector streets which abut a development site shall be extended within the site to provide through circulation when not precluded by environmental or topographical constraints, existing development patterns or strict adherence to other standards in this code. A street connection or extension is considered precluded when it is not possible to redesign or reconfigure the street pattern to provide required extensions. Land is considered topographically constrained if the slope is greater than 15% for a distance of 250 feet or more. In the case of environmental or topographical constraints, the mere presence of a constraint is not sufficient to show that a street connection is not possible. The applicant must show why the constraint precludes some reasonable street connection.
3. Proposed street or street extensions shall be located to provide direct access to existing or planned transit stops, commercial services, and other neighborhood facilities, such as schools, shopping areas and parks.
4. All developments should provide an internal network of connecting streets that provide short, direct travel routes and minimize travel distances within the development.

I. Intersection angles. Streets shall be laid out so as to intersect at an angle as near to a right angle as practicable, except where topography requires a lesser angle, but in no case shall the angle be less than 75° unless there is special intersection design, and:

1. Streets shall have at least 25 feet of tangent adjacent to the right-of-way intersection unless topography requires a lesser distance;
2. Intersections which are not at right angles shall have a minimum corner radius of 20 feet along the right-of-way lines of the acute angle; and
3. Right-of-way lines at intersection with arterial streets shall have a corner radius of not less than 20 feet.

J. Existing rights-of-way. Whenever existing rights-of-way adjacent to or within a tract are of less than standard width, additional rights-of-way shall be provided at the time of subdivision or development.

K. Partial street improvements. Partial street improvements resulting in a pavement width of less than 20 feet, while generally not acceptable, may be approved where essential to reasonable development when in conformity with the other requirements of these regulations, and when it will be practical to require the improvement of the other half when the adjoining property developed.

L. Culs-de-sacs. A cul-de-sac shall be no more than 200 feet long, shall not provide access to greater than 20 dwelling units, and shall only be used when environmental or topographical constraints,

existing development pattern, or strict adherence to other standards in this code preclude street extension and through circulation:

1. All culs-de-sac shall terminate with a turnaround. Use of turnaround configurations other than circular shall be approved by the city engineer; and
 2. The length of the cul-de-sac shall be measured from the centerline intersection point of the two streets to the radius point of the bulb.
 3. If a cul-de-sac is more than 300 feet long, a lighted direct pathway to an adjacent street may be required to be provided and dedicated to the city.
- M. Street names. No street name shall be used which will duplicate or be confused with the names of existing streets in Washington County, except for extensions of existing streets. Street names and numbers shall conform to the established pattern in the surrounding area and as approved by the city engineer.
- N. Grades and curves.
1. Grades shall not exceed 10% on arterials, 12% on collector streets, or 12% on any other street (except that local or residential access streets may have segments with grades up to 15% for distances of no greater than 250 feet); and
 2. Centerline radii of curves shall be as determined by the city engineer.
- O. Curbs, curb cuts, ramps, and driveway approaches. Concrete curbs, curb cuts, wheelchair, bicycle ramps and driveway approaches shall be constructed in accordance with standards specified in this chapter and Section 15.04.080, and:
1. Concrete curbs and driveway approaches are required; except:
 2. Where no sidewalk is planned, an asphalt approach may be constructed with city engineer approval; and
 3. Asphalt and concrete driveway approaches to the property line shall be built to city configuration standards.
- P. Streets adjacent to railroad right-of-way. Wherever the proposed development contains or is adjacent to a railroad right-of-way, provision shall be made for a street approximately parallel to and on each side of such right-of-way at a distance suitable for the appropriate use of the land. The distance shall be determined with due consideration at cross streets or the minimum distance required for approach grades and to provide sufficient depth to allow screen planting along the railroad right-of-way in nonindustrial areas.
- Q. Access to arterials and collectors. Where a development abuts or is traversed by an existing or proposed arterial or collector street, the development design shall provide adequate protection for residential properties and shall separate residential access and through traffic, or if separation is not feasible, the design shall minimize the traffic conflicts. The design shall include any of the following:
1. A parallel access street along the arterial or collector;

2. Lots of suitable depth abutting the arterial or collector to provide adequate buffering with frontage along another street;
 3. Screen planting at the rear or side property line to be contained in a nonaccess reservation along the arterial or collector; or
 4. Other treatment suitable to meet the objectives of this subsection;
 5. If a lot has access to two streets with different classifications, primary access should be from the lower classification street.
- R. Alleys, public or private.
1. Alleys shall be no less than 20 feet in width. In commercial and industrial districts, alleys shall be provided unless other permanent provisions for access to off-street parking and loading facilities are made.
 2. While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have a radius of not less than 12 feet.
- S. Survey monuments. Upon completion of a street improvement and prior to acceptance by the city, it shall be the responsibility of the developer's registered professional land surveyor to provide certification to the city that all boundary and interior monuments shall be reestablished and protected.
- T. Private streets.
1. Design standards for private streets shall be established by the city engineer; and
 2. The city shall require legal assurances for the continued maintenance of private streets, such as a recorded maintenance agreement.
 3. Private streets serving more than six dwelling units are permitted only within planned developments, mobile home parks, and multi-family residential developments.
- U. Railroad crossings. Where an adjacent development results in a need to install or improve a railroad crossing, the cost for such improvements may be a condition of development approval, or another equitable means of cost distribution shall be determined by the public works director and approved by the commission.
- V. Street signs. The city shall install all street signs, relative to traffic control and street names, as specified by the city engineer for any development. The cost of signs shall be the responsibility of the developer.
- W. Mailboxes. Joint mailbox facilities shall be provided in all residential developments, with each joint mailbox serving at least two dwelling units.
1. Joint mailbox structures shall be placed adjacent to roadway curbs;

2. Proposed locations of joint mailboxes shall be designated on a copy of the preliminary plat or development plan, and shall be approved by the city engineer/U.S. post office prior to final plan approval; and
 3. Plans for the joint mailbox structures to be used shall be submitted for approval by the city engineer/U.S. post office prior to final approval.
- X. Traffic signals. The location of traffic signals shall be noted on approved street plans. Where a proposed street intersection will result in an immediate need for a traffic signal, a signal meeting approved specifications shall be installed. The cost shall be included as a condition of development.
- Y. Street light standards. Street lights shall be installed in accordance with regulations adopted by the city's direction.
- Z. Street name signs. Street name signs shall be installed at all street intersections. Stop signs and other signs may be required.
- AA. Street cross-sections. The final lift of asphalt concrete pavement shall be placed on all new constructed public roadways prior to final city acceptance of the roadway and within one year of the conditional acceptance of the roadway unless otherwise approved by the city engineer. The final lift shall also be placed no later than when 90% of the structures in the new development are completed or three years from the commencement of initial construction of the development, whichever is less.
1. Sub-base and leveling course shall be of select crushed rock;
 2. Surface material shall be of Class C or B asphaltic concrete;
 3. The final lift shall be placed on all new construction roadways prior to city final acceptance of the roadway; however, not before 90% of the structures in the new development are completed unless three years have elapsed since initiation of construction in the development;
 4. The final lift shall be Class C asphaltic concrete as defined by A.P.W.A. standard specifications; and
 5. No lift shall be less than 1-1/2 inches in thickness.
- BB. Traffic calming. When, in the opinion of the city engineer, the proposed development will create a negative traffic condition on existing neighborhood streets, such as excessive speeding, the developer may be required to provide traffic calming measures. These measures may be required within the development and/or offsite as deemed appropriate. As an alternative, the developer may be required to deposit funds with the city to help pay for traffic calming measures that become necessary once the development is occupied and the city engineer determines that the additional traffic from the development has triggered the need for traffic calming measures. The city engineer will determine the amount of funds required, and will collect said funds from the developer prior to the issuance of a certificate of occupancy, or in the case of subdivision, prior to the approval of the final plat. The funds will be held by the city for a period of five years from the date of issuance of certificate of occupancy, or in the case of a subdivision, the date of final plat approval. Any funds not used by the city within the five-year time period will be refunded to the developer.

CC. Traffic study.

1. A traffic study shall be required for all new or expanded uses or developments under any of the following circumstances:
 - a. When they generate a 10% or greater increase in existing traffic to high collision intersections identified by Washington County.
 - b. Trip generations from development onto the city street at the point of access and the existing ADT fall within the following ranges:

Existing ADT 0—3,000 vpd	ADT to be added by development 2,000 vpd
3,001—6,000 vpd	1,000vpd
>6,000 vpd	500 vpd or more

- c. If any of the following issues become evident to the city engineer:
 - i. High traffic volumes on the adjacent roadway that may affect movement into or out of the site.
 - ii. Lack of existing left-turn lanes onto the adjacent roadway at the proposed access drive(s).
 - iii. Inadequate horizontal or vertical sight distance at access points.
 - iv. The proximity of the proposed access to other existing drives or intersections is a potential hazard.
 - v. The proposal requires a conditional use permit or involves a drive-through operation.
 - vi. The proposed development may result in excessive traffic volumes on adjacent local streets.
 2. In addition, a traffic study may be required for all new or expanded uses or developments under any of the following circumstances:
 - a. When the site is within 500 feet of an ODOT facility; and/or
 - b. Trip generation from a development adds 300 or more vehicle trips per day to an ODOT facility; and/or
 - c. Trip generation from a development adds 50 or more peak hour trips to an ODOT facility. (Ord. 12-13 §1; Ord. 09-09 §3; Ord. 06-20; Ord. 02-33; Ord. 99-22)

18.810.040 Blocks

- A. Block design. The length, width and shape of blocks shall be designed with due regard to providing adequate building sites for the use contemplated, consideration of needs for convenient access, circulation, control and safety of street traffic and recognition of limitations and opportunities of topography.

B. Sizes.

1. The perimeter of blocks formed by streets shall not exceed 2,000 feet measured along the centerline of the streets except:
 - a. Where street location is precluded by natural topography, wetlands, significant habitat areas or bodies of water, or pre-existing development; or
 - b. For blocks adjacent to arterial streets, limited access highways, collectors or railroads.
 - c. For nonresidential blocks in which internal public circulation provides equivalent access.
2. Bicycle and pedestrian connections on public easements or right-of-ways shall be provided when full street connection is exempted by paragraph 1 of this subsection B. Spacing between connections shall be no more than 330 feet, except where precluded by environmental or topographical constraints, existing development patterns, or strict adherence to other standards in the code. (Ord. 06-20; Ord. 02-33)

18.810.050 Easements

- A. Easements. Easements for sewers, drainage, water mains, electric lines or other public utilities shall be either dedicated or provided for in the deed restrictions, and where a development is traversed by a watercourse or drainageway, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of the watercourse.
- B. Utility easements. A property owner proposing a development shall make arrangements with the city, the applicable district, and each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development. The city's standard width for public main line utility easements shall be 15 feet unless otherwise specified by the utility company, applicable district, or city engineer.

18.810.060 Lots

- A. Size and shape. Lot size, width, shape and orientation shall be appropriate for the location of the development and for the type of use contemplated, and:
 1. No lot shall contain part of an existing or proposed public right-of-way within its dimensions.
 2. The depth of all lots shall not exceed 2-1/2 times the average width, unless the parcel is less than 1-1/2 times the minimum lot size of the applicable zoning district.
 3. Depth and width of properties zoned for commercial and industrial purposes shall be adequate to provide for the off-street parking and service facilities required by the type of use proposed.
- B. Lot frontage. Each lot shall abut upon a public or private street, other than an alley, for a width of at least 25 feet unless the lot is created through a minor land partition in which case 18.162.050.C applies, or unless the lot is for an attached single-family dwelling unit, in which case the lot frontage shall be at least 15 feet.

- C. Through lots. Through lots shall be avoided except where they are essential to provide separation of residential development from major traffic arterials or to overcome specific disadvantages of topography and orientation, and:
1. A planting buffer at least 10 feet wide is required abutting the arterial rights-of-way; and
 2. All through lots shall provide the required front yard setback on each street.
- D. Lot side lines. The side lines of lots, as far as practicable, shall be at right angles to the street upon which the lots front.
- E. Large lots. In dividing tracts into large lots or parcels which at some future time are likely to be redivided, the commission may require that the lots be of such size and shape, and be so divided into building sites, and contain such site restrictions as will provide for the extension and opening of streets at intervals which will permit a subsequent division of any tract into lots or parcels of smaller size. The land division shall be denied if the proposed large development lot does not provide for the future division of the lots and future extension of public facilities.

18.810.070 Sidewalks

- A. Sidewalks. All industrial streets and private streets shall have sidewalks meeting city standards along at least one side of the street. All other streets shall have sidewalks meeting city standards along both sides of the street. A development may be approved if an adjoining street has sidewalks on the side adjoining the development, even if no sidewalk exists on the other side of the street.
- B. Requirement of developers.
1. As part of any development proposal, or change in use resulting in an additional 1,000 vehicle trips or more per day, an applicant shall be required to identify direct, safe (1.25 x the straight line distance) pedestrian routes within 1/2 mile of their site to all transit facilities and neighborhood activity centers (schools, parks, libraries, etc.). In addition, the developer may be required to participate in the removal of any gaps in the pedestrian system off-site if justified by the development.
 2. If there is an existing sidewalk on the same side of the street as the development within 300 feet of a development site in either direction, the sidewalk shall be extended from the site to meet the existing sidewalk, subject to rough proportionality (even if the sidewalk does not serve a neighborhood activity center).
- C. Planter strip requirements. A planter strip separation of at least five feet between the curb and the sidewalk shall be required in the design of streets, except where the following conditions exist: there is inadequate right-of-way; the curbside sidewalks already exist on predominant portions of the street; it would conflict with the utilities; there are significant natural features (large trees, water features, significant habitat areas, etc.) that would be destroyed if the sidewalk were located as required; or where there are existing structures in close proximity to the street (15 feet or less) or where the standards in Table 18.810.1 specify otherwise. Additional consideration for exempting the planter strip requirement may be given on a case-by-case basis if a property abuts more than one street frontage.

- D. Maintenance. Maintenance of sidewalks, curbs, and planter strips is the continuing obligation of the adjacent property owner.
- E. Application for permit and inspection. If the construction of a sidewalk is not included in a performance bond of an approved subdivision or the performance bond has lapsed, then every person, firm or corporation desiring to construct sidewalks as provided by this chapter, shall, before entering upon the work or improvement, apply for a street opening permit to the Engineering Department to so build or construct:
1. An occupancy permit shall not be issued for a development until the provisions of this section are satisfied.
 2. The city engineer may issue a permit and certificate allowing temporary noncompliance with the provisions of this section to the owner, builder or contractor when, in his or her opinion, the construction of the sidewalk is impractical for one or more of the following reasons:
 - a. Sidewalk grades have not and cannot be established for the property in question within a reasonable length of time;
 - b. Forthcoming installation of public utilities or street paving would be likely to cause severe damage to the new sidewalk;
 - c. Street right-of-way is insufficient to accommodate a sidewalk on one or both sides of the street; or
 - d. Topography or elevation of the sidewalk base area makes construction of a sidewalk impractical or economically infeasible.
 3. The city engineer shall inspect the construction of sidewalks for compliance with the provision set forth in the standard specifications manual.
- F. Council initiation of construction. In the event one or more of the following situations are found by the council to exist, the council may adopt a resolution to initiate construction of a sidewalk in accordance with city ordinances:
1. A safety hazard exists for children walking to or from school and sidewalks are necessary to eliminate the hazard;
 2. A safety hazard exists for pedestrians walking to or from a public building, commercial area, place of assembly or other general pedestrian traffic, and sidewalks are necessary to eliminate the hazard;
 3. Fifty percent or more of the area in a given block has been improved by the construction of dwellings, multiple dwellings, commercial buildings or public buildings and/or parks; and
 4. A criteria which allowed noncompliance under this section no longer exists and a sidewalk could be constructed in conformance with city standards. (Ord. 12-13 §1; Ord. 06-20; Ord. 02-33; Ord. 99-22)

18.810.080 Public Use Areas

A. Dedication requirements.

1. Where a proposed park, playground or other public use shown in a development plan adopted by the city is located in whole or in part in a subdivision, the commission may require the dedication or reservation of such area within the subdivision, provided that the reservation or dedication is roughly proportional to the impact of the subdivision on the park system.
2. Where considered desirable by the commission in accordance with adopted comprehensive plan policies, and where a development plan of the city does not indicate proposed public use areas, the commission may require the dedication or reservation of areas within the subdivision or sites of a character, extent and location suitable for the development of parks or other public use, provided that the reservation or dedication is roughly proportional to the impact of the subdivision on the park system.

- B. Acquisition by public agency. If the developer is required to reserve land area for a park, playground, or other public use, such land shall be acquired by the appropriate public agency within 18 months following plat approval, at a price agreed upon prior to approval of the plat, or such reservation shall be released to the subdivider. (Ord. 99-22)

18.810.090 Sanitary Sewers

- A. Sewers required. Sanitary sewers shall be installed to serve each new development and to connect developments to existing mains in accordance with the provisions set forth in *Design and Construction Standards for Sanitary and Surface Water Management* (as adopted by the Unified Sewerage Agency in 1996 and including any future revisions or amendments) and the adopted policies of the comprehensive plan.
- B. Sewer plan approval. The city engineer shall approve all sanitary sewer plans and proposed systems prior to issuance of development permits involving sewer service.
- C. Over-sizing. Proposed sewer systems shall include consideration of additional development within the area as projected by the comprehensive plan.
- D. Permits denied. Development permits may be restricted by the commission or hearings officer where a deficiency exists in the existing sewer system or portion thereof which cannot be rectified within the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of the sewage treatment system.

18.810.100 Storm Drainage

- A. General provisions. The director and city engineer shall issue a development permit only where adequate provisions for stormwater and floodwater runoff have been made, and:
1. The storm water drainage system shall be separate and independent of any sanitary sewerage system;

2. Where possible, inlets shall be provided so surface water is not carried across any intersection or allowed to flood any street; and
 3. Surface water drainage patterns shall be shown on every development proposal plan.
- B. Easements. Where a development is traversed by a watercourse, drainageway, channel or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance.
- C. Accommodation of upstream drainage. A culvert or other drainage facility shall be large enough to accommodate potential runoff from its entire upstream drainage area, whether inside or outside the development, and the city engineer shall approve the necessary size of the facility, based on the provisions of *Design and Construction Standards for Sanitary and Surface Water Management* (as adopted by the Unified Sewerage Agency in 1996 and including any future revisions or amendments).
- D. Effect on downstream drainage. Where it is anticipated by the city engineer that the additional runoff resulting from the development will overload an existing drainage facility, the director and engineer shall withhold approval of the development until provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with the *Design and Construction Standards for Sanitary and Surface Water Management* (as adopted by the Unified Sewerage Agency in 1996 and including any future revisions or amendments).

18.810.110 Bikeways and Pedestrian Pathways

A. Bikeway extension.

1. As a standard, bike lanes shall be required along all arterial and collector routes and where identified on the city's adopted bicycle plan in the transportation system plan (TSP). Bike lane requirements along collectors within the downtown urban renewal district shall be determined by the city engineer unless specified in Table 18.810.1.
2. Developments adjoining proposed bikeways identified on the city's adopted pedestrian/bikeway plan shall include provisions for the future extension of such bikeways through the dedication of easements or rights-of-way, provided such dedication is directly related to and roughly proportional to the impact of the development.
3. Any new street improvement project shall include bicycle lanes as required in this document and on the adopted bicycle plan.

B. Cost of construction. Development permits issued for planned unit developments, conditional use permits, subdivisions and other developments which will principally benefit from such bikeways shall be conditioned to include the cost or construction of bikeway improvements in an amount roughly proportional to the impact of the development.

C. Minimum width.

1. The minimum width for bikeways within the roadway is five feet per bicycle travel lane.

2. The minimum width for multi-use paths separated from the road and classified as regional or community trails in the Greenway Trail System Master Plan is 10 feet. The width may be reduced to eight feet if there are environmental or other constraints.
3. The minimum width for off-street paths classified as neighborhood trails, according to the Greenway Trail System Master Plan, is three feet.
4. Design standards for bike and pedestrian-ways shall be determined by the city engineer. (Ord. 12-13 §1; Ord. 11-04 §2; Ord. 09-09 §3; Ord. 02-33; Ord. 99-22)

18.810.120 Utilities

- A. Underground utilities. All utility lines including, but not limited to those required for electric, communication, lighting and cable television services and related facilities shall be placed underground, except for surface mounted transformers, surface mounted connection boxes and meter cabinets which may be placed above ground, temporary utility service facilities during construction, high capacity electric lines operating at 50,000 volts or above, and:
 1. The developer shall make all necessary arrangements with the serving utility to provide the underground services;
 2. The city reserves the right to approve location of all surface mounted facilities;
 3. All underground utilities, including sanitary sewers and storm drains installed in streets by the developer, shall be constructed prior to the surfacing of the streets; and
 4. Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.
- B. Information on development plans. The applicant for a development shall show on the development plan or in the explanatory information, easements for all underground utility facilities, and:
 1. Plans showing the location of all underground facilities as described herein shall be submitted to the city engineer for review and approval; and
 2. Care shall be taken in all cases to ensure that above ground equipment does not obstruct vision clearance areas for vehicular traffic.
- C. Exception to undergrounding requirement.
 1. The developer shall pay a fee in-lieu of undergrounding costs when the development is proposed to take place on a street where existing utilities which are not underground will serve the development and the approval authority determines that the cost and technical difficulty of under-grounding the utilities outweighs the benefit of undergrounding in conjunction with the development. The determination shall be on a case-by-case basis. The most common, but not the only, such situation is a short frontage development for which undergrounding would result in the placement of additional poles, rather than the removal of above-ground utilities facilities.

2. An applicant for a development which is served by utilities which are not underground and which are located across a public right-of-way from the applicant's property shall pay the fee in-lieu of undergrounding.
3. Properties within the CBD zoning district shall be exempt from the requirements for undergrounding of utility lines and from the fee in-lieu of undergrounding.
4. The exceptions in paragraphs 1 through 3 of this subsection C shall apply only to existing utility lines. All new utility lines shall be placed underground.

D. Fee in-lieu of undergrounding.

1. The city engineer shall establish utility service areas in the city. All development which occurs within a utility service area shall pay a fee in-lieu of undergrounding for utilities if the development does not provide underground utilities, unless exempted by this code.
2. The city engineer shall establish the fee by utility service area which shall be determined based upon the estimated cost to underground utilities within each service area. The total estimated cost for undergrounding in a service area shall be allocated on a front-foot basis to each party within the service area. The fee due from any developer shall be calculated based on a front-foot basis.
3. A developer shall receive a credit against the fee for costs incurred in the undergrounding of existing overhead utilities. The city engineer shall determine the amount of the credit, after review of cost information submitted by the applicant with the request for credit.
4. The funds collected in each service area shall be used for undergrounding utilities within the city at large. The city engineer shall prepare and maintain a list of proposed undergrounding projects which may be funded with the fees collected by the city. The list shall indicate the estimated timing and cost of each project. The list shall be submitted to the city council for their review and approval annually.

18.810.130 Cash or Bond Required

- A. Guarantee. All improvements installed by the developer shall be guaranteed as to workmanship and material for a period of one year following acceptance by the city council.
- B. Cash deposit or bond. Such guarantee shall be secured by cash deposit or bond in the amount of the value of the improvements as set by the city engineer.
- C. Compliance requirements. The cash or bond shall comply with the terms and conditions of Section 18.430.090.

18.810.140 Monuments—Replacement Required

Any monuments that are disturbed before all improvements are completed by the subdivider shall be replaced prior to final acceptance of the improvements.

18.810.150 Installation Prerequisite

- A. Approval required. No public improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting or other requirements shall be undertaken except after the plans have been approved by the city, permit fee paid, and permit issued.
- B. Permit fee. The permit fee is required to defray the cost and expenses incurred by the city for construction and other services in connection with the improvement. The permit fee shall be set by council resolution.

18.810.160 Installation Conformation

- A. Conformance required. In addition to other requirements, improvements installed by the developer either as a requirement of these regulations or at his/her own option, shall conform to the requirements of this chapter and to improvement standards and specifications followed by the city.
- B. Adopted installation standards. The *Standard Specifications for Public Works Construction, Oregon Chapter A.P.W.A.*, and *Design and Construction Standards for Sanitary and Surface Water Management* (as adopted by the Unified Sewerage Agency in 1996 and including any future revisions or amendments) shall be a part of the city’s adopted installation standard(s); other standards may also be required upon recommendation of the city engineer.

18.810.170 Plan Check

- A. Submittal requirements. Work shall not begin until construction plans and construction estimates have been submitted and checked for adequacy and approved by the city engineer in writing. The developer can obtain detailed information about submittal requirements from the city engineer.
- B. Compliance. All such plans shall be prepared in accordance with requirements of the city.

18.810.180 Notice to City

- A. Commencement. Work shall not begin until the city has been notified in advance.
- B. Resumption. If work is discontinued for any reason, it shall not be resumed until the city is notified.

18.810.190 City Inspection of Improvements

Improvements shall be constructed under the inspection and to the satisfaction of the city. The city may require changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest.

18.810.200 Engineer’s Written Certification Required

The developer’s engineer shall provide written certification of a form provided by the city that all improvements, workmanship and materials are in accord with current and standard engineering and construction practices, and are of high grade, prior to city acceptance of the subdivision’s improvements or any portion thereof for operation and maintenance.

18.810.210 Completion Requirements (To be completed.) ■